Lower Muskingum River Watershed Management Plan:

Southern Watershed Action Plan

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December 6, 2013

Mr. Jesse Daubert
Friends of Muskingum River
348 Muskingum Dr.
Marietta, OH 45750

Dear Mr. Daubert:

Congratulations! We are pleased to provide this letter as notice of full endorsement for the Southern Watershed (HUC 10: 0504000412) by the Ohio EPA, Division of Surface Water and ODNR, Division of Soil and Water Resources.

We want to thank you and the watershed stakeholders for all the work that went into producing this endorsed comprehensive watershed action plan. This work, along with continued collaboration among local communities, businesses and support agencies are important to maintain and improve the health of the Southern Watershed and downstream waters.

We recognize watershed planning is an ongoing process requiring periodic review and updates in light of achievements and lessons learned. Therefore, when new data is made available and you proceed with implementation please update this plan to reflect these changes. Timely plan updates are required to maintain state endorsement, and we look forward to working with you through subsequent phases of watershed implementation.

Sincerely,

Brian Hall, Assistant Chief
Ohio EPA, Division of Surface Water

Michael Bailey, Chief
ODNR, Division of Soil & Water Resources

cc: Russ Gibson, Rick Wilson, Constance White, Bob Mulligan, Chad Amos

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January, 2005

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July, 2013

Plan Endorsement

We, the supporter of the Friends of Lower Muskingum River's (FLMR) efforts in watershed management, do hereby approve and agree to pursue implementation of this Watershed Action Plan prepared and written by the FLMR.

Ohio Department of Natural Resources	**Ohio Environmental Protection Agency**	**Muskingum Watershed Conservancy District**
Friends of Lower Muskingum River	**Washington County Commissioner**	**Noble County Commissioner**
Washington County SWCD	**Noble County SWCD**	**Natural Resources Conservation Service**
Washington County Health Department	**Noble County Health Department**	**Mayor, City of Marietta**
Mayor, Village of Lowell	**Marietta College**	**OSU Extension**

The FLMR have strived to develop a watershed action plan which is reflective of data gathered from available resource and from public input. The purpose of this action plan is that it shall act as a guiding document for FLMR and the above stakeholders in further watershed management efforts in this basin.

_____

Jesse Daubert
Watershed Coordinator

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ACRONYM REFERENCE

AEP-American Electric Power

AMD-Acid Mine Drainage

AMDAT-Acid Mine Drainage Abatement and Treatment

AWS-Agricultural Water Supply

BMPs-Best Management Practices

BOD-Biological Oxygen Demand

BH-HVRDD-Buckeye Hills-Hocking Valley Regional Development District

BHTC&D-Buckeye Hills Resource Conservation & Development Council

CCC-Civilian Conservation Corps

COD-Chemical Oxygen Demand

CRC&D-Crossroads Resource Conservation & Development Council

CSO-Combined Sewer Overflow

CWH-Coldwater Habitat

DBH-Diameter Breast Height

DO-Dissolved Oxygen

ECEF- Ely Chapman Educational Foundation

EPT-Ephemeroptera (mayfly), Plecoptera (stonefly), Tricoptera (caddisfly)

EWH-Exceptional Warmwater Habitat

FEMA-Federal Emergency Management Agency

FLMR-Friends of the Lower Muskingum River

FWPCA- Federal Water Pollution Control Administration

GIS-Geographical Information Systems

HVCRC-Hocking Valley Community Residential Center

IBI-Index of Biological Integrity

ICI-Invertebrate Community Index

ILGARD-Institute for Local Government Administration & Rural Development

IWS-Industrial Water Supply

LRW-Limited Resource Water

LTM-Long-term Monitoring

MRAB-Muskingum River Advisory Board

MRM-Mineral Resources Management

MS-Master's of Science

MWCD-Muskingum Watershed Conservancy District

MWH-Modified Warmwater Habitat

NEFCO-Northeast Ohio Four County Regional Planning & Development Organization

NFIP-National Flood Insurance Program

NOAA-National Oceanic and Atmospheric Administration

NPDES-National Pollutant Discharge Elimination System

NPS-Non-point Source Pollution

NRCS-Natural Resources Conservation Services

NTNC-Non-Transient Non-Community

NTU-National Turbidity Unit

OAC-Ohio Administrative Code

ODNR-Ohio Department of Natural Resources
- **-ACSI-**Appalachian Clean Streams Initiative
- **-AML-**Abandoned Mine Land
- **DNAP**-Division of Natural Areas and Preserves
- -**MRM**-Mineral Resources Mgt.

ODOD- Ohio Department of Development

ODOT-Ohio Department of Transportation

OEPA-Ohio Environmental Protection Agency
- **-SEP-**Supp. Environ. Projects
- -**OEEF**- Ohio Environmental Education Fund

OES-Order of the Eastern Star

OOGEEP-Ohio Oil and Gas Energy Education Program

ORSANCO- Ohio River Sanitary Commission

OSM-Offices of Surface Mining
- **-ACSI-**Appalachian Clean Streams Initiative

OSU-Ohio State University

OU-Ohio University

PCBs-Polychlorinated Biphenyls

PCR-Primary Contact Recreation

POTW-Publicly Owned Treatment Works

PPM-Parts-Per Million

PWS-Public Water Supply

QHEI-Qualitative Habitat Evaluation Index

RC&D-Resource Conservation & Development

RCRIS-Resource Conservation & Recovery Information System

RECOVER-Regional Coalition for Ohio Valley Environmental Restoration

RM-River Mile

RT&E-Rare Threatened & Endangered

SCR-Secondary Contact Recreation

SEPTA-South-Eastern Probation Treatment Alternative

SSH-Seasonal Salmoid Habitat

STORET-Storage and Retrieval

SWAP-Source Water Assessment and Protection

SWCD-Soil and Water Conservation District

TDS-Total Dissolved Solids

TMDL-Total Maximum Daily Load

TNC-Transient Non-Community

TOC-Total Organic Carbon

TRIS-Toxic Release Inventory Services

TSS-Total Suspended Solids

USACE-United States Army Corps of Engineers

USDA-United States Department of Agriculture
-**ERC**-Economic Research Service

USGS-United States Geological Survey

USFWS-United States Fish and Wildlife Service

VISTA-Volunteers in Service to America

WET-Whole Effluent Toxicity

WLA-Waste Load Allocation

WNF-Wayne National Forest

WPCLF-Water Pollution Control Loan Fund

WQPSDs-Water Quality Permit Support Documents

WQS-Water Quality Standards

WTP-Water Treatment Plant

WWH-Warmwater Habitat

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EXECUTIVE SUMMARY

Since the Friends of Lower Muskingum Rivers (FLMR) inception in 2003, developing a comprehensive Watershed Management Plan for the four watershed regions we serve has been at the heart of our organization. Thanks to the great work completed by Jen Bowman and Scott Miller of Ohio University's Institute for Local Government Administration and Rural Development (ILGARD), the "Meigs Creek Watershed Action Plan" was fully endorsed in 2005, creating the first of what would be four sections in the "Lower Muskingum River Watershed Management Plan".

Our second large step in developing a comprehensive Watershed Management Plan came in 2010, when FLMR was awarded a Watershed Coordinator Planning grant through the Ohio Department of Natural Resources Division of Soil and Water Resources, with matching funds from the Muskingum Watershed Conservancy District (MWCD), to develop a Watershed Action Plan for the Southern Watershed of the Muskingum River. The following pages of this document make up the Southern Watershed Action Plan.

STRUCTURE OF THIS PLAN

The “Lower Muskingum River Watershed Management Plan” serves as a guide for FLMR and its partners to improve and protect water quality within the four watersheds served by FLMR. Section I of this plan is taken from the “Lower Muskingum River Management Plan: Meigs Creek Subwatershed” which was fully endorsed by the State of Ohio in 2005 and functions for FLMR as an active guide to watershed restoration. This section has been updated to fit the current 10-digit HUC structure. Section I describes the entire Lower Muskingum River watershed and contains a definition of the watershed, historical and background information, watershed group organization and partners, natural resource inventory, water quality and water resource inventory, geographic information, cultural resources, and the physical attributes of streams and floodplains for the Lower Muskingum River.

Conducting water quality characterizations and developing action plans for such a large area like the Lower Muskingum River watershed would be an extensive project that is beyond the capabilities of FLMR to take on at one time; therefore, Section I of this plan gives general background information for the entire Lower Muskingum River basin and Section II focuses specifically on the Action Plan of the Southern most watershed of the Lower Muskingum River Basin.

Water resource quality (especially pertaining to nonpoint source pollution), watershed impairments, watershed restoration and protection goals, implementation, and evaluation will be addressed for only the Southern Subwatershed in section II of this plan. This section will address the actions that need to be taken in the Southern Subwatershed to restore or protect water quality and thus to meet aquatic life use designations. Additional sections of the Lower Muskingum River watershed will be addressed through future planning efforts and will be added to the larger Lower Muskingum River Management Plan. The goal of the watershed organization is to eventually assess the entire Lower Muskingum River and develop action plans to address nonpoint source pollution in the watershed plan through several manageable stages.

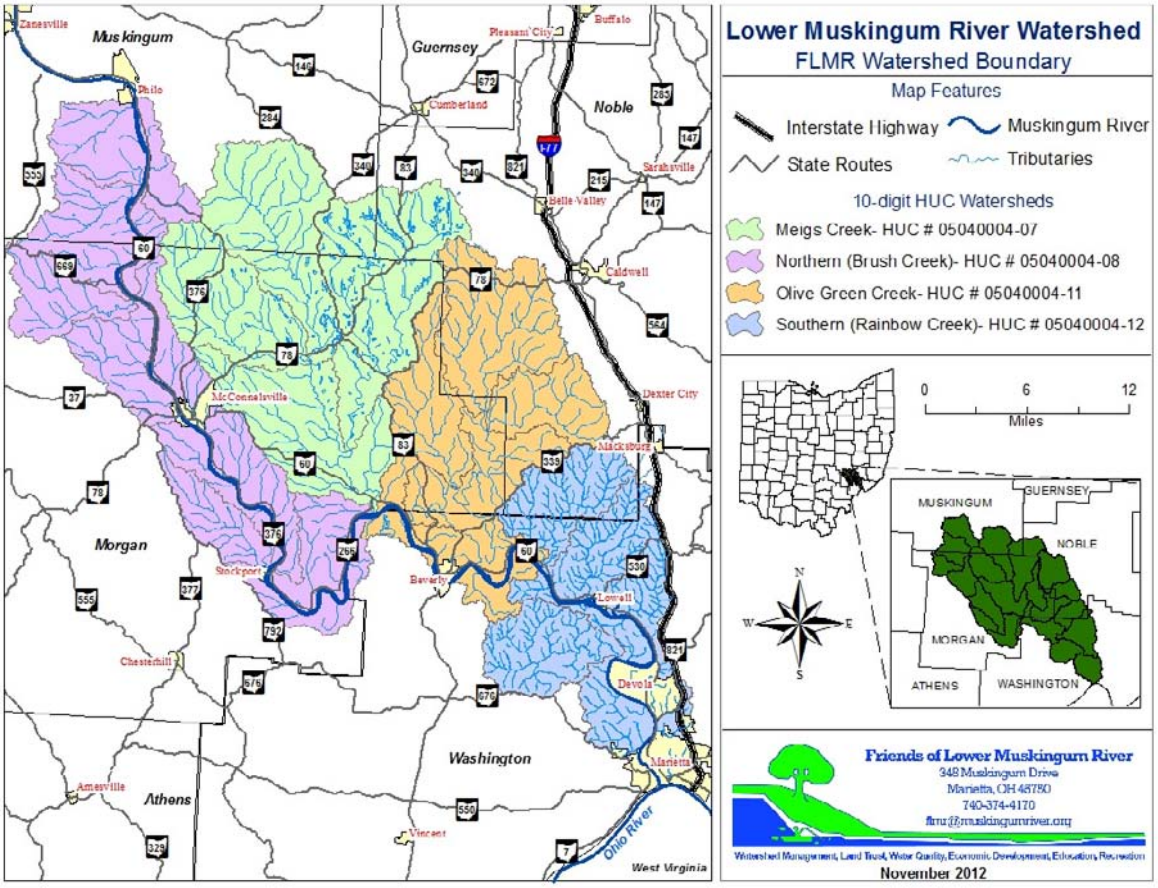
SECTION I. LOWER MUSKINGUM RIVER WATERSHED

INTRODUCTION

WATERSHED DESCRIPTION

The Lower Muskingum River watershed is located in southeastern Ohio and is defined for the purposes of this plan as having a northern boundary south of Zanesville and a southern boundary at the confluence with the Ohio River at Marietta (Map 1.1). The Lower Muskingum River watershed is made up of the Muskingum River main stem and tributaries including three major subwatersheds: Meigs Creek, Olive Green Creek, and Wolf Creek. However, Wolf Creek was not considered as part of the FLMRs service region nor for the purposes of this plan because the Wolf Creek Watershed Project had already undertaken watershed planning and implementation efforts in that basin. Other notable tributaries of the Lower Muskingum River, located north to south along the main stem, include: Blue Rock Creek, Island Run, Bald Eagle Run, Big Run, Cat Creek, and Rainbow Creek.

Map 1.1



The Lower Muskingum River watershed encompasses sections of four counties: Muskingum, Morgan, Noble, and Washington. This watershed is also served by the Soil and Watershed Conservation Districts of these four counties. The majority of the watershed is rural but contains many small villages and towns. Marietta, located in Washington County, is the largest city completely within the watershed with a population of 14,085. Another notable town within the watershed is McConnelsville, which is the county seat of Morgan County and has a population of 1,784. The Northern subwatershed of the Lower Muskingum River also encompasses the Southern portion of the City of Zanesville which has a population of 25,487 (U.S. Census Bureau 2010). Marietta, McConnelsville and Zanesville are all located on the Muskingum River. Sections of the Muskingum River or tributaries are not listed as state scenic or wild rivers. Regulated Phase II Stormwater communities are all in the northern portion of the watershed for the City of Zanesville and in the southern portion of the watershed including Washington County, Marietta and Muskingum townships, and the City of Marietta.

Geographic Locators

The Lower Muskingum River watershed is comprised of four 10-digit hydrologic units codes (HUC), which are summarized in Table 1-1 (excluding the Wolf Creek Subwatershed) (Map2). There are seven streams or stream segments identified and listed in the Ohio EPA 305(b) Report. Four of the seven are segments of the Muskingum River which include: OH24106 – Salt Creek to Miller's Run, OH2492 – Miller's Run to Meigs Creek, OH2417 – Meigs Creek to Big Run, OH241 – Big Run to mouth. Two are sub-basins of the Lower Muskingum River, which include: OH226 – Big Run and OH2474 – Meigs Creek. The final listed basin is Dyes Fork -OH2480, which is a large subwatershed of Meigs Creek.

Table 1-1
Ten Digit Hydrologic Unit Codes for the Lower Muskingum River Watershed[1]

10 Digit HUC Code	Name	Size (mi2)
05040004-07	Meigs Creek	142 .2
05040004-08	Brush Creek - Muskingum River [2] (Northern Watershed)	182.1
05040004-11	Olive Green Creek – Muskingum River	104.2
05040004-12	Rainbow Creek – Muskingum River (Southern Watershed)	90.2

[1] Lower Muskingum River Watershed excluding Salt Fork Subwatershed (159.3 sq. miles) and Wolf Creek Subwatershed (West Branch & South Branch, 233.7 sq. miles)
[2] 10 digit HUC includes portion of Muskingum River. North of Salt Creek is not considered part of the Lower Muskingum River watershed for plan purposes

WATERSHED PLAN DEVELOPMENT

The Friends of Lower Muskingum River (FLMR), which received its 501(c)3 status in 2003, is a partnership of groups and individuals originally coordinated by Community 20/20. Through Community 20/20, a local non-profit group designed to enhance development in Marietta, the Washington County Friends of the Muskingum River was formed in 2000. In early 2001, the group and its partners expanded its focus to the three county Lower Muskingum River to more adequately deal with the entire watershed's needs. FLMR has been a 501(c)3 watershed management organization, governed by a board of directors, since 2002 (see Appendix I.A. Code of Regulations). To date, FLMR serves as both a functioning Land Trust and Watershed Team in pursuit of its mission. In conjunction with its partner agencies, FLMR is steadily increasing public participation, collecting and analyzing existing water quality and biological data, identifying issues, setting improvement goals, and successfully seeking funding to restore the watershed to its highest ecological potential.

Mission of FLMR

The mission of FLMR is to, "restore, protect and maintain the physical, chemical and biological integrity of the Muskingum River and to protect and promote its natural, cultural, historic and socioeconomic resources."

Watershed Partners

Several community-based citizens groups in the Lower Muskingum River watershed have been dedicated to working with FLMR in improving educational opportunities in the watershed rather than strictly focusing on water quality issues throughout our history. The Ely Chapman Educational Foundation (ECEF) is one such example. ECEF is a non-profit educational organization providing educational enrichment for groups with diverse backgrounds. ECEF provides experience-based individualized educational programs emphasizing applied learning in math and science, the fine arts, history, and ecology. They use the most current technology in a non-traditional classroom setting. Special emphasis is placed on the unique history and culture of Ohio's southeastern Appalachian region. ECEF is currently collaborating with other Lower Muskingum watershed project partners in order to explore ways the foundation can support water quality testing in the watershed and incorporate the watershed into its current and future educational programs.

The Muskingum Watershed Conservancy District (MWCD), created in 1933, is dedicated to conservation and recreation conducted in harmony with flood control in the areas drained by the Muskingum River and its tributaries. Funded from income generated by the stewardship of its lands, waters, and an annual assessment fee on each parcel of land in the Muskingum basin, the MWCD strives to enhance the quality of life in the Muskingum Lakes region and beyond. MWCD is the largest conservancy district in Ohio, encompassing 18 counties or one-fifth of the state. MWCD is bounded by the cities: Akron to the north, Marietta to the south, Mansfield to the west, and Cadiz to the east. The 18 counties include Ashland, Belmont, Carroll, Coshocton, Guernsey, Harrison, Holmes, Knox, Licking, Morgan, Muskingum, Noble, Richland, Stark, Summit, Tuscarawas, Washington, and Wayne.

The Muskingum River Advisory Board (MRAB) was an advisory body that was created in 1986 but was disbanded in 2010. This group consisted of 26 members appointed by state legislators, the governor, the Director of the ODNR, and boards of county commissioners from Coshocton, Morgan, Muskingum, and Washington counties. MRAB was required to meet at least annually to discuss improvements to the Muskingum River, and to present a report to the governor, General Assembly, and ODNR. A particular focus of the MRAB was the preservation of the Muskingum River's locks and dams. Currently, former members of MRAB and other concerned individuals have been meeting to discuss either re-instating MRAB or developing a new advisory committee with the same focus.

Rivers Unlimited is a statewide group of organizations dedicated to protecting and restoring rivers in Ohio. Founded in 1972, Rivers Unlimited provides technical, organizational, legal, and networking support to watershed and community groups in Ohio. This group has also founded and

supports several organizations in Ohio, including the Mill Creek Restoration Project (1993) and the Friends of the Great Miami (1999) and the Ohio Natural Heritage Rivers System. Issues addressed by Rivers Unlimited that are of special concern to the Lower Muskingum watershed include pesticide use reduction; addressing the causes and effects of streambank erosion; sediment loads and their effect on water quality; the effects of development on rivers and water quality. Recently, Rivers Unlimited co-sponsored a study with the Morgan County Chamber of Commerce that examined economic conditions in the Muskingum River corridor. The study, which was conducted by researchers at Ohio State University, found that a cleaner and healthier Muskingum River would have a positive economic impact on the region as more recreation opportunities were created (Hitzhusen, *et al*. 1998; Hitzhusen, *et al*. 2000; Hitzhusen, *et al*. 2002).

FLMR regularly works with a large and diverse group of partners. The partners are drawn both from within the Lower Muskingum watershed and from across Ohio. As shown in Tables 1-2 thru 1-5, these partners represent citizen groups, government agencies, industry, and educational institutions.

Table 1-2
Community Group Partners of FLMR

Community Groups	Interest in Management Plan	Role as Plan Partner
Buckeye Hills Resource Conservation & Development	Water infrastructure/ development, NRCS liaison, Farm Bill	Technical assistance, assist with local support, committee participation
League of Women Voters Marietta/Washington County	Environmental Education	Participation and support through FLMR
Buckeye Hills-Hocking Valley Regional Development District	Water/sewer infrastructure improvements	Participation and support through FLMR, information resource
Rivers Unlimited	State-wide coordination with other watershed organizations	Technical assistance, water quality information resource
Ely Chapman Education Foundation	Environmental education	Local support, equipment for volunteer sampling, participation through FLMR
Ohio River Valley Water Sanitation Commission	Improved water quality impacting the Ohio River and its citizens	Water quality data resource, trash cleanup coordinator
Marietta College Office of Civic Engagement	Community based civic group involvement trash reduction impacts to water quality	Local support, information resource, volunteer base

Table 1-3
Industry Partners of FLMR

Industry	Interest in Management Plan	Role as a Plan Partner
American Electric Power	Large landowner and regulated industry in watershed	Data and information resource, property access for data collection
Duke Energy	Regulated industry in watershed	Data and information resource
RJF International	Regulated industry in watershed	Data and information resource

Table 1-4
Agency Partners of FLMR

Agencies	Interest in Management Plan	Role as Plan Partner
Ohio Environmental Protection Agency	Reduce non-point source pollution and improved water quality in Ohio	Funding, technical assistance, information and data resource, Stakeholder Advisory Group
ODNR Division of Forestry	Riparian restoration, habitat conservation, wetlands and wildlife restoration	Data and information resource
ODNR Division of Wildlife	Riparian restoration, habitat conservation, wetlands and wildlife restoration	Data and information resource
ODNR Division of Soil & Water Conservation	Reduce non-point source pollution in state	Data and information resource, technical assistance, planning assistance & funding
Morgan, Washington, Noble & Muskingum Soil and Water Conservation Districts	Reduce of non-point source pollution in respective counties	Technical assistance, information and data resources, local support, Stakeholder Advisory Council
Ohio State University Extension	Water quality improvements and education	Technical assistance, information resource, educational assistance
Natural Resources Conservation Service	Reduce non-point source pollution in state	Local support, data and information resource, Stakeholder Advisory Council
Ohio River Valley Water Sanitation Commission	Water quality impacts on Ohio River	Data resource, technical assistance
US Fish and Wildlife Service	Protection of endangered species	Biological data and information resource
Institute for Local Government & Rural Administration	Watershed restoration and protection in Southeast Ohio	Development of "Lower Muskingum River Watershed Management Plan: Meigs Creek Subwatershed", technical assistance
Midwest Biodiversity Institute	Bioassessment and habitat analysis, training	Technical assistance

Table 1-5
Educational Institution Partners of FLMR

Educational Institution	Interest in Management Plan	Role as a Plan Partner
Ohio University	Educational resource for graduate students (Meigs Creek Plan), restoration & protection of watersheds in Southeast Ohio	Technical assistance, graduate student research, student work projects, data resource
Ohio State University	Water quality improvements, community based environmental protection	Technical assistance, Stakeholder Advisory Council
Marietta College	Undergraduate education, Senior Capstone research, service to local community	Technical assistance, undergraduate "Capstone" student research, data resource

SOCIAL AND CULTURAL RESOURCE INVENTORY

HISTORY

The Lower Muskingum River valley has a rich historical heritage complete with earthworks built by prehistoric Native American Indians, and a remarkable pioneer history including the first permanent settlement in the Northwest Territory. The valley also has a notable river history where a steamboat industry and boat-building mercantile industry were born and helped the river towns thrive. The communities dotted along the Muskingum River owe much of their rich history, romantic beauty, and economic success to the river.

Transportation

Most communities in the valley credit their settlement, industrial development, and continued sustainability to the Muskingum River. Historically, the river has supported economic development, transportation opportunities, and recreation. The river has also been essential for its abundant supply of fish, and its ability to power the numerous gristmills and sawmills along the river. The navigable waters of the river also allowed for the first permanent settlement in the Northwest Territory, Marietta, to be established and named the, "Gateway to the Northwest," because of its prime location for trading (Schneider 1968).

In the 19th century, the only means for mass transportation was to transport by water, which made access to navigable waters vital (Schneider 1968). With the introduction of the steamboat in the 1820s, the Muskingum River valley became one of the most prosperous places in the state. Grain, tobacco, linseed oil, lumber, and livestock were now regularly shipped down the Ohio River to southern markets (Scheiber 1987). Between 1836 and 1841, a system of 10 dams and 11 locks were installed to connect the Ohio and Erie Canal, providing navigable waterways from Marietta to Lake Erie (ODNR website 2012). The Muskingum Canal provided a better path for transporting merchandise from Pittsburgh and New Orleans into interior cities like Columbus (Scheiber 1987).

The introduction and success of railroads made other parts of the state more accessible and decreased dependence on navigable waters. During the "golden years" of railroad service in the Muskingum valley; 1876-1916, lines provided freight and passenger service from Marietta to Parkersburg, Palos, Cumberland, and Zanesville. The railroad commonly transported stone from quarries at Vincent, grindstone from Marietta, and agricultural products from Cutler (Byers 2000).

The Flood of 1913

The flood of 1913 resulted in widespread and extreme flooding across much of Ohio. The Miami, Muskingum, and Scioto Rivers rose to record stages. Across the state, 500 people were killed, and property damage totals were estimated at greater than $300 million. After surveying the flood damage, the Ohio Legislature passed the Ohio Conservancy Act of 1914. The Ohio Conservancy Act was the first law of its kind in the United States and was intended to recognize and codify the state's role in undertaking public improvement projects to control flooding (Hrach 2000).

In the early 1930s, the United States Congress made money available to flood-prone states, including Ohio, for the construction of dams, reservoirs, and other permanent structures that controlled flooding. In 1933, the Ohio Legislature created the Muskingum Watershed Conservancy District (MWCD), an organization that oversees flood control and conservation issues for the entire length of the Muskingum River. The MWCD used federal dollars and assistance from the Army Corps of Engineers to build 14 dams on the Muskingum, creating 14 new reservoirs in the upper Muskingum River Valley. These reservoirs serve to protect communities downstream in the river's lower reaches from further devastating floods (Hrach 2000).

Natural Resource Exploration

The Lower Muskingum River valley has a history of being rich in the quantity and in the variety of natural resources available for exploitation. Examples of such resources include timber, coal, oil and natural gas, limestone, clay and shale, sand and gravel, sandstones, and salt. Of these resources, coal has proven to be the most influential throughout the history of the region. Ohio's large reserves, especially in southeastern Ohio and in the Lower Muskingum River valley, helped elevate its status to become one of the largest coal producing and consuming states in the United States (Crowell 1995).

In 1748, the presence of coal was first noted in Ohio. It was mined initially for domestic purposes before being discovered by industry for consumption. At the onset of the 19th century Industrial Revolution, Ohio's role in the coal industry escalated dramatically, and the Muskingum River eventually came to play a major role in the shipment of coal. The addition of a lock and dam system during the period of 1836-1841 allowed for the shipment of coal from the interior regions of Ohio to various ports along the Ohio River. Moreover, the rise of the steamboat facilitated the movement of coal on the Ohio River from one destination to the next (Crowell 1995).

As the United States recovered from the Great Depression, the coal industry across the country still found itself struggling for survival; however, coal mining was not a complete loss in the Muskingum River valley. Partly due to the introduction of strip mining, Muskingum County

became one of the seven Ohio counties to produce over one million tons of coal in 1945. Two of the best producing mines along the Muskingum River were Meigs Creek No. 9 and Middle Kittanning No.6. Once again a coal producing powerhouse, southeastern Ohio contributed to over 30,000,000 tons produced by the state of Ohio in the 1940's. The new influx of coal was responsible for powering the railroads and for supplying cheap electricity to people in cities and rural regions (Ohio Coal Association 1945).

Southeastern Ohio's dominance in the coal industry has faded since the boom experienced in the 1940's. By 1960, many of the coal seams were not economically feasible due to factors as diverse as the declining quality of the remaining coal reserves, the limited accessibility to currently viable markets, and the popularity of alternative fuels, such as natural gas and oil (BH-HVRDD 1971). However, several active surface coal mines still exist in the Lower Muskingum River valley, as shown in Table 16.

CULTURAL RESOURCES

Significant Historical Sites

There are a number of important historical sites in the Lower Muskingum River watershed, sites that document the lives of both early European settlers and Native Americans. For example, multiple Hopewell Indian mounds are preserved in Marietta, the largest and best preserved mound being "Mound Cemetery" (Marietta Ohio Info website 2012). Another example is Big Bottom State Park, which preserves the site of a battle between Ohio Company settlers and Delaware and Wyandot Indians (The Ohio Historical Society website 2012).

Many historic buildings are preserved in the watershed including the Lafayette Hotel, the Castle, Stockport Mill, the Levee House, and Harmar Village. The Lafayette Hotel was built in 1918 after Marquis de Lafayette. The Castle is the former home of Ohio Senator Theodore Davis and is one of the best-preserved examples of Gothic Revival-style architecture in Ohio. The Stockport Mill is historically significant because it is the last remaining mill anywhere on the Muskingum River. The Levee House, today a restaurant, is the only remaining original riverfront building in Marietta dating back to 1826 (Marietta Ohio Info website 2012). Harmar Village in Marietta stands upon the grounds of what was once Fort Harmar, established in 1785 along the west bank confluence of the Ohio and Muskingum Rivers (Harmar Village website 2003).

Significant Cultural Sites

Several museums along the Lower Muskingum River document and preserve the lives of early Ohioans. One such attraction is the Campus Martius Museum in Marietta. The Ohio Company of Associates as a temporary home originally established campus Martius in 1788 for the early settlers of what would later become the city of Marietta. It is also considered the site of the first organized American settlement in the Northwest Territory. Today, the museum showcases the patterns of migration throughout Ohio history. One block west of Campus Martius is the Ohio River Museum. The museum is composed of exhibits that depict the origins and natural history of the Ohio River, the influence of the steamboat era on the Ohio River, and the relationship shared between man and the Ohio River (The Ohio Historical Society website 2012).

Significant Recreational Sites

Opportunities for recreation abound throughout the Lower Muskingum River region. Many of these resources, such as state parks, public fishing and hunting areas, and campgrounds, involve outdoor pursuits while others promote historical sites and cultural attractions. One example is the Muskingum River State Park and Parkway, which is 120 acres and promotes activities such as swimming, fishing, hunting, picnicking, and hiking (Ohio's Appalachian Country website 2003; BH-HVRDD 1971). Another popular recreation site is Seneca Lake, which is the third largest inland lake in Ohio with 3550 acres (Places Ohio website 2012).

Other significant recreation sites include the Buckeye Trail, the J. Frank Demster Memorial Park, and the Valley Gem Sternwheeler. The Buckeye Trail, founded in 1959 as a planned hiking and horseback-riding trail from Cincinnati to Lake Erie, is Ohio's official state trail (BH-HVRDD 1971). The J. Frank Demster Memorial Park in downtown Malta offers boat access to the river (Malta Parks and Recreation website 2003). Another unique recreational experience is the Valley Gem Sternwheeler in Marietta, reminiscent of the sternwheelers that plied the Ohio and Muskingum Rivers in the 1800's (Valley Gem Sternwheeler website 2012).

Another recreation destination in the Lower Muskingum River region is ReCreation Land, a 30,000-acre reclamation project conducted by AEP on strip-mined land. Over the duration of the project, at least 50 million trees were replanted and 350 lakes and ponds were established. ReCreation Land promotes activities such as fishing, hunting, hiking, camping, and horseback riding. It has been estimated ReCreation Land receives over 100,000 visitors annually and reaps $5 million for the local economy (AEP website 2012).

The region also has two notable wildlife preserves. The Wilds in Noble County is one, a wildlife sanctuary that is recognized as North America's largest wildlife conservation and research

center. The Wilds is located on 9000 acres of reclaimed private land donated by AEP. Its focus is on the restoration and maintenance of prairie and wetlands habitats (The Wilds website 2012).

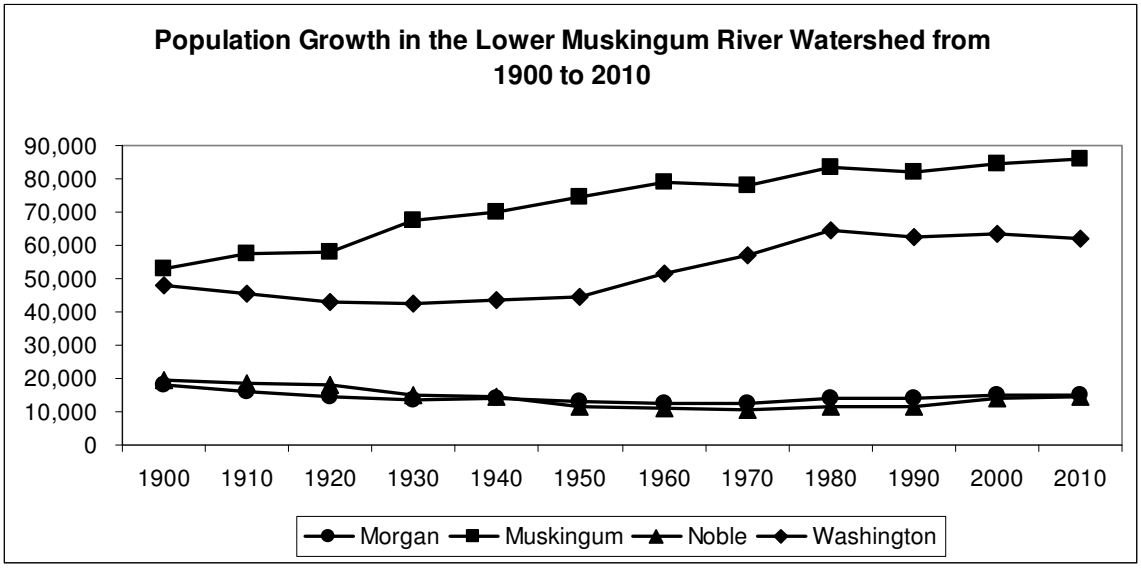
The other preserve, located approximately one mile north of Marietta, Ohio is the Broughton Wildlife and Education Area. This wildlife area encompasses over 500 acres and includes several trails, ponds, a natural stream, a waterfall, and several areas of undisturbed nature. Its array of wildlife makes the park an ideal location to conduct wildlife and environmental research (Broughton Nature and Wildlife Education Area website 2012).

DEMOGRAPHICS

Population

Demographic data reflects a small fluctuation of population growth for the four counties in the Lower Muskingum River watershed throughout the 20th century (Figure 1:1). Muskingum and Washington Counties experienced population increases, while Noble and Morgan Counties remained relatively unchanged. Washington and Muskingum Counties both contain larger cities, such as Zanesville and Marietta respectively, while Morgan and Noble counties are mostly rural (Ohio Department of Development website 2012).

Figure 1:1



Source: Ohio Department of Development website 2012

Even though Morgan Country experienced population growth from 2000 to 2010, when compared with Ohio's growth rate they were still below the average (Table 1-6). The state of Ohio experienced a 1.6 % growth rate or population increase, while Noble County had a 4.2% and Muskingum County had a 1.8% population increase. Washington County has demonstrated a decrease in population as 2.3 % (Ohio Department of Development website 2010).

Table 1- 6
Comparison of Average Population Growth Rates between Counties within the Lower Muskingum River Watershed and the State of Ohio, 2000 – 2010

County	Percent Population Change
Morgan	1.1
Muskingum	1.8
Noble	4.2
Washington	-2.3
Ohio	1.6

Source: Census 2010, U.S. Census Bureau

Educational Attainment

Educational attainment for people over the age of 25 in Ohio and the Lower Muskingum River watershed counties has slightly shifted towards higher levels of education over the last ten years from, 1999 to 2009 (Table 1-7). The most noticeable changes are the increase in the percent of the population with high school diploma and an increase in the percent of the population with bachelor's degrees. Regardless of the increase in those obtaining a higher education, it is clear that this achievement has occurred at a rate lower to that for the entire state. Moreover, the Lower Muskingum River watershed counties overall showed a lower percent of the population having high school diplomas and a higher percent of the population with bachelor's degree than the state (United States Census Bureau 1990 and 2000).

As illustrated in Table 7, the watershed's county population with less than a ninth grade education did not change. The population obtaining some high school with no diploma also decreased from 1999 to 2009 (14% to 11.5%), but not to the states extent (11% to 9.2%). The percent of the population over 25 with a high school diploma or equivalency increased from 44% to 46.5% over the census period. Small increases in the percent of population were seen in some college (18% to 18.9%), associate degree (7% to 7.1%). Also, the percentages of population were

decreased for obtaining a bachelor's degree (8% to 7.6%) and graduate or professional degree (5% to 4.4%). The percent of the population with an associate degree as their highest level of educational attainment for the state increased to 8.8% from 1999 to 2009; however, it remains stable around 7% for the four counties of the Lower Muskingum. One of the most noticeable differences between the state and the counties of the Lower Muskingum watershed is the percent of the population with a bachelor's degree. While this category decreased from 23% to 15.3% in the state from 1999 to 2009, it also slightly decreased in the Lower Muskingum watershed from 8% to 7.6% (United States Census Bureau 2000 and 2010).

Table 1-7
Percent of Educational Attainment for the Population Over 25 Years of Age in Counties of the Lower Muskingum Watershed and Ohio Combined in 1999 and 2009

Educational attainment	Lower Muskingum Counties 1999	Lower Muskingum Counties 2009	Ohio 1999	Ohio 2009
Less Than Ninth Grade	**4.0%**	**4.0%**	4.0%	3.4%
Grades 9th -12th, No Diploma	14.0%	11.5%	11.0%	9.2%
High School Graduate	44.0%	46.5%	32.0%	35.8%
Some College	18.0%	18.9%	18.0%	20.1%
Associate Degree	7.0%	7.1%	5.0%	7.3%
Bachelor's Degree	8.0%	7.6%	23.0%	15.3%
Graduate Degree	5.0%	4.4%	7.0%	8.8%

Source: United States Census Bureau 2000 and 2010

Economic Characteristics

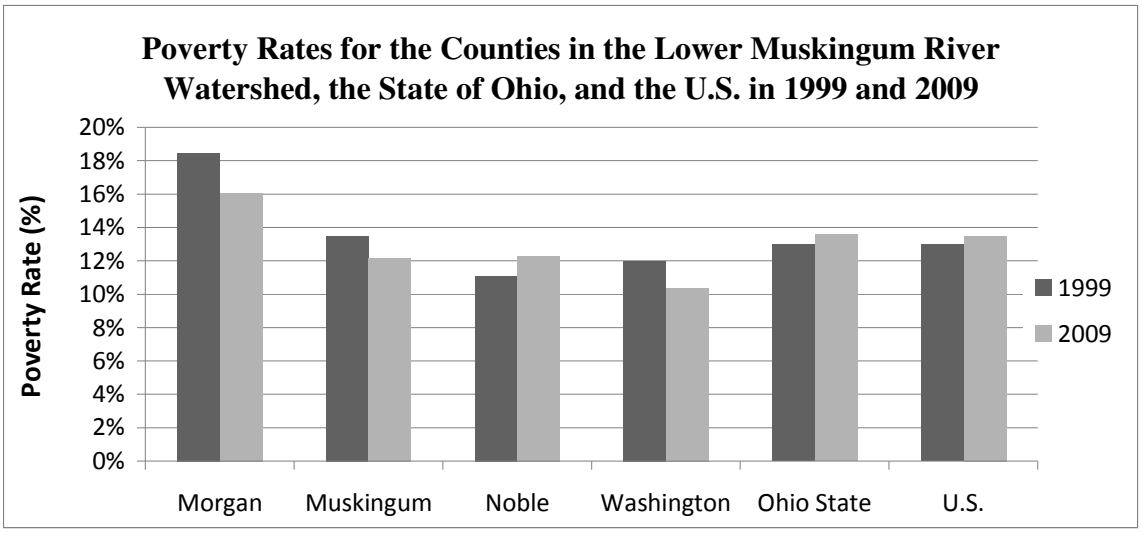
The Morgan Country, Muskingum Country and Noble Country within the Lower Muskingum River watershed have a lower average income rate than the rest of the Ohio. Although median family income rates increased for all the counties of the Lower Muskingum River watershed, they are consistently lower than the state and the entire United States from 2000 – 2010 (Table 1-8). Washington County experienced the highest amount of income growth rate (22%). Muskingum Country and Noble County experienced the same average income growth rate (13%). Economic data for United States was not available.

Table 1-8
Comparison of Average Median Family Income Growth Rates Between Counties in the Lower Muskingum River Watershed and the State of Ohio

Location	Average Income Growth Rate (%)
Morgan County	14
Muskingum County	13
Noble County	13
Washington County	22
Ohio	16

Data from the 2010 census reveals that Morgan Country has higher poverty rates than both the state of Ohio and the U.S. (Figure 1:2). Data from the 2010 census shows poverty rates for Muskingum, Washington and Noble Counties are lower than the rate for the U.S. Even though there was a decrease in poverty rates in Morgan County from 1999 - 2009, this county still has a high poverty rate at 16.1% (United States Census Bureau 2010).

Figure 1:2

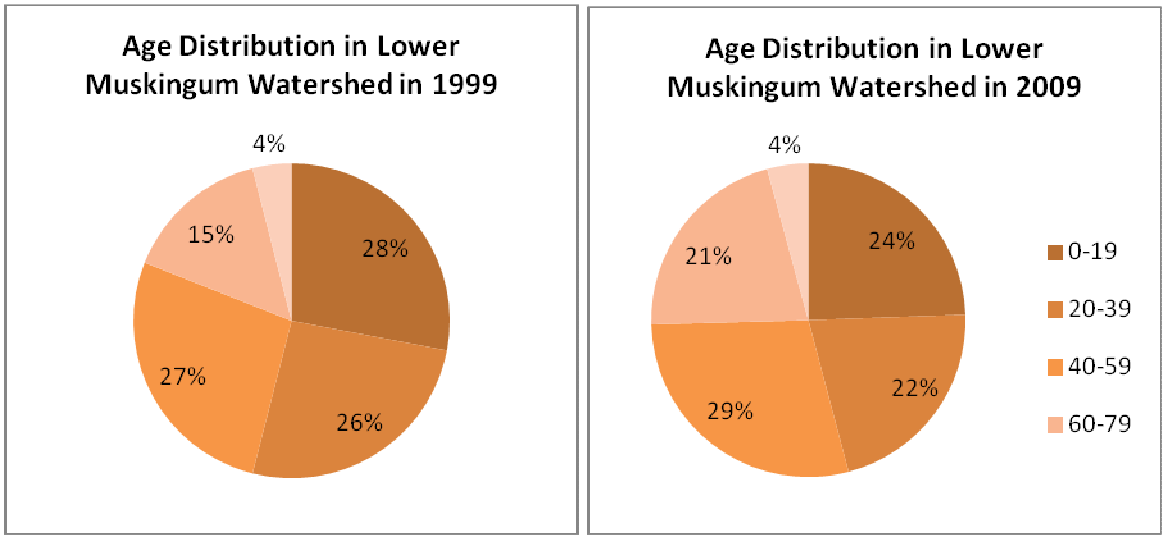


Source: United States Census Bureau, 2010

Age Ratios

According to 2010 U.S. census data, residents in the counties of the Lower Muskingum watershed are in three age groups, which make up 75% of the population: 0 – 19, 20- 39, and 40-59 (Figure 1:3). Trends between 2000 and 2010 U.S. Census data show a decrease in the 20 – 39 age-group from 26% to 22%. This reduction is likely due to the lack of available employment in the region leading to a migration of young people seeking jobs outside the watershed. There was also an increase in the age group 40 – 59 from 27% to 29% (U.S. Census Bureau 2000 and 2010).

Figure 1:3
Age Distribution of the Counties Containing Portions of the Lower Muskingum Watershed



Source: U.S. Census Bureau 2000 and 2010

Age distribution for the counties in the Lower Muskingum watershed is moderately similar to data on the entire state of Ohio. However, the watershed has a lower percentage of its population between the ages of 60 and 79 than the state. In the state of Ohio, this age class made up about 16% of the population in 2009 but 21% in the counties of the Lower Muskingum watershed. This trend provides further evidence the aged tendency of population.

Employment

In general, the industrial landscape of the Lower Muskingum River watershed is dominated by manufacturing, which is regarded as the most important contributor to the economic health of the region. Other important industries in the watershed include wholesale/retail trade, agriculture, and service. The two dominant manufactured products in the region are primary metals and chemicals. Further manufactured products include: stone, clay, glass, fabricated metals, and machinery (BH-HVRDD 1971).

Employment data for the Lower Muskingum River watershed counties illustrate that three of the four counties decreased in employment from 2000 to 2010, while Noble County had an employment increase. Morgan County's top employer was the educational services, and health care and social assistance. Also, the top employer of Muskingum, Noble, and Washington Counties were. The two counties that have larger cities, Muskingum and Washington, have wholesale and retail trade as the second employers. The data for Muskingum County does not represent the watershed accurately because the portion of the county within the watershed does not contain the city of Zanesville. Retail trade is a top employer in the two most rural counties in the watershed, the third employer in Noble County, and the second highest employer in Morgan County. Manufacturing is a top four employer in all four counties.

Morgan and Noble counties show a significant change or trends in employment by industry from 2000 to 2010. Muskingum and Washington counties both showed a decrease in manufacturing jobs. Muskingum County showed an increase in wholesale and retail trade employment and Washington County showed an increase in service employment (US Census Bureau 2000 and 2010).

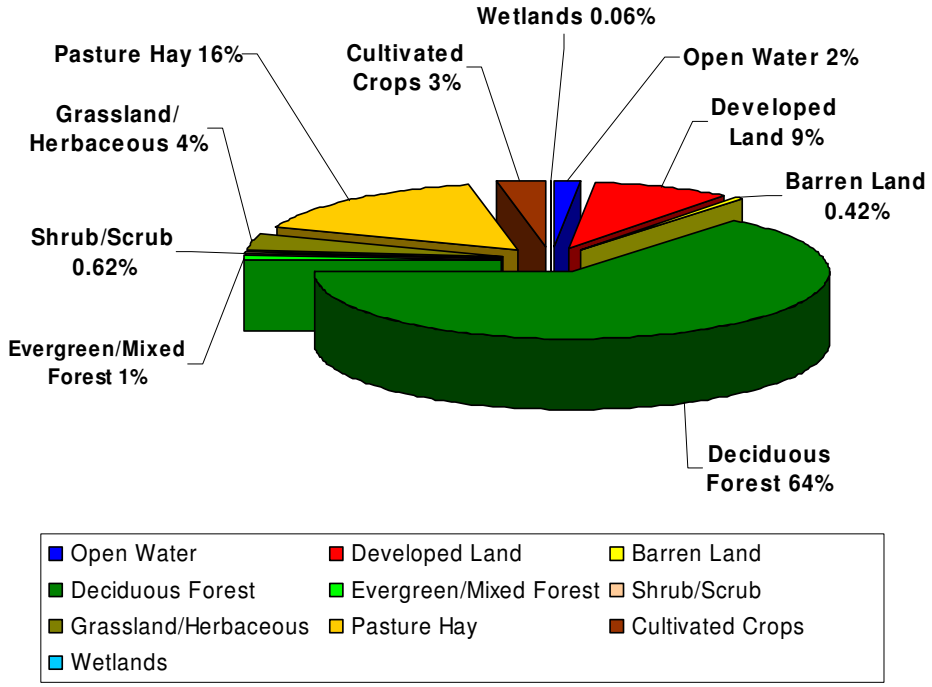
NATURAL RESOURCE INVENTORY

LAND USE CHARACTERISTICS

According to 2006 LANDSAT (satellite) data, 65.5% of the Lower Muskingum watershed is categorized as deciduous, evergreen and mixed forests (Figure 4) (Map 3). All but approximately five percent of the forest is deciduous, with trees such as oaks and hickories on the hillsides, and walnut, elm, cottonwood, and sycamore in the floodplain valleys. Due to the hilly topography, much of the area is better suited for trees than for crops. Agriculture still makes up 19.28% of the land use, with 16.16% of the land being used to grow pasture hay and 3.12% for cultivated crops. This relatively high percentage of pasture hay cultivation can be explained by the fact that many of the areas that were surface mined for coal were reclaimed to grow hay. The other notable land use category is developed land which accounts for about 9% of the Lower Muskingum Watershed. The land use category has shown continual increase throughout the years as the watershed trends toward more urban sprawl and less rural settling.

Figure 1:4

Land Use Data for the Lower Muskingum River Watershed



Source: LANDSAT Satellite Data 2006

Most farms are a combined grain-and-livestock enterprise. The majority of income comes

from livestock and livestock products, which includes mainly dairy cows and beef cattle, and to a lesser extent hogs and sheep. The 3.12% cultivated crop land use is made up of principal grain crops including corn, wheat, oats, and soybeans, and vegetable crops consisting chiefly of tomatoes, sweet corn, snap beans, watermelons, and cucumbers. The lower end of the Muskingum River valley is known for its fertile soils, available water for irrigation, and early growing season. The areas around Marietta; Belpre, Devola, and between Lowell and Beverly have always been noted for vegetable production. The "Marietta tomato" is a well-known forerunner of the summer harvest.

Although farmers in the watershed still employ conventional tillage systems, especially in the flat agricultural lands along the mainstem of the Muskingum River, there has been an increase in awareness and usage of "no-till" and conservation tillage practices throughout the watershed. More and more farmers appear to be adopting these techniques, similar to the national trend. According to a USDA Economic Research Service study, approximately 35.5 percent of U.S. cropland (88 million acres) planted to eight major crops (corn, cotton, oats, rice, sorghum, soybeans and wheat), which make up roughly 94 percent of all U.S. planted acreage, had no tillage operations in 2009 and showed a median increased rate in "no-till" practices of roughly 1.5 percent per year from 2000 to 2009 (USDA, ERS 2010).

Crop rotation patterns vary. On the flat farmland along the mainstem of the Muskingum River, a general practice appears to be to rotate vegetable crops with hay about every three years (Kevin Wagner 2003). Farmers with agricultural lands on steeper slopes tend to rotate row crops with hay more frequently in order to help reduce soil erosion and increase organic matter content. Corn and soybean farmers also tend to rotate crops. According to national trends, farmers rotate corn and soybeans on approximately 60% of the acreage in these crops (USDA, ERS 1994). A corn/soybean rotation aids in controlling disease and weeds. The soybeans also fix nitrogen for use by the subsequent corn crop. Farmers also control weeds through the use of herbicides. Round Up is a popular herbicide employed by farmers throughout the watershed to kill weeds and grass. Another tool used to increase production is irrigation, which is mostly utilized by vegetable farmers along the mainstem of the Muskingum River.

Two other conservation-oriented techniques that have become increasingly popular throughout the watershed include rotational grazing patterns for livestock and the planting of grass buffers along waterways (OSU Extension 1996). Both help to reduce erosion, which has been identified as one of the biggest management concerns throughout the watershed. Much of the agriculture in Noble County, for example, is dictated by topography. Most of the narrow "creek-bottom" land is tilled, while most of the sloped hillsides are planted in no-till or reduced-till crops, meadows or pasture land. Land stewardship in order to reduce erosion and increase productivity is

important to Noble County farmers (OSU Extension 2012).

Developed land (a.k.a. urban areas) accounts for approximately 9% of the total land use in the watershed. The largest urban areas are found in the very northern and southern reaches of the watershed with a portion of Zanesville creating the northern boundary and Marietta-Devola creating the southern boundary. McConnelsville and Malta are the most populated areas in the middle reaches. Commercial/industrial/transportation land use areas tend to be concentrated in these urban areas. Trends in land cover change from 1982 to 1997 have shown increases in the percentages of urban and forested land and decreases in total farmland and pasture land in particular.

American Electric Power (AEP) owns approximately 60% of the land within the Meigs Creek Subwatershed. In 1961 AEP established the 30,000-acre reclamation region known as ReCreation Land. It contains over 350 lakes and ponds, along with nearly 380 campsites that are available for public use.

Development Trends

Transportation

Table 1-9 below depicts the most notable transportation projects currently being pursued within the watershed. All listed projects are located in Washington County and address safety concerns. Currently there are no significant projects occurring in Muskingum, Noble, or Morgan Counties. One notable transportation fact is that Morgan County is the only county in Ohio without a four-lane highway. It is expected that this distinction will limit future development in Morgan County (Ohio Department of Transportation website 2012).

Table 1-9
Current and Proposed Transportation Projects in Washington County, Ohio

	Route	Description	Recommended Countermeasures	Estimated Cost
High Cost	SR 60	SR 7 to Marietta Corp. line	New alignment/bypass	**$50 million**
	SR 60	SR 7 to SR 821	Upgrade signs, pavement markings; coordinate signals	**$10,000**
	SR 7	I-77 to Marietta Corp. line	Reduce speed limit; coordinate signals; upgrade signs, pavement markings	**$2,000**
Low Cost	**SR 7**	**SR 26 to SR 60**	**Restrict turns**	**$1,000**

Source: Ohio Department of Transportation website 2012

Agricultural

Tables 1-10 thru 1-13 illustrate the agricultural climate in Morgan, Muskingum, and Washington Counties from 1998 to 2008 (USDA 2012). It should be noted that this data represents a time frame from four years prior to the development of this management plan but still effectively displays the agricultural climate over the most recent 10 year period that is available from the United States Department of Agriculture and from the 2010 U.S. Census. (USDA 2012)

Table 1-10

Farm Production in Morgan County, Ohio from 1998 – 2008

Year	Number of Farms	Average Farm Size (acres)	Land in Farm Use (acres)
1998	570	182	104,000
1999	560	184	103,000
2000	550	185	102,000
2001	530	191	101,000
2002	510	206	105,000
2003	510	202	103,000
2004	510	200	102,000
2005	500	200	100,000
2006	500	200	100,000
2007	520	198	103,000
2008	520	200	104,000

Table 1-11

Farm Production in Muskingum County, Ohio from 1998-2008

Year	Number of Farms	Average Farm Size (acres)	Land in Farm Use (acres)
1998	1,180	162	191,000
1999	1,190	161	191,000
2000	1,200	159	191,000
2001	1,200	159	191,000
2002	1,220	156	190,000
2003	1,220	157	191,000
2004	1,210	158	191,000
2005	1,200	158	189,000
2006	1,190	159	189,000
2007	1,160	144	167,000
2008	1,140	142	162,000

Table 1-12

Farm Production in Noble County, Ohio from 1998 - 2008

Year	Number of Farms	Average Farm Size (acres)	Land in Farm Use (acres)
1998	600	175	105,000
1999	600	175	105,000
2000	600	175	105,000
2001	600	175	105,000
2002	600	175	105,000
2003	600	177	106,000
2004	600	175	105,000
2005	590	176	104,000
2006	590	176	104,000
2007	530	170	90,000
2008	510	171	87,000

Table 1-13

Farm Production in Washington County, Ohio from 1998 - 2008

Year	Number of Farms	Average Farm Size (acres)	Land in Farm Use (acres)
1998	1,030	149	153,000
1999	1,020	150	153,000
2000	1,010	149	150,000
2001	980	150	147,000
2002	960	148	142,000
2003	950	149	142,000
2004	940	151	142,000
2005	940	149	140,000
2006	930	151	140,000
2007	860	145	125,000
2008	840	145	122,000

Source: USDA Quick Facts Website 2012

GEOLOGY

Topography

The overall topography of the Lower Muskingum watershed is typical of the unglaciated portion of southeast Ohio. The topography consists of steep hillsides, narrow ridge tops, and multiple small stream valleys. Most ridge tops have elevations from 800 to 1,000 feet. Valleys are typically 0.5 to 1.5 miles wide with broad areas of undulating or rolling slopes. Tributaries tend to be narrow and are separated by steep side slopes and fairly broad ridge tops. The influences of the geology and ancient drainage systems on the topography are evident to the well-trained eye throughout the watershed. Hilltops composed of erosion-resistant sandstones are higher and steeper, while those composed of softer shales are lower and more rounded (Lessig *et al*. 1977; Steiger *et al*. 1996; USDA *et al*. 1998; USDA *et al*. 1990). Along the mainstem, there are gently to strongly sloping terraces of varying width along the narrow flood plain. These terraces are remnants of the ancient Teays-age drainage system (ODNR 2012). Topographic maps of the four 10-digit HUC watersheds that make up the Lower Muskingum River Basin can be found in Appendix I.D.

Stratigraphy

The Lower Muskingum watershed lies in the Unglaciated Allegheny Plateau region. Having escaped the Ice Age glaciers, this area contains the state's youngest exposed outcrops. Most of the bedrock is of Pennsylvanian Age, although a band of Permian-age rocks are preserved in the southern reaches of the watershed. The bedrock layers, formed about 245 to 320 million years ago, are sedimentary in nature and consist primarily of shale, sandstone, and coal in the northwestern and central portions of the watershed. The bedrock layers consist of shale and sandstone in the southeast portion. Siltstone and limestone are also present. Sedimentary strata in southern Ohio exhibit a nearly-horizontal bedding trend, with a regional dip to the southeast of approximately three degrees or 25-30 feet per mile (Lessig *et al*. 1977; Steiger *et al*. 1996; USDA *et al*. 1998; USDA *et al*. 1990).

The Pennsylvanian System is divided in ascending stratigraphic order, oldest to youngest, into the Pottsville, Allegheny, Conemaugh, and Monongahela Groups. In Ohio these four groups contain many different coal seams, all of which have been mined to some degree. More than 90% of Ohio's coal production comes from the Allegheny and Monongahela Groups. In Ohio sedimentary deposits, divisions between the major Pennsylvanian groups, were originally made on

the basis of the amount of mineable coal and constitute a practical, rather than a lithological, framework for differentiating formations. However, general trends and patterns of lithological change can be recognized both within and among groups. From the base of the Pottsville Group to the top of the Monongahela Group, the percentage of sandstone decreases while the percentages of shale and limestone increase.

In Perry and Morgan counties, shale, coal, and fine-grained sandstones, with discontinuous exposures of medium-grained sandstones and brackish-to-marine limestones, dominate the bedrock geology. The Conemaugh Group is the most extensively exposed group in Morgan County, while the Allegheny Group is the least exposed. However, the Allegheny Group contains two of the region's dominant coals, the Middle Kittanning (no. 6) and the Upper Freeport (no. 7). Along with layers of limestone, the rocks of the Monongahela Group contain the other two dominant coal beds, the Pittsburgh (no. 8) and Meigs Creek (no. 9). Outcrops of the Monongahela Group can be found throughout the watershed. The Greene and Washington Formations of the Dunkard Group, which are part of the Permian System, underlie most of Washington County and do not contain significant coal reserves (Lessig *et al*. 1977; Steiger *et al*. 1996; USDA *et al*. 1998; USDA *et al*. 1990).

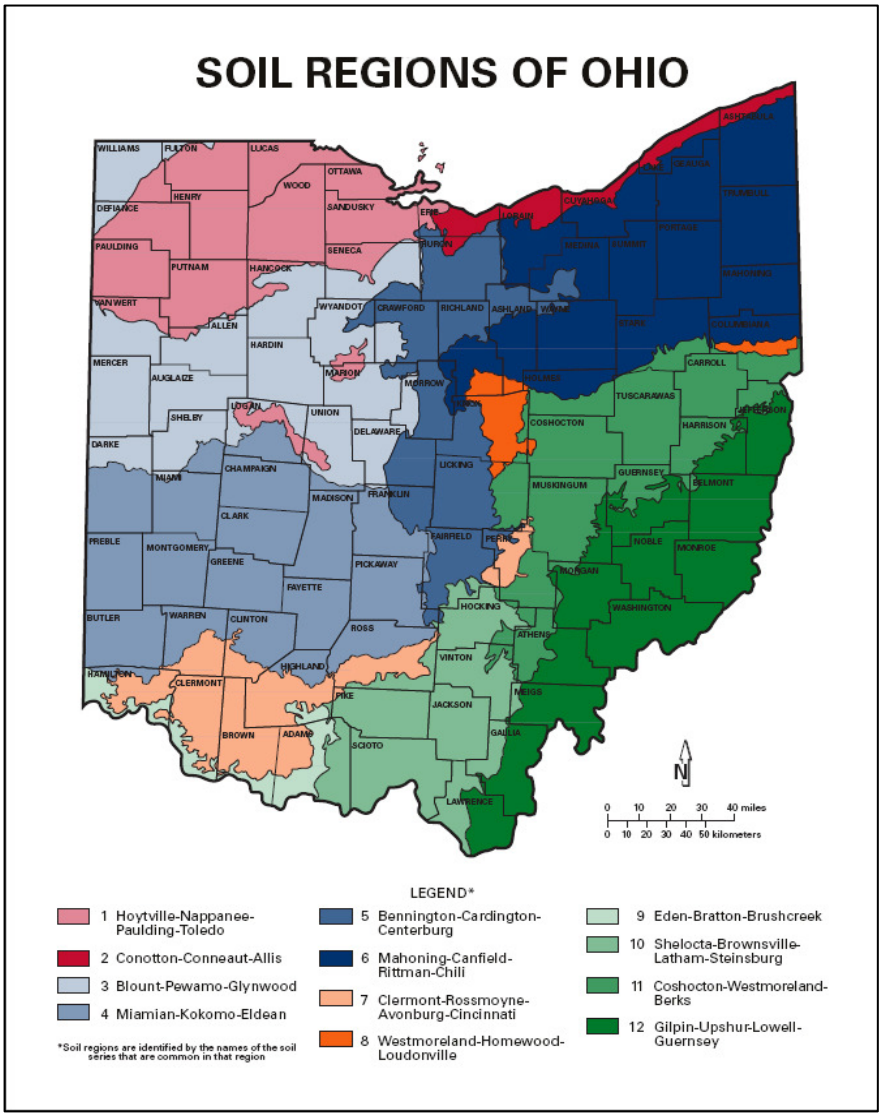
A detailed map of previously discussed geological features for all of Ohio (with the ability to focus on the counties within the Lower Muskingum River Basin) can be found on the United States Geological Survey's "Mineral Resources On-Line Spatial Data" website at http://mrdata.usgs.gov/sgmc/oh.html.

Soils

A soil series or association refers to soils that are of similar color, texture, structure, composition, and arrangement. They are often named for cities or towns near where the soils were first studied. The characteristics of the predominant soil associations found within the Lower Muskingum watershed are shown in Table 1-14. Taken from the General Soils maps (Map 1.2 on page 27), the soil association that covers most of the area within the Lower Muskingum watershed is the *Gilpin-Upshur-Lowell-Guernsey* series (ODNR 2012a). These soils tend to be low in natural fertility, low in organic matter, and acidic (Ohio History Central 2005). They are also relatively shallow compared to soils in the glaciated portions of Ohio, since they are formed from the slow weathering of bedrock (Table 1-15).

The hilly topography of the Lower Muskingum watershed causes various problems associated with rapid runoff and erosion and limits the use of modern agricultural equipment. Strip mining has also altered soil characteristics within the watershed and created some additional land use limitations. Reclaimed soils often have a poor moisture-holding capacity due to the large number of rock fragments and the poor structure of the subsoil. Their productive capacity is also limited by a low organic matter content and high bulk density. This limits the available water capacity for plants. The main management concerns for the dominant soil associations within each subwatershed can be found in Table 1-16 (Lessig *et al*. 1977; Steiger *et al*. 1996; USDA *et al*. 1998; USDA *et al*. 1990). "Soil series should be used in prioritizing of areas for BMP implementation" (Lantz 2005).

Map 1.2



*Map provided by ODNR, Division of Soil & Water Resources

Table 1-14

Characteristics of the Predominant Soil Associations Found within the Lower Muskingum Watershed

Soil Associations	Characteristics	
Westmoreland-Berks-Guernsey	Depth	deep and moderately deep
	Drainage	well drained and moderately well drained
	Slope	strongly sloping to very steep
	Parent material	colluvium and residuum derived from siltstone and clay shale
Lowell-Gilpin-Guernsey	Depth	moderately deep to very deep
	Drainage	well drained and moderately well drained
	Slope	moderately steep to very steep
	Parent material	residuum and colluvium derived from interbedded limestone, siltstone, shale and sandstone
Gilpin-Upshur	Depth	moderately deep to very deep
	Drainage	well drained
	Slope	moderately steep to very steep
	Parent material	residuum derived from interbedded sandstone, siltstone, and shale
Lowell-Gilpin	Depth	deep and moderately deep
	Drainage	well drained
	Slope	strongly sloping to very steep
	Parent material	colluvium and residuum derived from limestone, siltstone, shale, and sandstone
Upshur-Vandalia	Description	reddish and clayey
	Slope	steep and very steep side slopes and moderately steep ridgetops and knobs
	Parent material	residuum from shale on side slopes and ridgetops and colluvium on foot slopes
Morristown-Lowell-Gilpin	Depth	deep and moderately deep
	Drainage	well drained
	Slope	nearly level to very steep
	Parent material	calcareous material mixed by surface mining and colluvium and residuum derived from limestone, siltstone, sandstone and shale.
Upshur-Gilpin-Zanesville	Depth	deep and moderately deep
	Drainage	well drained and moderately well drained
	Slope	nearly level to very steep
	Parent material	loess, colluvium and residuum derived from shale, siltstone and sandstone
Chagrin-Mentor-Chili	Description	brownish and loamy
	Parent material	water-laid material on flood plains and terraces
Tioga-Nolin-Newark	Depth	deep
	Drainage	well-drained and somewhat poorly drained
	Slope	nearly level
	Parent material	alluvium
Chavies-Nolin-Conotton	Depth	very deep
	Drainage	well drained
	Slope	nearly level to strongly sloping
	Parent material	alluvium and stratified gravelly outwash

Source: Lessig et al. 1977; Steiger et al. 1996; USDA et al. 1998; USDA et al. 1990

Table 1-15

Soil Characteristics of the *Gilpin-Upshur-Lowell-Guernsey* Region

Characteristic	Soils Having the Selected Characteristics
More than 8% slope	88%
More than 3% organic matter in the upper 10 inches	< 1%
More than 27% clay in the topsoil	40%
Seasonal high water table less than 1 foot below the surface	< 1%
Bedrock less than 40 inches below the surface	19%

Table 1-16
Dominant Soil Associations, Locations, Uses, and Management Concerns within the Subwatersheds of the Lower Muskingum

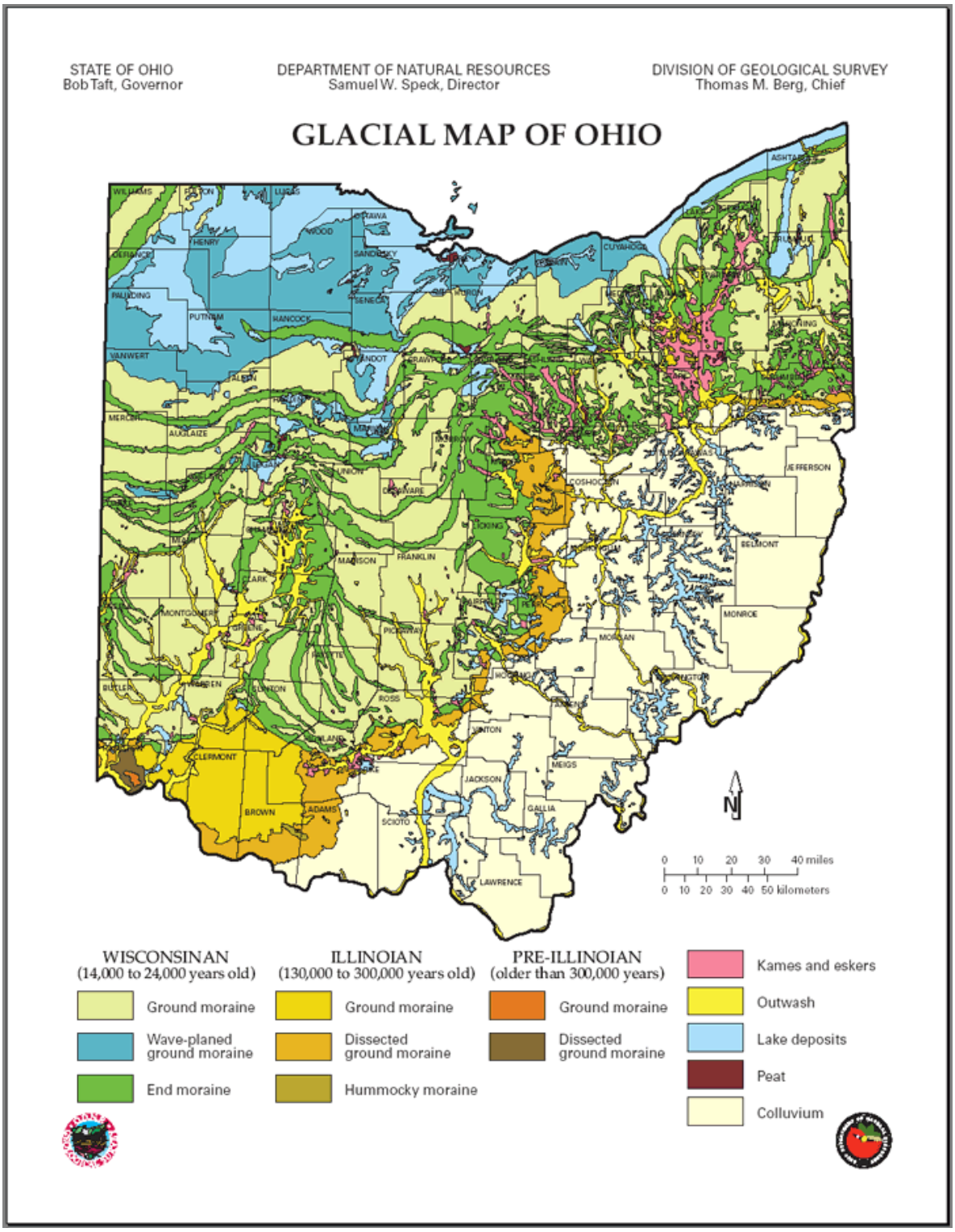
Sub-watershed	Dominant Soil Assocations	Location	Common Uses	Major Management Concerns
Northern	Westmoreland-Berks-Guernsey	dissected hillsides and narrow ridgetops	woodland, pasture	erosion, slippage, drainage
	Lowell-Gilpin-Guernsey	smooth ridgetops, hillsides, and benches at higher elevations	woodland, pasture, cropland	erosion, slippage, drainage
	Gilpin-Upshur	ridgetops, hillsides, benches	pasture, woodland, cropland	slope, droughtiness, depth, slippage, erosion
	Tioga-Nolin-Newark	wider parts of flood plains along the major streams and their tributaries	cropland	flooding
	Chavies-Nolin-Conotton	broad multi-level terraces and narrow to wide flood plains adjacent to the Muskingum River	mostly cropland, some urban	droughtiness, erosion, flooding
Meigs	Morristown-Lowell-Gilpin	ridgetops and hillsides in places affected by surface coal mining	woodland, pasture, cropland	erosion, slippage, slope, droughtiness, compaction, surface ponding, stoniness, moderately slow permeability, bedrock between depths of 20 to 40 inches
	Lowell-Gilpin-Guernsey	smooth ridgetops, hillsides, and benches at higher elevations	woodland, pasture	erosion, drainage, slippage, slope
	Gilpin-Upshur	ridgetops, hillsides, benches	pasture, woodland, cropland	slope, droughtiness, depth, slippage, erosion
Olive Green	Upshur-Gilpin-Zanesville	hillsides and narrow to broad ridgetops	woodland, pasture, cropland	slope, moderately slow or slow permeability, high shrink-swell potential, droughtiness, seasonal wetness, bedrock between depths of 20 and 40 inches, erosion, slippage
	Lowell-Gilpin	hillsides and rounded ridgetops	woodland, pasture, cropland	slope, erosion, droughtiness, high shrink-swell potential, slippage, depth
Southern	Upshur-Gilpin-Zanesville	hillsides and narrow to broad ridgetops	woodland, pasture, cropland	slope, moderately slow or slow permeability, high shrink-swell potential, droughtiness, seasonal wetness, bedrock between depths of 20 and 40 inches, erosion, slippage
	Lowell-Gilpin	hillsides and rounded ridgetops	woodland, pasture, cropland	slope, erosion, droughtiness, high shrink-swell potential, slippage, depth
	Upshur-Vandalia	steep and very steep side slopes and sloping and rolling ridgetops	pasture, cropland, woodland	slope, slippage, very slow or slow permeability, erosion
	Chagrin-Mentor-Chili	band 1/2 to 1 miles wide on both sides of the Muskingum River	cropland	flooding

Glacial History

Approximately two million years ago, the southern two-thirds of Ohio was drained by an ancient drainage system known as the Teays drainage. The Muskingum watershed was formed from the combined actions of the Teays drainage and Ice Age glaciers. As glaciers from the north blocked many of the stream valleys of the Teays drainage, water levels within these newly formed lakes began to rise, and eventually overflowed to create what is now known as the Ohio River drainage system. The Muskingum River was formed as part of this process (ODNR, Geofacts 1995). Surface deposits along the mainstem of the Muskingum River consist of glacial outwash, while surrounding areas of the watershed are primarily made up of colluvium (ODNR, OGS 2012). The glacial outwash was deposited when meltwater from the last Wisconsinan glacier to the north breached a divide and deposited the material in the valley of what is now the mainstem. The outwash ranges from thin, relatively impermeable till to thick sand and broad flat-topped gravel beds (Lessig *et al*. 1977; Steiger *et al*. 1996; USDA *et al*. 1998; USDA *et al*. 1990). See Map 1.3 for a detailed diagram of the Glacial drainages within Ohio.

See page 31 for Map 1.3

Map 1.3


STATE OF OHIO
Bob Taft, Governor
DEPARTMENT OF NATURAL RESOURCES
Samuel W. Speck, Director
DIVISION OF GEOLOGICAL SURVEY
Thomas M. Berg, Chief
GLACIAL MAP OF OHIO
WISCONSINAN
(14,000 to 24,000 years old)
Ground moraine
Wave-planed ground moraine
End moraine
ILLINOIAN
(130,000 to 300,000 years old)
Ground moraine
Dissected ground moraine
Hummocky moraine
PRE-ILLINOIAN
(older than 300,000 years)
Ground moraine
Dissected ground moraine
Kames and eskers
Outwash
Lake deposits
Peat
Colluvium
0 10 20 30 40 miles
0 10 20 30 40 50 kilometers
N

Natural Resources

Southeastern Ohio is known for its impressive reserves of bituminous high sulfur coal. Starting in the 1950's, the Meigs Creek (no. 9) coal was mined in Muskingum County near Cumberland, Ohio, by the Central Ohio Coal Company, a subsidiary of American Electric Power. The majority of the surface mining associated with Muskingum Mines occurred north of the Lower Muskingum watershed. However, as coal deposits were depleted, the mines shifted southward and extended into the upper reaches of the Meigs Creek Subwatershed. The mined coal was transported by 160-ton coal haulers to a tipple, located in Brookfield Township, Noble County. Here the coal was loaded on a privately owned electric train that carried it southward for 15 miles along Dyes Fork to Central Ohio Coal Company's preparation plant located in Unionville (Section 12, Meigsville Township, Morgan County, lower reaches of Dyes Fork). From there, the coal was cleaned and shipped 4-1/2 miles overland by conveyor belt south to Ohio Power Company's Muskingum River electric-generating station near Beverly, which was built in 1952-1954. The Muskingum Mine is currently under reclamation; the last coal produced from this mine was in December 2001, following the purchase of the Muskingum Mines by Consol Energy, Inc. in July 2001 (AEP Press Release 1999).

In December of 2011, under the authority of the Clean Air Act, the U.S. Environmental Protection Agency issued the Mercury and Air Toxics Standards, the first national standards to protect American families from power plant emissions of mercury and toxic air pollution like arsenic, acid gas, nickel, selenium, and cyanide. The standards will slash emissions of these dangerous pollutants by relying on widely available, proven pollution controls that are already in use at more than half of the nation's coal-fired power plants" (US EPA, 2011). Due to these new standards, AEP's Beverly plant expects to shut down operations of four of their five coal fired generators and to retrofit their fifth generator to operate off of natural gas (Marietta Times, 2012)

Pictures of the *Big Muskie,* the world's largest walking dragline machine, can be seen as it operated near Coal Hill, Meigs Township, Muskingum County (Crowell 1997). The *Big Muskie* moved more than 2 billion cubic yards of earth- eight times more than the Panama Canal- and yielded 110 million tons of coal while in operation from 1969 to 1991. Its 220-cubic-yard, 240-ton bucket is now on display at the Miner's Memorial Park located near McConnelsville in AEP's ReCreation Land. Besides the Muskingum mine, there are a few active coal mines within the Lower Muskingum watershed, but none of these are located between Philo and Marietta.

These surface coal mines include: one each in Madison, Salem, and Washington Township, Muskingum County; three mines in Marion Township and two mines in Elk Township, Noble County; and one mine in Aurelius Township, Washington County (Table 1-17). Along the Muskingum River in Muskingum County, south of Zanesville, there are several abandoned drift (underground) mines that produced primarily Middle Kittanning (no. 6) coal and some minor amounts of Upper Freeport (no.7) coal and Lower Kittanning (no. 5) coal. A few abandoned drift mines are located about 5 miles south of Philo at Blue Rock. These underground mines were in operation at or just prior to World War II and all were abandoned by 1945. In addition, there are several active sand & gravel operations located along the Muskingum River between Zanesville and Marietta (Crowell 2003).

Table 1-17

Active Surface Coal Mines in the Lower Muskingum River Watershed

County	Township	Number of Mines
Muskingum	Madison	1
	Salem	1
	Washington	1
Noble	Marion	3
	Elk	2
Washington	Aurelius	1
	Total	9

Source: Crowell 2003

The Lower Muskingum watershed holds claim to reserves of natural gas and high-value, Pennsylvania-grade crude oil. The first Ohio discovery of oil from a drilled well occurred in 1814 in Noble County when a saltwater well driller discovered oil at a depth of 475 feet (USDA *et al*. 1990; OOGEEP 2012). This paved the way for Ohio's first commercial oil well, which was put into production in 1860 in Washington County (OOGEEP 2012; Lessig *et al*. 1977). Morgan County followed with oil and gas production in 1861 (USDA *et al*. 1998). Oil booms in 1875 and 1910 generated a great deal of wealth for investors. Today most Ohio producers are independent, small, family-owned businesses. The Clinton sandstone, a prevalent oil and gas reservoir throughout

eastern Ohio, is currently the most actively drilled zone through traditional vertical hydraulic fracturing processes within the watershed. Technological developments in directional hydraulic fracturing within the past 10 years have accelerated exploration of natural gas rich shale formations throughout the U.S. The counties of the Lower Muskingum River Watershed are currently home to 34 productive, traditional, vertical wells though 5 horizontal type wells have been permitted within the watershed in Muskingum and Noble Counties to date (ODNR 2011). Experts predict that Utica Shale holds large natural gas reserves and potentially oil which is estimated to equate to significantly increased exploration throughout the Lower Muskingum Watershed within the coming years (OEPA, 2011).

Other natural products of economic interest in the watershed include sand and gravel, sandstone, limestone, rock salt and brine. Sandstone deposits in Cow Run are the only known economically important sandstones, and were used for canal locks, bridge piers, foundations and retaining walls. Some sandstone, which were formerly quarried from deposits of the Marietta Sandstone member and used for grindstones, is locally mined for aggregate. Both sand and gravel and aggregate deposits are mined along the entire Muskingum River. The Lower Muskingum watershed is also mined for limestone, which is used mainly for road gravel, agricultural lime, crushed stone, and concrete production.

WATER RESOURCES

Climate and Precipitation

Based on data collected from the official National Oceanic and Atmospheric Administration weather station located at the City of Marietta's Waste Water Treatment Plant (WWTP), total annual precipitation in the watershed over a 10 year period ranges from 19-49". The area within the watershed has a continental climate characterized by a wide range of air temperatures, higher precipitation in the spring and summer, and lower precipitation in the fall and winter. Summers are moderately warm and humid, while winters are reasonably cold and cloudy. The average annual temperature has steadily increased on an annual basis and from 2003 to September of 2013 the average annual temperature has increased by about 6 °F . Annual average temperatures and total precipitation data collected from 2003 to 2013 at the City of Marietta WWTP's weather station can be seen in Table 1-18

See Page 37 for Table 1-18

Table 1-18
Annual Average Temperatures & Total Precipitation from 2003-2013 in the Lower Muskingum River Watershed

Year: 2003			**Annual Average Temp (°F)**			**49.8**	**Annual Total Precipitation (in.)**			**19.09**		
	January	February	March	April	May	June	Junly	August	September	October	November	December
Average Temp (°F)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	64.9	52.5	47.8	34.2
Total Precipitation (in.)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.08	3.24	5.82	2.95
Year: 2004			**Annual Average Temp (°F)**			**53.4**	**Annual Total Precipitation (in.)**			**46.68**		
	January	February	March	April	May	June	Junly	August	September	October	November	December
Average Temp (°F)	27.2	32.2	44.1	52	66.7	69.4	73	70.7	67.6	55.2	46.8	35.4
Total Precipitation (in.)	4.27	2.04	3.7	4.76	4.87	2.62	3.49	3.78	8.51	3.07	3.28	2.29
Year: 2005			**Annual Average Temp (°F)**			**53.8**	**Annual Total Precipitation (in.)**			**39.25**		
	January	February	March	April	May	June	Junly	August	September	October	November	December
Average Temp (°F)	34.2	35.8	37	54.3	57.6	72.9	77	76.3	69.3	55.6	45.7	30
Total Precipitation (in.)	5.79	1.88	4.16	5.29	2.94	1.4	4.01	3.72	1.29	3.89	2.7	2.18
Year: 2006			**Annual Average Temp (°F)**			**54.0**	**Annual Total Precipitation (in.)**			**42.66**		
	January	February	March	April	May	June	Junly	August	September	October	November	December
Average Temp (°F)	40.5	33.4	40.3	55.9	59.4	68.4	74.8	75.2	63.3	51.8	45.1	39.6
Total Precipitation (in.)	3.77	0.6	2.1	3.99	3.56	3.67	5.6	3.06	5.44	6.64	2.39	1.84
Year: 2007			**Annual Average Temp (°F)**			**54.1**	**Annual Total Precipitation (in.)**			**36.03**		
	January	February	March	April	May	June	Junly	August	September	October	November	December
Average Temp (°F)	36.1	22.5	45.3	50	64.8	71.6	71.4	77	69.1	61	44.1	36
Total Precipitation (in.)	3.7	2.51	3.14	3.38	0.92	2.19	4.74	3.44	0.91	2.68	3.3	5.12
Year: 2008			**Annual Average Temp (°F)**			**52.4**	**Annual Total Precipitation (in.)**			**43.47**		
	January	February	March	April	May	June	Junly	August	September	October	November	December
Average Temp (°F)	30.2	32	40.1	55.4	58.1	72	72.9	71.2	68.5	53.2	41	34.3
Total Precipitation (in.)	2.3	4.2	5.92	2.55	4.21	6.18	4.11	2.6	1.17	2.25	2.24	5.74
Year: 2009			**Annual Average Temp (°F)**			**52.3**	**Annual Total Precipitation (in.)**			**39.74**		
	January	February	March	April	May	June	Junly	August	September	October	November	December
Average Temp (°F)	25.3	33.8	44.1	52.5	62.8	69.8	69.8	72.7	66.2	50.9	47.7	32.4
Total Precipitation (in.)	4.4	1.67	1.67	4.21	4.16	6.93	3.68	2.12	2.07	3.74	1.2	3.89
Year: 2010			**Annual Average Temp (°F)**			**53.1**	**Annual Total Precipitation (in.)**			**40.03**		
	January	February	March	April	May	June	Junly	August	September	October	November	December
Average Temp (°F)	27.9	27.7	43.9	55.8	64.8	73.6	75.9	75.6	67.1	55.6	42.6	26.6
Total Precipitation (in.)	2.38	2.34	2.8	1.03	7.03	6.1	7.19	1.52	1.43	1.83	2.97	3.41
Year: 2011			**Annual Average Temp (°F)**			**54.0**	**Annual Total Precipitation (in.)**			**58.51**		
	January	February	March	April	May	June	Junly	August	September	October	November	December
Average Temp (°F)	26.2	34.7	41.9	54.9	62.8	70.9	77.7	73	67.1	53.2	47.5	38.5
Total Precipitation (in.)	2.01	4.08	6.1	7.04	3.44	5.98	3.63	5.06	7.02	6.2	4.98	2.97
Year: 2012			**Annual Average Temp (°F)**			**55.4**	**Annual Total Precipitation (in.)**			**45.71**		
	January	February	March	April	May	June	Junly	August	September	October	November	December
Average Temp (°F)	34.5	36.9	52.7	51.8	67.1	70.7	78.1	73.6	65.5	53.8	40.8	39.6
Total Precipitation (in.)	4.63	1.69	4.48	1.79	6.07	2.74	3	3.33	6.37	4.34	0.47	6.8
Year: 2013			**Annual Average Temp (°F)**			**55.6**	**Annual Total Precipitation (in.)**			**34.66**		
	January	February	March	April	May	June	Junly	August	September	October	November	December
Average Temp (°F)	32.9	31.5	37.4	53.2	63.7	70.9	74.3	71.2	65.1	N/A	N/A	N/A
Total Precipitation (in.)	2.49	1.58	2.75	1.52	2.05	6.16	9.39	6.7	2.02	N/A	N/A	N/A

Surface Water

Wetlands make up a very small percentage of the Lower Muskingum watershed. According to 2006 LANDSAT data, woody wetlands and emergent herbaceous wetlands combined make up 0.06% of the land use cover. Information was requested from the Army Corps of Engineers on any wetlands within the watershed that have been delineated as part of Section 404 permits since 1988. Only one has been issued during that time period, in September 2000 for Duke Energy Washington, LLC, in Waterford Township, Washington County. Twelve wetlands, composed mainly of intermittent streams and associated emergent wetlands, were delineated within the 220-acre plot (Earth Tech Inc 2000).

Information about stream length, gradient, drainage area, and elevations can be found in the Ohio Stream Gazetteer published by ODNR (ODNR 2001). Stream information for major tributaries to the Lower Muskingum River is shown in Table 1-19. Unfortunately, 10 year low flow information for these tributaries is not readily available at this time. This information should be available in the coming years upon completion of Ohio EPA's TMDL research.

Table 1-19
Major tributaries to the Lower Muskingum River Watershed

Stream Name	Length (miles)	Ave. fall (ft/mile)	Drainage (sq. mile)
Olive Green Creek	22.0	13.6	83.1
Meigs Creek	21.2	10.7	142
Wolf Creek	47.4	8.5	234
Bluerock Creek	5.2	42.9	10.2
Island Run	6.1	45.1	13.5
Bald Eagle Run	6.4	40.4	10.9
Big Run	9.0	45.2	18.2
Cat Creek	6.9	58.0	12.1
Rainbow Creek	9.8	22.4	18.8

Source: Gazetteer of Ohio Streams, ODNR 2001.

Daily volumetric and 10-year low flow data exists for the mainstem of the Muskingum River in McConnelsville, where a USGS streamflow gage station has been in operation from October 1921 to the current year. Based on 89 years of records, the daily mean flow of the mainstem is 7,122 ft^3/sec (USGS 2011). Data is also available from a USGS gage station on Meigs Creek near Beverly that was in operation from March of 1972 to March of 1975 (USGS 1997). Information on floodplain areas is presented in maps on the following pages. It was derived from GIS information on the ODNR website (ODNR 2000). The flood hazard areas coverage represents the 100-year floodplain as contained in the Federal Emergency Management

Agency's (FEMA) most recent National Flood Insurance Program (NFIP) maps at the time of digitizing (2000). Sinuosity and entrenchment indices are discussed in Section II of this plan, specifically for the Southern Watershed.

Although there are no natural lakes within the watershed, there are many sedimentation ponds located in AEP's ReCreation land in the Meigs Creek Subwatershed. These ponds were created in the late 1950's/early 1960's as part of the surface mining reclamation process. Many of these lakes and ponds are currently open to the public for recreation purposes, such as boating and fishing. Historically these ponds have been stocked with fish by ODNR.

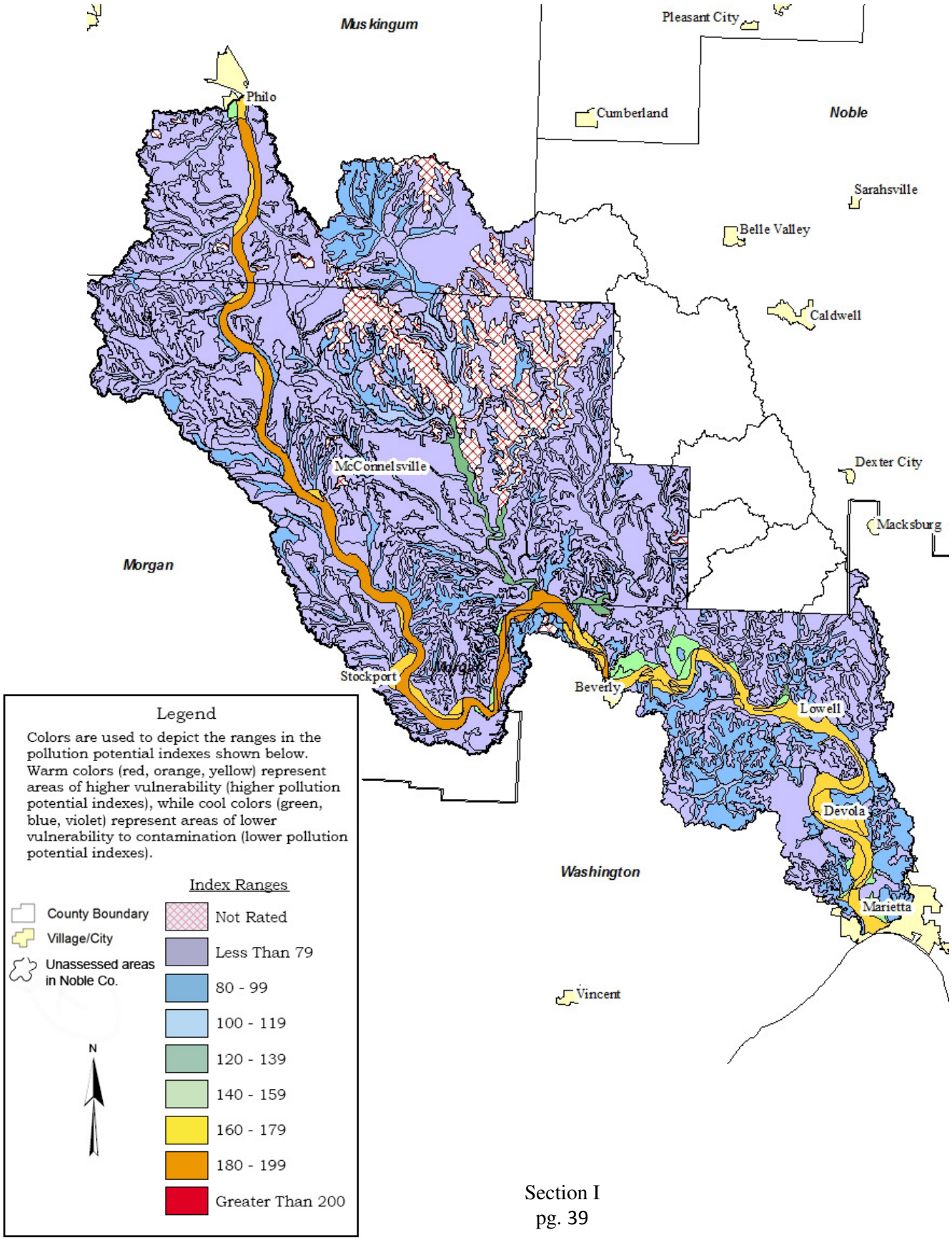
Ten lakes and four dry dams exist to the north of the Lower Muskingum watershed in the upper Muskingum River valley. The Muskingum Watershed Conservancy District (MWCD), who controls 16,000 acres of water and 38,000 acres of land, manages these lakes and dams. Many of the lakes are plagued by sedimentation problems resulting from erosion. In response the MWCD has undertaken dredging and erosion control projects in the lakes, and has planted millions of trees.

Groundwater

The Ohio Department of Natural Resources (ODNR), Division Soil and Water Resources provided ground water pollution potential data for Washington, Morgan, and Muskingum counties (Noble County was not assessed). The DRASTIC method is their primary tool used in evaluating the hydrogeologic sensitivity of aquifers to contamination. It uses a relative ranking scheme, called the DRASTIC index, to help prioritize ground water resources with respect to their vulnerability to ground water contamination. Seven parameters are used to calculate the DRASTIC index: **D**epth to water, **R**echarge to the aquifer, **A**quifer media, **S**oil media, **T**opography, **I**mpact of vadose zone media, and **C**onductivity of the aquifer. This relative rating system produces a numerical value called the ground water pollution potential index. Higher index values indicate higher susceptibility to ground water contamination. Pollution potential index scores were generated and color coded to fit a map of the Lower Muskingum River Watershed (Figure 1:5). The colors are used to depict the ranges in pollution potential indexes. Warm colors represent areas of higher vulnerability while cool colors represent areas of lower vulnerability to contamination (Angle, 2002).

The DRASTIC modeling has identified the area along the mainstem of the Lower Muskingum River as highly vulnerable to ground water pollution potential. While some areas within the Meigs Creek and Olive Green Creek watersheds have index scores of moderate vulnerability, the majority of the remaining Lower Muskingum River Watershed shows a low vulnerability to groundwater pollution potential. Detailed information regarding groundwater pollution potential in the Southern Watershed can be found in Section II of this plan on page 27.

Figure 1:5
Groundwater Pollution Potential in the Lower Muskingum Watershed



The aquifers in the high sensitivity area along the Lower Muskingum mainstem are characterized by: recharge rates that average 7-10 inches per year; aquifer medias consisting primarily of sand and gravel; soil medias composed mostly of sandy or silty loams; hydrogeologic settings consisting of buried valleys and alternating sandstone, limestone and shale (thin soil); a depth to water ranging mostly from 5 to 30 feet; and a hydraulic conductivity averaging 1000-2000 gallons per day per square foot (the conductivity is lowest near Beverly at 300-700, and highest near Marietta 2000+).

The moderately sensitive areas along the major tributaries to the Lower Muskingum River are characterized by: recharges rates of 4-7 inches per year; aquifer medias of interbedded sandstone, shale, limestone, clay and coal; soil medias that are thin or absent (gravel); a hydrogeologic setting of mainly alluvium; a depth to water averaging 15 to 30 feet; and a hydraulic conductivity of 1-100 gallons per day per square foot.

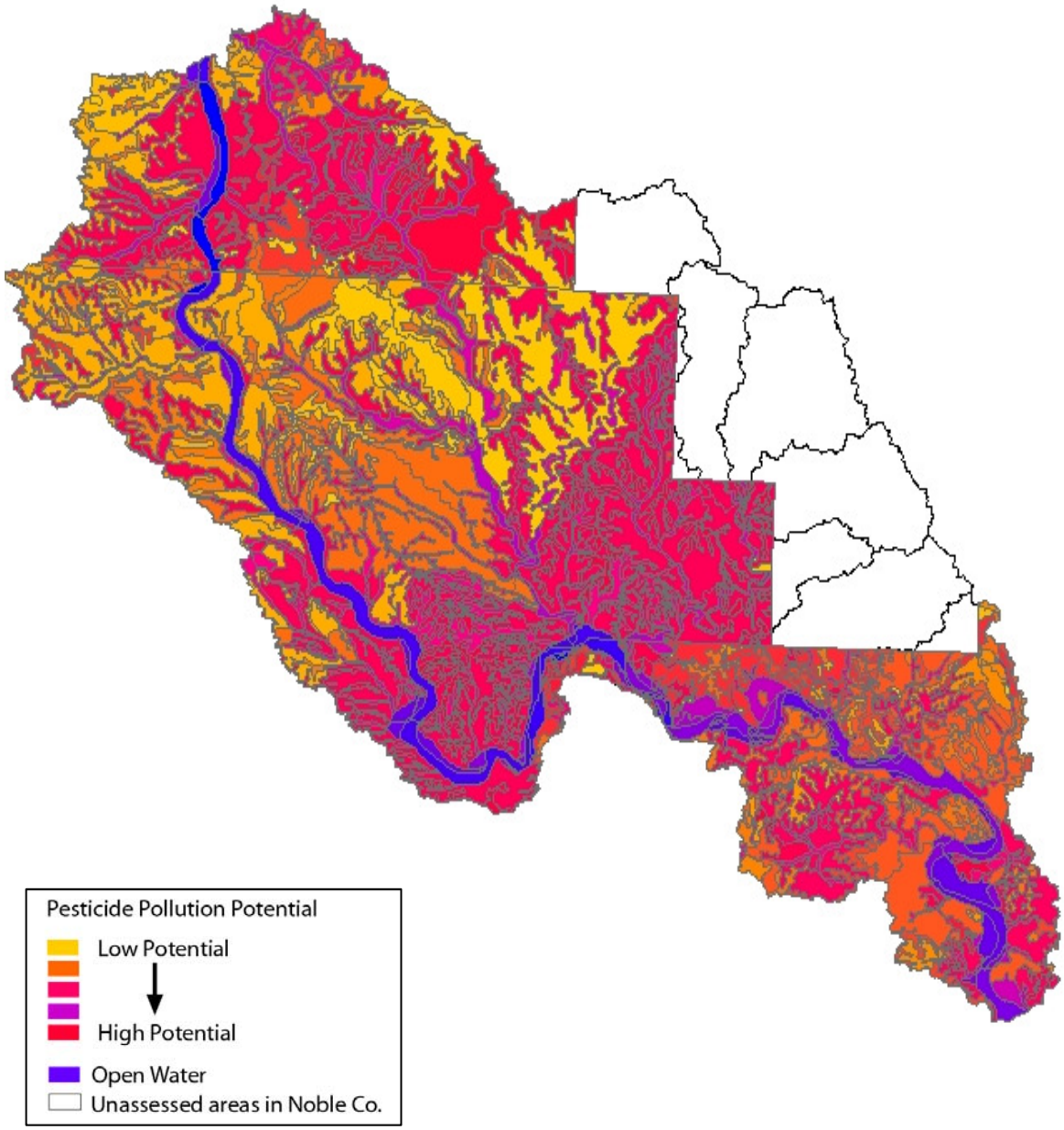
The low sensitivity areas are characterized by: recharge rates of 2-4 inches per year; aquifer medias of interbedded sandstone, shale, limestone, clay and coal; soil medias composed of shrinking and/or aggregated clay; hydrogeologic settings consisting of alternating sandstone, limestone and shale (thin soil); a depth to water ranging from 30 to 100 feet; and a hydraulic conductivity of 1-100 gallons per day per square foot.

Pesticide DRASTIC ground water pollution potential scores were also calculated for much of the Lower Muskingum watershed (Figure 1-6). These pesticide scores closely follow those described above with the general DRASTIC score. The entire length of the Lower Muskingum River mainstem is highly sensitive to potential pesticide contamination, while most of the watershed is categorized as moderately sensitive. The bedrock uplands are low sensitivity areas.

Figure 1:6

Pesticide Pollution Potential in the

Lower Muskingum Watershed



The parameters used to calculate DRASTIC scores are not available for the strip-mined areas in the upper and lower portions of the Meigs Creek Subwatershed (the mining was concentrated in Dyes Fork and the eastern side of Mans Fork). DRASTIC data is also not available for Noble County, and ODNR does not plan to collect it due to its limited ground water resources (Heather Raymond 2004). Therefore, the data for the portion of Noble County that lies within the Lower Muskingum watershed can be extrapolated based on the DRASTIC maps for the surrounding counties. Based on Morgan and Washington County's data, the DRASTIC rating for the bedrock uplands in Noble County is approximately 73-75, and the rating for the alluvial region adjacent to the tributaries is most likely between 90 and 113. These scores should be fairly accurate because the bedrock geology is all interbedded limestone, shale, sandstone, and coal seams, and because the alluvial deposits are similar.

Drinking Water Information

As evident from the DRASTIC and public water supply maps, it is essential that the areas along the mainstem of the Lower Muskingum River and its major tributaries be protected in order to assure a safe drinking water supply. Due to the underlying geology, the highest-yielding wells occur in these areas, and most of the ground-water supplies for municipal and industrial purposes are developed in this aquifer. Well yields throughout the remainder of the watershed are extremely low, with average yields ranging from 2 to 5 gallons per minute. Yet these extensive sandstone, shale and limestone bedrock aquifers are a very important source of domestic water supply for southeastern Ohio, and cistern supplies are commonly used throughout these areas (Barrett *et al*. 1995; Mechling *et al*. 1995).

Residents of the Lower Muskingum watershed rely very heavily upon ground water (Table 1-20). In Washington and Muskingum Counties, 90 to 93 percent of all households rely on ground water for their water supply. The majority of this ground water comes from public water supplies. For instance, in Washington County, about 85 percent of ground water comes from community water systems and in Muskingum County, 62 percent. Private wells, ponds or cisterns serve the remaining residents (Barrett *et al*. 1995; Mechling *et al*. 1995). There are no public surface water intakes for the Lower Muskingum River Watershed. Figures 1:7, 1:8, and 1:9, show the location of the three types of public water systems in Ohio: community public, transient non-community (TNC), and non-transient non-community (NTNC).

Figure 1:7

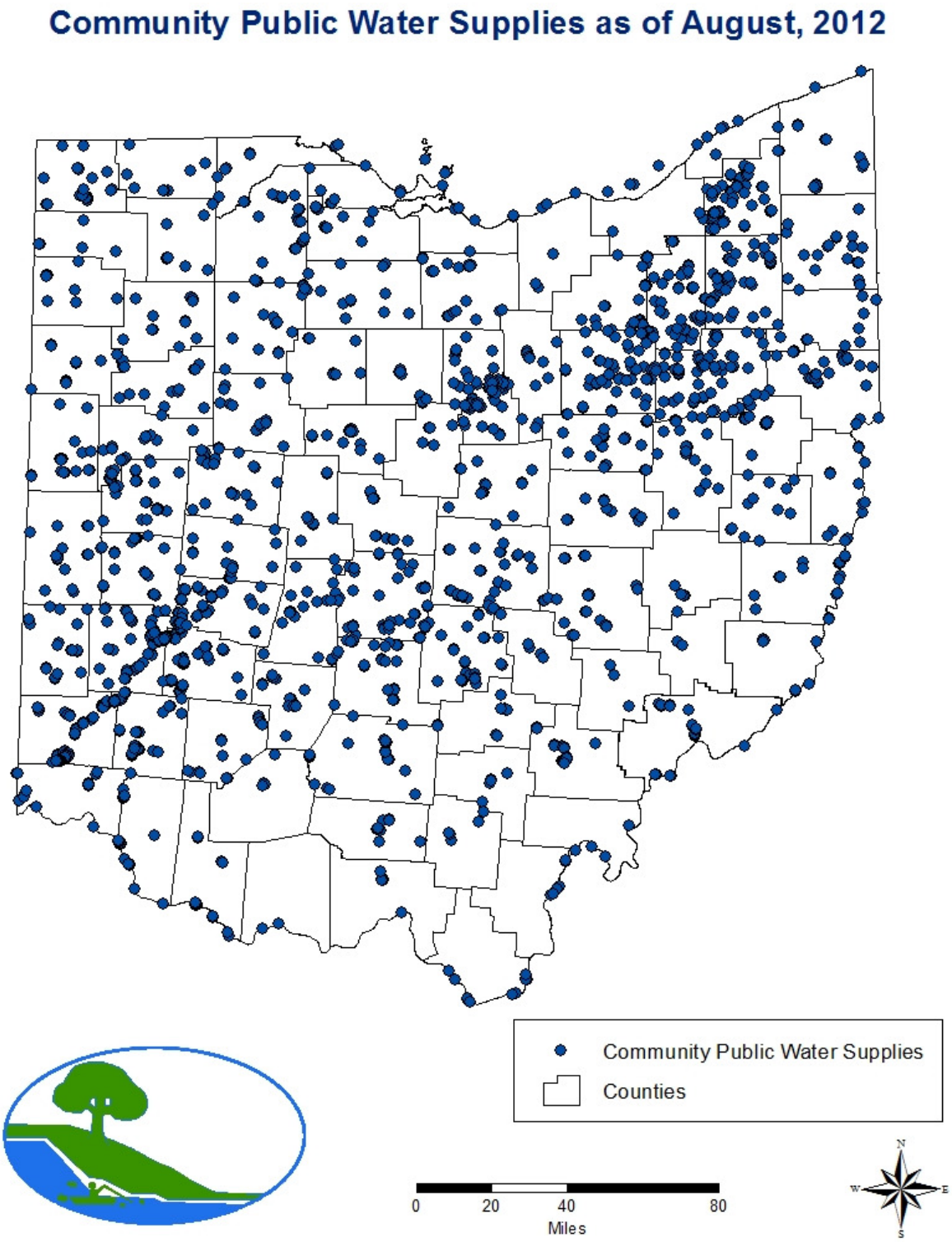

Community Public Water Supplies as of August, 2012
Community Public Water Supplies
Counties
0
20
40
80
Miles
N
W
E
S

Figure 1:8

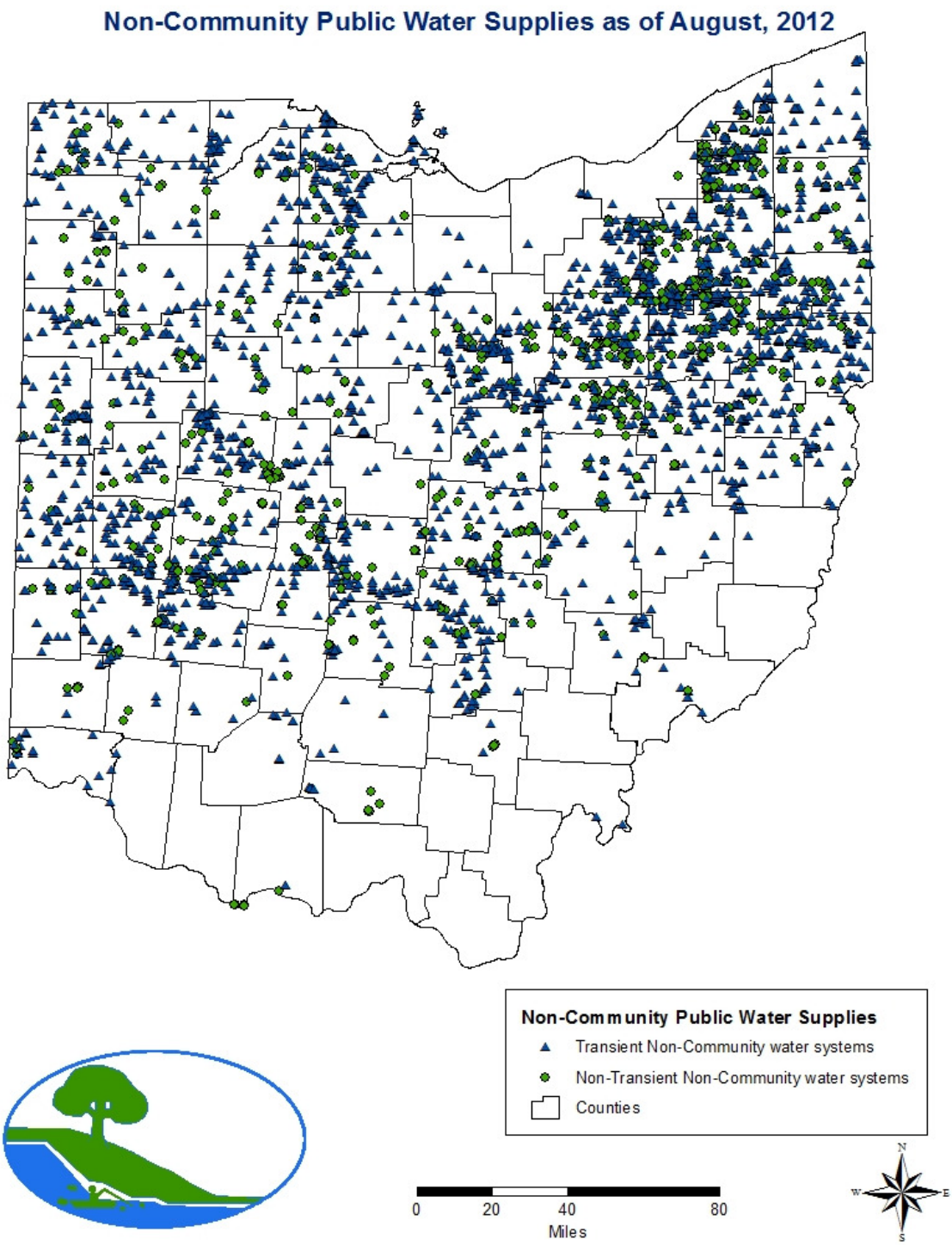

Non-Community Public Water Supplies as of August, 2012
Non-Community Public Water Supplies
Transient Non-Community water systems
Non-Transient Non-Community water systems
Counties
0
20
40
80
Miles
N
W
E
S

Figure 1:9

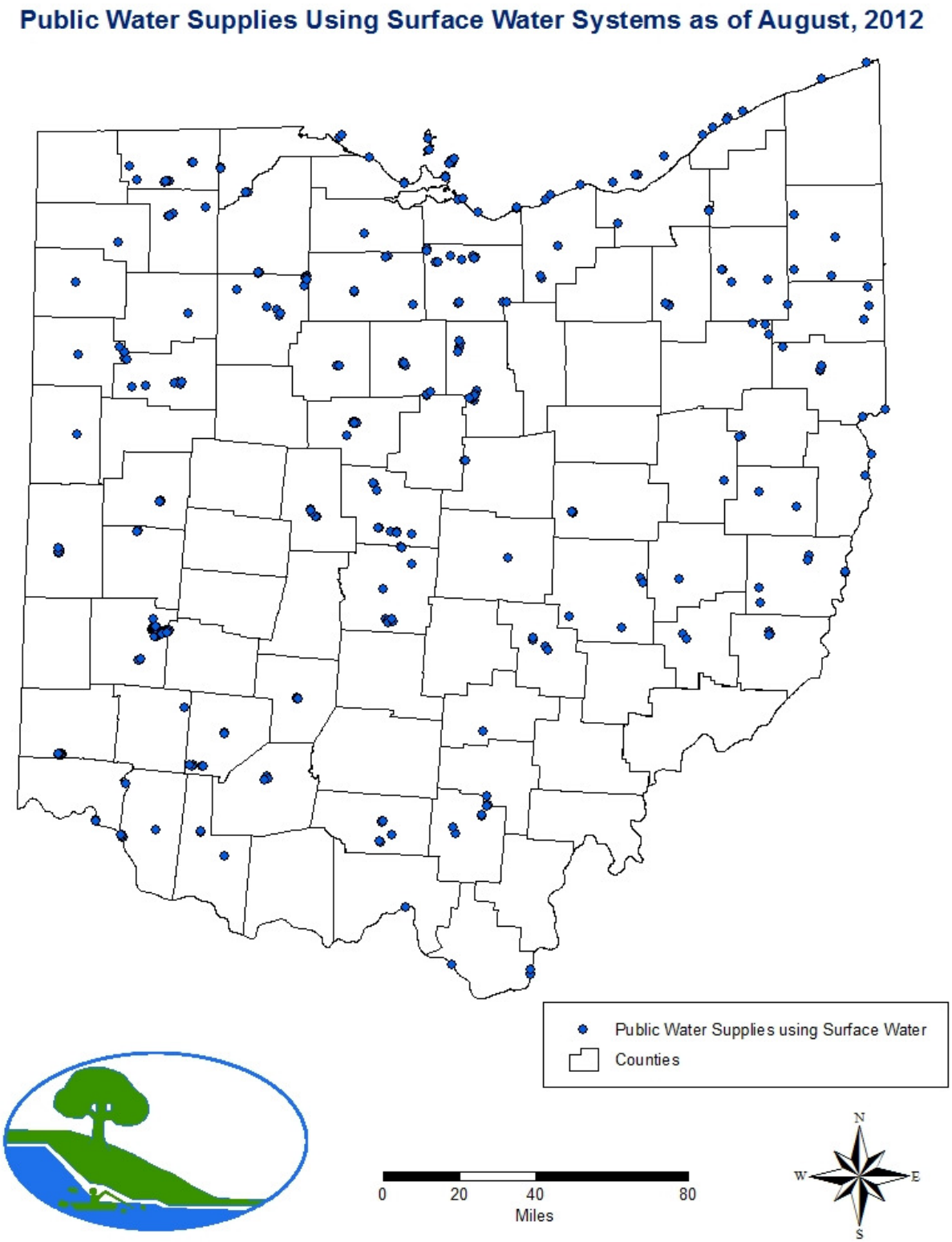

Public Water Supplies Using Surface Water Systems as of August, 2012
Public Water Supplies using Surface Water
Counties
0
20
40
80
Miles
N
W
E
S

Table 1-20
Public Water Usage and Primary Source in the Lower Muskingum Watershed

Public Water System	Population Served	Primary Water Source	Usage (GPD)[2]	Treatment Plant Capacity (GPD)
Beverly	1,444	Ground Water	198,700	1,368,000
Lowell	611	Ground Water	86,000	115,000
Marietta	21,520	Ground Water	3,362,800	5,800,000
Putnam Community	2,475	Ground Water	220,933	864,000
Waterford	750	Ground Water	52,488	288,000
Philo	818	Ground Water	132,000	N/A

[1] Abstracted from Inventory of Municipal Water-Supply Systems by County, Ohio (1977) and updated with data provided by Gary Stellrect, Ohio EPA, Division of Drinking and Ground Water, Southeast District Office, Logan, OH.
[2] GPD = gallons per day.

Source: Barrett et al. 1995; Mechling et al. 1995

Information on water use within the entire Muskingum watershed was derived from the United States Geological Survey (USGS), which divides water-use data into four major categories: domestic and commercial, irrigation and livestock, industrial and mining, and thermoelectric power. According to 1990 data for the Muskingum watershed, the vast majority of water use is coming from fresh surface water withdrawals used for fossil-fuel thermoelectric power. Approximately nine hundred million gallons per day are used by two facilities, which together generate 14551.79 gigawatts hours of power per year (USGS 1990). Since additional thermoelectric power plants have been built along the mainstem of the Muskingum River in recent years, this number is likely higher today. The remaining 5.83 million gallons per day of fresh surface water withdrawals are used for stock, livestock, mining, public supply, and industry. Fresh ground water is used in much smaller amounts, with withdrawals of 12.51 million gallons per day. About half of this ground water is used for public supply. The remaining ground water is mostly self-supplied, and is used for domestic and industrial purposes. Twenty-three public wastewater facilities also comprise a small portion of water use in the watershed.

SWAP Plans

The Ohio EPA has completed Source Water Assessment and Protection (SWAP) plans for all of the public water system (PWS) in the Lower Muskingum River Watershed that use ground water as its primary source of drinking water. The three steps that go into developing SWAP plans include: delineating the area from which a public water system receives its water (drinking water source protection area), inventorying potential significant contaminant sources within the drinking water protection area, and determining the susceptibility of the source water (aquifer) to contamination (susceptibility refers to the likelihood for the source water(s) to be impacted by contaminants at concentrations that would pose a concern) (Ohio EPA 2009). SWAP areas within the Lower Muskingum watershed are summarized in Table 1-21 and in Figure 1:10. Although information from the SWAP plans was not used in the Southern Watershed Action Plan (WAP), they should be used in sighting specific projects laid out in the WAP. If a specific project has the potential of impacting groundwater sources then the SWAP plans should be consulted.

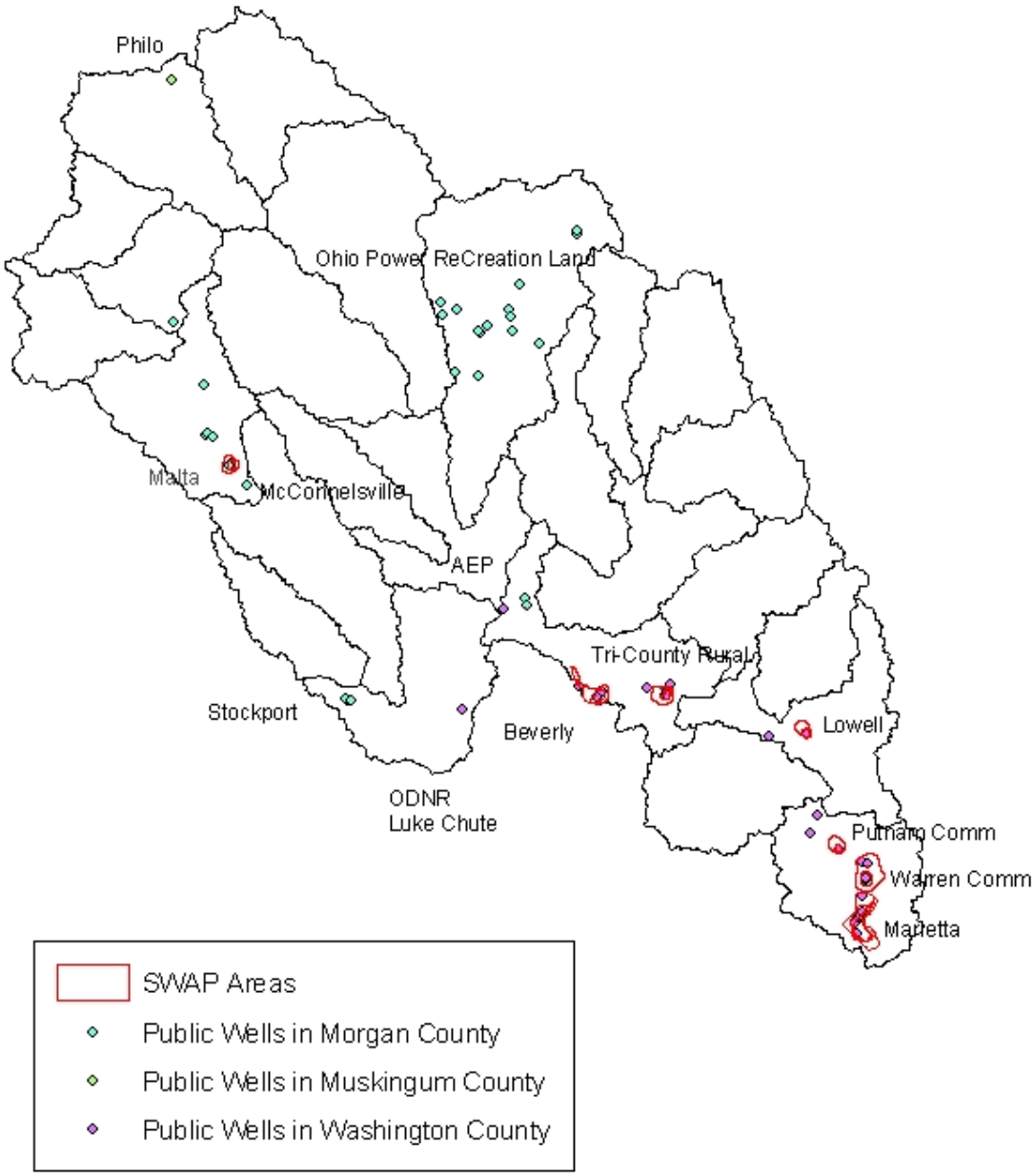
Table 1-21

SWAP Areas Delineated by the Ohio EPA in the Lower Muskingum Watershed

Site	Wells	Pump rate	Setting
Malta	6	175000	Buried
Beverly	4	750000	Alluvial/River
Lowell	1	67500	Alluvial/River
Marietta	7	7995000	Buried
Marietta	8	7005000	Alluvial/River
Tri-County Rural	3	33750	Alluvial/River
Putman Community	4	262500	Alluvial/River
Warren Community	2	990000	Alluvial/River
AEP Muskingum River	2	1750	Buried
Waterford	2	67500	Alluvial/River

Figure 1:10

Public Water Supply Wells and SWAP Areas in the Lower Muskingum Watershed



Potential Contaminants

Traditional vertical type oil and gas wells are the most abundant potential sources of contamination within the Lower Muskingum watershed (Figure 1:11). They are found throughout the watershed, with the highest concentrations occurring in the Olive Green Creek Subwatershed. The Blue Rock Creek and the Lower Meigs Creek Subwatersheds southwest of Philo also have a high density of wells. Cemeteries are the next most abundant potential contaminants (Figure 12). About 25 cemeteries exist in the Meigs Creek watershed, 20 in the northern Lower Muskingum watershed, fifteen in the Olive Green Creek Subwatershed, and eight in the Southern Lower Muskingum watershed.

The combination of these numerous "traditionally" drilled oil and gas wells along with the increased activity in deep shale, horizontally drilled oil and gas wells has the potential to be a serious threat to the groundwater supplies of the Lower Muskingum River Watershed. As the oil and gas supplies from these traditional wells become depleted and activity in the deep shale continues to increase, many wells could be left abandoned. Also, since many traditional wells were drilled before any Ohio regulation, a threat does exist of accidently disturbing an unknown abandoned well during deep shale exploration. These abandoned wells seriously threaten groundwater supplies in the Lower Muskingum River basin because they can serve as conduits for contaminants.

See page 50 for Figure 1:11 and page 51 for Figure 1:12

Figure 1:11

Oil and Gas Wells in the Lower Muskingum Watershed

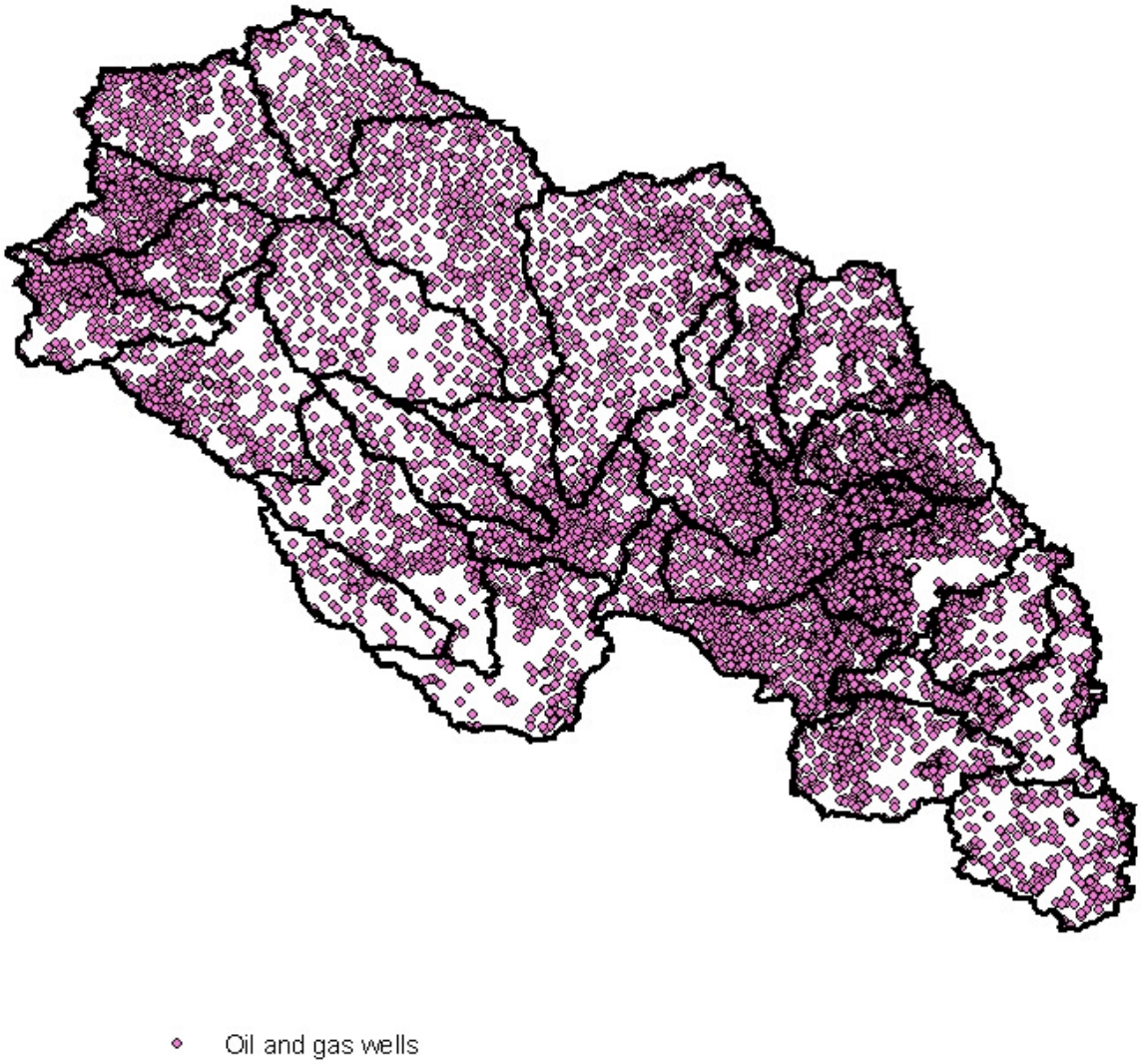
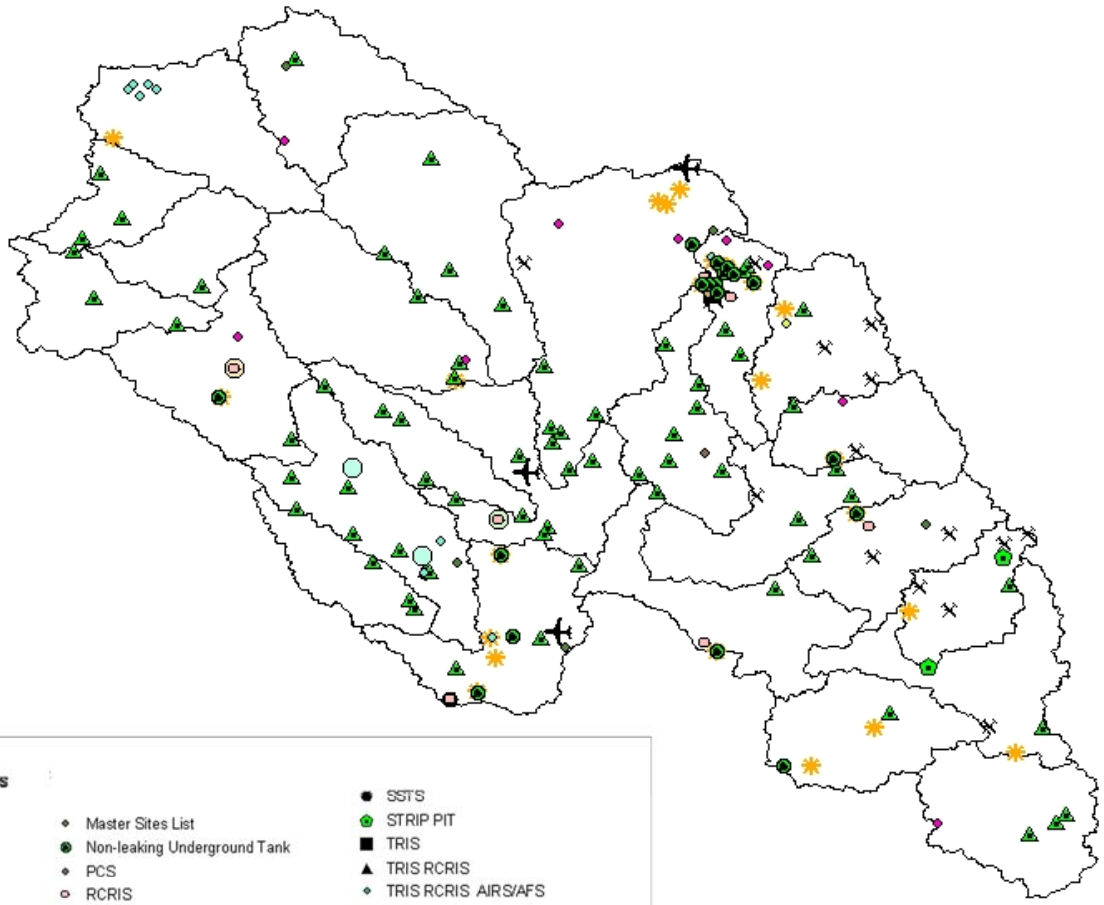


Figure 1:12

Potential Contaminants in the Lower Muskingum Watershed



Potential contaminants

TYPE

- AIRS/AFS
- Abandoned Mine
- Construction/Demolition Landfill
- Inactive/Closed Landfill
- Leaking Underground Tank
- Master Sites List
- Non-leaking Underground Tank
- PCS
- RCRIS
- RCRIS DOCKET
- RCRIS PCSPADS AIRS/AFS DOCKET
- SETTLING
- SSTS
- STRIP PIT
- TRIS
- TRIS RCRIS
- TRIS RCRIS AIRS/AFS
- Unknown Status Landfill
- airport
- cemetery
- haz waste site w/ grndwater monitoring

* **AIRS/AFS**: "Aerometric Information Retrieval System/Air Facility System" - Industrial plants that have airborne emissions

PCS: "Permit Compliance System" - Computerized management information system which contains data on NPDES (National Pollutant Discharge Elimination System) permit-holding facilities.

PADS: Facilities that handle PCBs.

RCRIS: "Resource Conservation and Recovery Act Information System" - Hazardous waste handlers regulated by U.S. EPA under the Resource Conservation and Recovery Act (RCRA).

RCRIS DOCKET: Facilities on RCRIS that have actions filed by the US Dept. of Justice for U.S. EPA.

RCRIS PCS PADS AIRS/AFS DOCKET: Facilities in RCRIS, PADS, PCS or AIRS/AFS that have actions filed by the US Dept. of Justice for U.S. EPA.

SSTS: "Section Seven Tracking System" - Pesticide-producing establishments.

TRIS: "Toxic Release Inventory System" - Facilities that manufacture, process, or import any of over 300 listed toxic chemicals that are released directly into the air, water, or land, or are transported off-site.

TRIS RCRIS: Facilities that are in both the TRIS and RCRIS.

TRIS RCRIS AIRS/AFS: Facilities that are TRIS, RCRIS and AIRS/AFS

Master Sites List: Site on a list kept by the OEPA's Division of Emergency and Remedial Response (DERR) that was used to identify and prioritize unregulated sites that potentially impacted soil or ground water.

SETTLING: Location of various Settling Ponds

Additional potential contaminants within each subwatershed include:

Meigs Creek

In the northern portion of the Dyes Fork Subwatershed, potential contaminants include: an airport, three leaking underground storage tanks, two inactive/closed landfills, and one abandoned mine (Coal Run). At the southern edge of the Mans Fork Subwatershed, a cluster of one closed landfill, two cemeteries, and one leaking underground storage tank are potential contaminants. The Morgan County Airport, located in the lower portion of the Meigs Creek, is another potential source of contamination.

Olive Green Creek

A large cluster of potential contaminants exists in the northern portion of Olive Green Creek. Seven leaking underground storage tanks, ten non-leaking underground storage tanks, one abandoned mine (north west of Belle Valley), one hazardous waste site with groundwater monitoring near Glacier Vandervell Inc., and four cemeteries exist in the northern portion of Olive Green Creek. Data obtained from the US EPA Resource Conservation & Recovery Information System (RCRIS), identified five sites in this region that generate, transport, store, or dispose of hazardous wastes. Data obtained from the Toxic Release Inventory Services (TRIS), identified one facility that manufactures, processes, or imports any of over 300 listed toxic chemicals, which they release directly into the air, water, or land, or are transported off-site (OEPA 2004). In the Sharon Fork Subwatershed, there are three abandoned mines, one construction/demolition landfill, and two leaking underground storage tanks. Potential contaminants in the Little Olive Green Subwatershed include eight cemeteries; in Keith Fork, two underground storage tanks, an abandoned mine, and a closed landfill; and in the lower Olive Green Creek Subwatershed, an abandoned mine and three cemeteries.

Northern Lower Muskingum

Cemeteries are scattered throughout this subwatershed. The stretch along the Muskingum River mainstem spanning from McConnelsville to Stockport contains additional potential contaminants such as: an airport, leaking and non-leaking underground storage tanks, closed landfills, settling ponds for AEP's electric plant, and two RCRIS sites.

Southern Lower Muskingum

The Cat Creek Subwatershed has four abandoned mines, two strip pits, a leaking underground storage tank, and a cemetery. Big Run also had mining activity in the past, for it has a lime sludge site, two abandoned mines, and a cemetery. The remaining subwatersheds have fewer potential contaminants, which include mainly cemeteries and some leaking underground storage tanks.

Nitrate Concentrations in Wells

In 2009 and 2010 multiple water samples were taken from the Putnam Community Water Association (PCWA) in the Community of Devola (North of Marietta) that exceeded the Nitrate maximum contaminate level (MCL). The MCL is the maximum permissible level of any contaminant in water delivered to any user of a Public Water Supply. According to the United States EPA website, "Infants below six months who drink water containing nitrate in excess of the maximum contaminant level could become seriously ill and, if untreated, may die".

At the request of the Health Commissioner of the Washington County General Health District, the Ohio EPA conducted an unsafe water supply investigation in 2010 with the purpose of determining the sources causing the elevated levels of nitrate flowing into the PCWA wellfield. In August 2010, sixteen Geoprobe borings were completed and water level data and ground water samples were collected at multiple locations and at various depths (at and below the water table). The study concluded that the ground water flow from the unsewered area of Devola is contributing significantly to the exceedence of the nitrate MCL at the Putnam Community Water Association.

To address this contamination, the City of Marietta is undertaking a three phase upgrade to their wastewater treatment plant (WWTP). The goal is to completely incorporate the Community of Devola into the sewered reaches of Marietta's WWTP, reducing the use of onsite wastewater treatment systems ("septic systems") and therefore reducing the amount of Nitrate loads flowing to the PCWA wellfield. To immediately handle the exceeding levels of Nitrate, the Putnam Community Water Association is installing a reverse osmosis system to better treat current water withdrawals.

WATER QUALITY

Ohio EPA Beneficial Use Designations and Statewide Criteria: Overview

This section addresses the documented water quality of the entire Lower Muskingum watershed. It is intended to provide an overview of water quality in the entire watershed. A detailed analysis of sources and causes of impairment beyond the 305(b) and 305(d) water quality report for nonpoint source pollution will be addressed only for the Southern Subwatershed in Section II of this plan.

Aquatic Life Designations

The Ohio Water Quality Standards (WQS) stated in chapter 3745-1 of the Ohio Administrative Code consists of designated uses and chemical, physical, and biological criteria for surface waters. These standards are designed to represent measurable properties of the environment. Rivers and streams in Ohio receive "use designations" that reflect the aquatic habitat which the stream can support and how the water is used. Water quality standards are then established to support those uses. Use designations are comprised of two categories, aquatic life and non-aquatic life uses. Non-aquatic life uses are further divided into recreation and water supply designations. Each water body in Ohio is assigned one or more aquatic use designations, one or more water supply designations, and/or one recreation designation.

Aquatic Life Uses

In applications of Ohio WQS to management of water resource issues, aquatic life use criteria frequently control protection and restoration requirements. Generally, emphasis on protecting aquatic life results in attaining water quality suitable for all uses, hence the emphasis of aquatic life uses in water quality reports and planning. The degree of attainment is separated into five categories (Table 1-22).

Table 1-22

Description and Qualifications of Use Attainment Degrees

Status Description	Qualifications
Fully attaining	All indices meet criteria
Fully attaining but threatened	All indices meet criteria, but land use activities in the watershed pose an immediate threat to maintaining water quality at this level
Partially attaining	One or two of the three indices do not meet criteria and are not in the poor or very poor category
Non-attaining	None of the indices meet criteria or one organism group indicates a sever toxic impact even if the other organism group indicates attainment

Source: Ohio EPA website 2012

The five different aquatic life uses currently defined in the Ohio WQS, and the intent of each with respect to the role of biological criteria are described as follows:

Warmwater Habitat (WWH)

This designation defines the typical warmwater assemblage of aquatic organisms in Ohio's rivers and streams. Waters designated as WWH are capable of maintaining a balanced, integrated, and adaptive community of warmwater aquatic organisms. Biological criteria are stratified across five ecoregions for the WWH designation. This aquatic use designation represents the principal restoration target for the majority of water resource management planning in Ohio.

Exceptional Warmwater Habitat (EWH)

This designation is for waters capable of supporting and maintaining an exceptional or unusual community of warmwater aquatic organisms. These assemblages of organisms are characterized by a high diversity of species, particularly those that are highly intolerant, rare, threatened, endangered, or special status species. Biological criteria for EWH apply uniformly across Ohio. The EWH designation represents a protection goal for water resource management efforts dealing with Ohio's best water resources.

Modified Warmwater Habitat (MWH)

This designation applies to streams and rivers that have been found incapable of maintaining a balanced, integrated, and adaptive community of warmwater organisms. Streams and rivers designated MWH have been subjected to extensive and essentially permanent hydrological modifications. Aquatic assemblages in these streams generally comprise species that are tolerant of low dissolved oxygen, silt, and high nutrient concentrations. Biological criteria for MWH designation are stratified across five ecoregions and three major modification types-channelization, free-flowing water impoundments, and extensive sedimentation due to mine runoff.

Coldwater Habitat (CWH)

This designation is intended for waters that can support trout stocking and management and/or populations of native coldwater organisms. This is a separate designation from the Seasonal Salmonid Habitat (SSH) designation that applies to Lake Erie tributaries supporting periodic seasonal runs of salmonids. No specific biological criteria exist for the CWH designation; however, the WWH biocriteria are viewed as attainable for CWH streams.

Limited Resource Water (LRW)

This designation applies to waters that have been found lacking the capacity to support any appreciable assemblage of aquatic organisms. Use attainability analysis has demonstrated that extant organisms are substantially degraded, and that the potential for recovery to levels characteristic of any other aquatic designation is precluded. Causative factors for the LRW designation include extensive channel modifications, acid mine drainage, and other factors relating to extensive urbanization. No formal biological criteria exist for the LRW aquatic use designation.

Non-Aquatic Life Designations

Recreation Uses

Recreation use designations are in effect from May 1st to October 15th, except in those streams designated SSH in which case recreation designations apply from June 1st to September 30th. The two recreation use designations most applicable to rivers and streams are the Primary Contact Recreation (PCR) and Secondary Contact Recreation (SCR) designations. Waters

designated PCR are suitable for full-body contact recreation activities such as swimming and canoeing. Waters designated SCR are suitable for suitable for partial body contact activities like wading. Additionally water bodies achieving PCR designation must have a minimum water depth of one meter over an area 100 square feet or where canoeing is feasible. For any water body too small or shallow to meet either criterion the SCR designation applies. Attainment status of PCR and SCR designations is determined using bacterial indicators (e.g. E. Coli bacteria) as specified in the Ohio WQS. A water body that does not meet WQS bacteria standards for recreation is designated as impaired.

Water Supply Uses

Water Supply Designations are subdivided into three categories: Public Water Supply (PWS), Agricultural Water Supply (AWS), and Industrial Water Supply (IWS). PWS designates those streams or rivers located within 500 yards of a public water supply or food-processing intake, including those streams that are used as emergency water supplies. AWS designated waters are suitable for irrigation and livestock watering without treatment, while streams and rivers designated IWS are suitable for commercial and industrial uses, with or without treatment. Chemical criteria for each designation are specified in the Ohio WQS. Attainment is status based primarily on chemical-specific indicators.

Lower Muskingum Watershed Use Designations and Attainments

Aquatic Life Designations

For the Lower Muskingum River watershed, 581.7 total stream miles have been designated an aquatic life use. Of the total designated, 92.9 stream miles (16%) have been assessed. Use attainment status of the 92.9 stream miles is: 21.1 miles are fully attaining, 16 miles are threatened, 51.7 miles are partially attaining, and 4.1 miles are not attaining. Of the stream miles assessed, 39% are attaining their aquatic life use designation while 61% are partially or not attaining.

A total of 40 stream segments have an aquatic life use designation in the Lower Muskingum River watershed. Of the 40 total segments designated, three are sections of the Muskingum River mainstem, fourteen are direct tributaries (subwatersheds) to the Muskingum River, and the remaining 23 are tributaries to the designated subwatersheds. Eleven of the fourteen direct tributary streams in the Lower Muskingum River watershed are designated

Warmwater Habitat (WWH). Of these eleven streams, only Meigs Creek is designated as impaired, and the impairment of the ten other streams is unknown. Little Olive Green Creek, Keith Fork, and Sharon Fork, were designated Exceptional Warmwater Habitat (EWH). Little Olive Green Creek is designated as impaired and as not achieving the EWH habitat designation. All three segments of the Lower Muskingum River are designated as WWH and are partially achieving the WWH habitat designation. Aquatic life designations for the entire watershed are shown in Table 1-23 (OEPA, 2012 (b)).

Table 1-23

Aquatic Life Designations for Streams in the Lower Muskingum Watershed based on the Ohio EPA 2012 Integrated Water Quality and Assessment Report

Stream	Habitat Designation	Attainment Status
Meigs Creek	WWH	Threatened
Fourmile Run	WWH	Unknown
Dyes Fork	WWH	Indeterminate
Mans Fork	WWH	Unknown
Bald Eagle Run	WWH	Unknown
Island Run	WWH	Unknown
Bluerock Creek	WWH	Unknown
Rainbow Creek	WWH	Unknown
Cat Creek	WWH	Unknown
Big Run	WWH	Unknown
Olive Green Creek	WWH	Indeterminate
Little Olive Green Creek	EWH	Not Attaining
Keith Fork	EWH	Unknown
Sharon Fork	EWH	Unknown
Muskingum River Segment		
Salt Creek to Miller's Run	WWH	Partial
Miller's Run to Meigs Creek	WWH	Partial
Meigs Creek to Big Run	WWH	Partial
Big Run to Mouth	WWH	Partial

Recreation Designations

All fourteen tributary streams in the Lower Muskingum watershed are designated Primary Contact Recreation (PCR). For each of these streams, the attainment status of this designation is unknown. Fish consumption advisory has been listed for Meigs Creek. Each of the three Lower Muskingum River segments is designated PCR. The Miller's Run to Meigs Creek segment is listed as not supporting the PCR designation. Fish consumption advisory is listed for each of the three Lower Muskingum River segments. Recreation designations for the watershed are summarized in Table 1-24.

Table 1-24

Recreation Designations for Streams in the Lower Muskingum Watershed

Stream	Recreation Designation	Attainment Status	Fish Advisory
Meigs Creek	Primary Contact	Unknown	Yes **
Fourmile Run	Primary Contact	Indeterminate	
Dyes Fork	Primary Contact	Indeterminate	
Mans Fork	Primary Contact	Indeterminate	
Bald Eagle Run	Primary Contact	Indeterminate	
Island Run	Primary Contact	Indeterminate	
Bluerock Creek	Primary Contact	Indeterminate	
Rainbow Creek	Primary Contact	Indeterminate	
Cat Creek	Primary Contact	Indeterminate	
Big Run	Primary Contact	Unknown	
Olive Green Creek	Primary Contact	Unknown	
Little Olive Green Creek	Primary Contact	Unknown	
Keith Fork	Primary Contact	Unknown	
Sharon Fork	Primary Contact	Unknown	
Muskingum River Segment			
Salt Creek to Miller's Run	Primary Contact	Indeterminate	Yes *
Miller's Run to Meigs Creek	Primary Contact	Not Supporting	Yes *
Meigs Creek to Big Run	Primary Contact	Indeterminate	Yes *
Big Run to Mouth	Primary Contact	Indeterminate	Yes *

*"One meal per month" for white bass; "One meal per week" for channel catfish, flathead catfish saugeye, and spotted bass
**No additional information is available from OEPA or USEPA

Water Supply Designations

All of the fourteen tributary streams in the Lower Muskingum watershed are designated Public Water Supply (PWS) and Agricultural Water Supply (AWS). The streams' attainment of these designations is listed as unknown. The three segments of the Lower Muskingum River are also designated PWS and AWS. The attainment of these designations is also unknown. Water supply designations are summarized in Table 1-25.

Table 1-25

Water Supply Designations for Streams in the Lower Muskingum Watershed

Stream	Water Supply Designation	Attainment Status
Meigs Creek	PWS, AWS	Unknown
Fourmile Run	PWS, AWS	Unknown
Dyes Fork	PWS, AWS	Unknown
Mans Fork	PWS, AWS	Unknown
Bald Eagle Run	PWS, AWS	Unknown
Island Run	PWS, AWS	Unknown
Bluerock Creek	PWS, AWS	Unknown
Rainbow Creek	PWS, AWS	Unknown
Cat Creek	PWS, AWS	Unknown
Big Run	PWS, AWS	Unknown
Olive Green Creek	PWS, AWS	Unknown
Little Olive Green Creek	PWS, AWS	Unknown
Keith Fork	PWS, AWS	Unknown
Sharon Fork	PWS, AWS	Unknown
Muskingum River Segment		
Salt Creek to Miller's Run	PWS, AWS	Unknown
Miller's Run to Meigs Creek	PWS, AWS	Unknown
Meigs Creek to Big Run	PWS, AWS	Unknown
Big Run to Mouth	PWS, AWS	Unknown

Water Quality of Wetlands

In August 1999, a list of high quality wetlands in Ohio was compiled under the guidance of a group of wetland professionals from organizations such as the Nature Conservancy and the Ohio Natural Heritage Database of High Quality Wetlands in Ohio. The wetlands were deemed high quality because they have rare, threatened or endangered species, are functioning at a high level, or demonstrate one or two functions that are exceptional. High quality wetlands have been identified in Washington County around Watertown, Valley Mills, Willow Island, Beverly, Lowell, and Marietta (Table 1-26).

Table 1-26

High Quality Wetlands in Washington County

Site Name	Year*	Rank**	Plant Community	Quad
Devols Dam Floodplains	1982	2	Floodplain Forest	Marietta
Glenn-Sprague Marsh	1994	3	Mixed Emergent Marsh	Watertown
Marietta Township Marsh	1986	3	Mixed Emergent Marsh	Valley Mills
Waterford Mill	1984	3	Water-Willow Riverine	Beverly
Worthington Wetland	1983	2	Mixed Emergent Marsh	Lowell
Zimmer Wet Woods	1988	3	Floodplain Forest	Marietta

* Year of plant community record

** Subjective ranking by surveyor (1-3, 1=best)

Source: Ohio EPA, DSW 1999

In 2009 the National Wetlands Inventory of the US Fish and Wildlife Service introduced the Wetlands Mapper program which allows ease of access to the general public to download wetlands data and to view maps of wetlands throughout the nation. To date, approximately 72,000 acres of land in the Lower Muskingum River basin is categorized as a wetland according to the Wetlands Mapper service (U.S. Fish and Wildlife, 2012).

Groundwater Quality

Ground water quality monitoring information is currently collected through sampling of the Ambient Ground Water Monitoring Network wells. The Ambient Ground Water Monitoring Network is used as part of the new well approval process for public water supply wells, for compliance sampling for public drinking water systems, and for various special studies. This network is an Ohio EPA program and groundwater quality data is publicly available on their website at http://www.epa.state.oh.us/ddagw/gwqcp.aspx

Studies and Research in The Lower Muskingum Watershed

Government agencies that have studied the Lower Muskingum River watershed since 1988 include the Ohio Environmental Protection Agency (OEPA), Ohio Department of Natural Resources (ODNR), the Ohio Department of Transportation (ODOT), the Ohio River Sanitary Commission (ORSANCO), the United States Army Corps of Engineers (USACE), the United States Geological Survey (USGS), and the Water Quality Lab at Heidelberg College. American Electric Power (AEP) has also conducted independent water quality surveys at Muskingum River discharge sites. Other information indirectly pertaining to Lower Muskingum water quality, including fishing prospects and rare species sightings also exists for the Lower Muskingum watershed.

OEPA Study and Characterization

The Ohio EPA has conducted 4 comprehensive water quality studies in the Lower Muskingum River watershed since 1993. The Total Maximum Daily Load (TMDL) is currently being conducted in the Rainbow Creek-Muskingum River Subwatershed (Southern Subwatershed) and is scheduled to occur in the three remaining watersheds of the Lower Muskingum River basin in 2013. Water quality in the watershed generally meets Ohio standards, and other watersheds in Ohio have been in much poorer condition; therefore, studies on the Lower Muskingum River watershed have historically been a low priority for OEPA. The 4 comprehensive water studies that have been conducted since 1993 were completed to determine if the identified study area was in attainment of its biological and recreational use designations. The 4 studies are summarized as follows:

Sedimentation and Surface Water Study, 1993

From 1982-1992 the Ohio EPA Division of Water Quality conducted sediment and surface water sampling of the Muskingum River to determine the potential for the Muskingum River to contribute contaminants to the McConnelsville well field. Additional objectives of this study included: determining if fish are bioaccumulating chemical contaminants, re-assessing accumulation of specific metals and solvents adjacent to Gould, assessing surface water, and sediment adjacent to the Malta Wastewater Treatment Plant (WTP) well field discharge. Samples were collected from the Muskingum River mainstem between Gould (RM 52.6) and the McConnelsville dam (RM 48.8), adjacent to the McConnelsville well field, and in the vicinity of

Brock's junkyard at the mouth of Slemmons Creek. This study found elevated and/or unsafe levels of metals and organic compounds in Muskingum River surface water and sediments, including lead, copper, tetrachloroethene, trichloroethene, and dichloroethene (OEPA 1993). Table 1-27 lists concentrations of certain chemicals measured in this study.

Table 1-27

Chemicals Detected in Muskingum River Water and Sediments

	SEDIMENT mg/kg (ppm)				
River Mile (Location)	Lead	Copper	Tetrachloro-Ethane	Trichloro-Ethene	1,2 Dichloro-Ethane
52.6-52.0 (above Gould)	16-36.9	9-24.6	<0.05	<0.05	<0.05
51.8 (Gould effluent area)	17-7700	21.6-5170	0.005-4,227	0.005-0.278	0.005-0.593
51.7 (T & N effluent area)	251-15,300	53.1-3210	0.005-3433	0.005->573	1.10->351
51.6-51.5 (below T & N)	57.8-170	31.9-90.5	<0.05	<0.05	<0.05
51.1-48.8 (McConnelsville	16.1-50.7	14.7-29.2	<0.05	<0.05	<0.05

	WATER μg/l (ppb)				
River Mile (Location)	Lead	Copper	Tetrachloro-ethene	Trichloro-ethene	1,2 Dichloro-Ethane
52.6-52.0 (above Gould)	<3	<10-12	<5	<5	<5
51.8 (Gould effluent area)	<2-28	145-4350	750	7.5	10.1
51.8 (Gould mixing zone)	<3	11	<5-597	<2.5-15.9	<2.5-8.5
51.7 (T & N effluent area)	71-3950	<10-410	63.2-810	8.1-17.3	13.9-39.0
51.7 (T & N mixing zone)	431-692	28-30	170-780	7-10.9	<5-48.8
51.6-51.5 (below T & N)	7	16	0.7-6	<5	<5
51.1-48.8 (McConnelsville	<3-12	<10-20	<5	<5	<5

Source: OEPA 1993

Biological and Sediment Study of the Muskingum River, McConnelsville, Ohio, 2004

Historical operational practices at the Gould Electronics and Federal Mogul facilities resulted in impacts to sediment, soil, groundwater, and surface water from chlorinated solvents and metals. A Remedial Investigation (RI) of these facilities surrounding areas concluded that the preferred remedy for the impaired river sediment would be dredging in the area of both wastewater outfalls. However, before this action was taken, the RI required the OEPA perform a quantitative assessment to determine whether sediment remediation was even necessary. In 2003, 2.9 miles of the Muskingum River were assessed with the goals of: "1) Establishing the present biological conditions of the Muskingum River near these facilities NPDES outfalls by evaluating fish and macroinvertebrate communities , and 2) ID the relative levels of organic and inorganic contaminates to the surficial sediments of the Muskingum River adjacent, upstream and downstream from these two facilities. (OEPA, 2004)"

This study found, based on the performance of the biological communities, that the entire 2.9 miles of the Muskingum River were in partial attainment of the Warmwater Habitat aquatic life use designation. It was also determined that the "impounded condition of the Muskingum River within the study segment, along with excessive siltation of bottom substrates contributed to the impaired biological communities. The impaired biological conditions were not associated with chemical constituents released under current conditions or from chemically contaminated sediments at the Gould Electronics or Federal Mogul discharge locations." Overall significant improvement was seen in the sediment chemical levels within the Gould and Federal Mogul mixing zones, for numerous metals and volatile organic compounds, between the first investigations in 1988 and this study. Table 1-28 lists chemicals found within the sediment of this study area.

Table 1-28

Chemicals Detected in Muskingum River Sediment Near the Gould Electronics and Federal Mogul Facilities, October 2003

	MUSKINGUM RIVER SEDIMENT							
Parameter	**RM 52.42**	**RM 52.08**	**RM 51.81**	**RM 51.74**	**RM 50.58**	**RM 50.58**	**RM 50.27**	**SRVs**
Silver (mg/kg)	1.05J	1.04J	1.28J	2.74J	1.27J	1.29J	1.56J	0.43
Copper (mg/kg)	16.4	15.7	23.6	64.5[T]	18.3	17.8	18.1	33
Nickel (mg/kg)	24	24.2	25.6	86.4[P]	27.4	26.5	26.9	61
Lead (mg/kg)	26.5	25.6	31	273[P]	28.2	26.2	28.7	47
Acetone (ug/kg)	9.32U	9.34U	20.3J	9.68U	16.2J	10.4U	11.8U	-
Carbon disulfide (ug/kg)	0.932U	0.934U	1.08U	10.3	1.08U	1.04U	1.18U	-
cis-1,2-Dichloroethene (ug/kg)	0.932U	0.934U	1.08U	1.08J	1.08U	1.04U	1.18U	-
Naphthalene (ug/kg)	0.932U	0.934U	1.08U	1.48J	1.08U	1.04U	1.18U	-

J - The analyte was positively identified, but the quantitation was below the reporting limit (RL).
[T] - Above Threshold Effect Concentration (below which harmful effects are unlikely to occur; MacDonald et.al. 2000).
[P] - Above Probable Effect Concentration (above which harmful effects are likely to occur; MacDonald et.al. 2000).
[E] - Above Ecological Data Quality Level (USEPA 1998).
U- Not detected at or above the method detection limit (MDL is the reported value).

Biological and Water Quality Study of the Muskingum River, 2006

The Muskingum River drains the largest watershed in Ohio, encompassing 8,051 square miles. In 2006, Ohio EPA assessed the biological, surface water, sediment, and recreational (bacterial) conditions of the entire 112 miles of the Muskingum River. The objectives of this evaluation were to:

"• establish the present biological conditions in the Muskingum River by evaluating fish and macroinvertebrate communities,

• assess conditions in both impounded sections of river and free-flowing segments,

• assess physical habitat influences on stream biotic integrity,

• identify the relative levels of organic, inorganic, and nutrient parameters in the sediments and surface water,

• determine recreational water quality,

• evaluate influences from NPDES outfalls directly discharging to the Muskingum River,

• determine the attainment status of the Warmwater Habitat aquatic life use designation,

• compare present results with historical conditions, and

• collect fish samples for the Ohio Sport Fish Consumption Advisory Program (OEPA, 2006)"

The entire Muskingum River has an aquatic life use designation of Warmwater Habitat and a recreational use designation of Primary Contact Recreation. This study determined that in 2006, the Muskingum River was fully attaining its Warmwater Habitat designation and all but two sites were fully attaining the recreational use designation. The two locations not attaining the recreational use include the ODNR boat ramp area in McConnelsville, which is located downstream from the McConnelsville WWTP discharge, and the Beverly area at State Route 339. The source of the elevated bacteria levels in McConnelsville were found to be untreated sewage discharged to the river from the McConnelsville sewer system. The source of bacteria in Beverly is unknown but is suspected to be from agricultural sources in the Wolf Creek watershed. Table 1-29 lists the aquatic life use attainment status and Table 1-30 lists the recreational use attainment status of sites throughout the Muskingum River (OEPA, 2006).

Table 1-29
Aquatic Life Use Attainment Status for Sites in the Muskingum River

Aquatic life use attainment status for sampling locations in the Muskingum River, 2006. The Index of Biotic Integrity (IBI), Modified Index of Well-being (MIwb), and Invertebrate Community Index (ICI) scores are based on the performance of the biological community. The Qualitative Habitat Evaluation Index (QHEI) is a measure of the ability of the physical habitat to support a biological community. The Muskingum River is located in the Western Alleghany Plateau (WAP) ecoregion and is designated a WWH waterbody. If biological impairment has occurred, the cause(s) and source(s) of the impairment are noted.

Sample Site River Mile	Attainment Status	IBI	MIwb	ICI[a]	QHEI	Location	Cause	Source
110.7	FULL	45	9.4	E	71.0	Upstream Coshocton WWTP	None	None
107.6	FULL	48	9.5	E	83.0	Downstream Coshocton WWTP	None	None
105.0	FULL	47	9.3	48	83.5	Downstream AK Steel – Coshocton	None	None
101.8	FULL	43	9.5	56	82.0	Downstream Conesville EGS	None	None
97.4	FULL	44	9.5	E	86.0	Stillwell Road	None	None
92.2	FULL	46	8.8	E	83.0	State Route 208 - Dresden	None	None
87.0	FULL	36[ns]	6.8[b]	42	60.5	Ellis dam pool	None	None
84.6	FULL	46	10.1	48	79.0	Ellis dam tailwaters	None	None
80.2	FULL	40	9.0	42	60.5	Zanesville dam pool	None	None
77.6	(FULL)	40	7.1[b]	26[b]	54.0	Downstream AK Steel – Zanesville	None	None
75.8	FULL	43	9.4	50	82.0	Zanesville dam tailwaters	None	None
72.4	FULL	46	9.0	42	60.5	Downstream Zanesville WWTP	None	None
67.3	FULL	46	9.7	48	85.0	Philo dam tailwaters	None	None
63.7	FULL	42	8.9	44	57.0	Rokeby dam pool	None	None
56.4	FULL	44	8.9	38	75.5	Rokeby dam tailwaters	None	None
52.1	FULL	44	9.6	G	61.0	McConnelsville dam pool	None	None
48.8	FULL	50	9.8	44	81.0	McConnelsville dam tailwaters	None	None
43.2	FULL	38[ns]	8.5[ns]	44	63.5	Stockport dam pool	None	None
39.5	FULL	46	9.4	48	84.5	Stockport dam tailwaters	None	None
36.2	FULL	44	8.7	40	63.5	Luke Chute dam pool	None	None
33.5	FULL	47	9.8	44	84.0	Luke Chute dam tailwaters	None	None
29.2	FULL	48	10.2	50	64.0	Upstream Muskingum EGS	None	None
26.2	FULL	44	9.3	46	64.5	Downstream Muskingum EGS	None	None
24.7	FULL	48	9.8	48	85.5	Beverly dam tailwaters	None	None
20.9	FULL	40	9.1	50	62.0	Lowell dam pool	None	None
13.9	FULL	42	10.3	42	86.0	Lowell dam tailwaters	None	None
9.4	FULL	44	9.6	36	60.0	Devola dam pool	None	None
5.6	FULL	38[ns]	9.7	50	86.0	Devola dam tailwaters	None	None

Ecoregion Biocriteria: Western Alleghany Plateau (WAP)		
INDEX - Site Type	WWH	EWH
IBI: Boat	40	48
MIwb: Boat	8.6	9.6
ICI	36	46

[ns] Nonsignificant departure from biocriterion (≤4 IBI or ICI units; ≤0.5 MIwb units).
[a] Narrative evaluation used in lieu of ICI (E=Exceptional; G=Good).
[b] Due to unsuitable sample conditions, results were not used in the use attainment evaluation (see text).

Table 1-30
Recreational Use Attainment Status For Sites in the Muskingum River

Summary fecal coliform and E. coli bacteria data for 15 locations in the Muskingum River, July 18 – October 12, 2006. Attainment status is based on comparing the geometric mean and 90th percentile values to the Primary Contact Recreation (PCR) criteria (Ohio Administrative Code 3745-1-07, Table 7-13). All values are expressed as colony forming units (cfu) per 100 ml of water. Gray shaded values exceed PCR criteria.

		Geometric Mean		90th Percentile		Recreational Attainment Status
Location	River Mile	Fecal Coliform	E. Coli	Fecal Coliform	E. Coli	
Coshocton boat ramp	108.7	249	126	498	331	FULL
State Route 83	108.1	287	145	975	678	FULL
CR 273-Conesville	103.5	248	113	431	220	FULL
SR 208 - Dresden	92.2	160	75	358	219	FULL
Ellis Dam	84.6	91	40	204	126	FULL
US 22-Zanesville	75.8	244	122	823	376	FULL
Dst. Zanesville WWTP	73.5	370	176	1101	617	FULL
Bridge St.-Philo	67.3	256	114	1074	535	FULL
Gaysport	62.7	136	56	923	404	FULL
McConnelsville	49.8	83	48	439	243	FULL
ODNR boat ramp-McConnelsville	48.0	964	452	2010	716	**NON**
SR 266-Stockport	39.7	298	94	651	343	FULL
SR 339 – Beverly	24.0	292	189	5530	4020	**NON**
New Bridge St. – Lowell	13.6	194	112	530	356	FULL
Washington St. – Marietta	0.9	178	82	1431	635	FULL

Biological and Water Quality Study of the Muskingum River Tributaries (Zanesville to Rokeby Lock), 2009

In 2008, Fifteen tributary streams in the northern portion of the Lower Muskingum River basin (between Zanesville and Rokeby Lock) were evaluated for aquatic life and recreational use potential. A total of 17 biological, 13 water chemistry, and 13 bacterial stations were sampled in the selected tributaries to the Muskingum River. "The objectives of this evaluation were to:

• establish the present biological conditions in the selected Muskingum River Tributaries by evaluating fish and macroinvertebrate communities,

• assess physical habitat influences on stream biotic integrity,

• determine recreational water quality, and

• determine the attainment status and recommend changes if appropriate. (OEPA, 2009)"

It was concluded that within the Muskingum River Tributaries study area, only six (35%)

were fully meeting the designated or recommended aquatic life use, seven (41%) were in partial attainment, and four (24%) were in non-attainment. The four nonattainment sites were affected by acid mine drainage (AMD) in the Brush Creek subwatershed. Numerous metals, low pH, high conductivity and high acidity caused toxicity to the aquatic life. The recreational use goal of the Clean Water Act was met at 61.5% (eight) of the sites in the Muskingum River Tributaries basin and was in non-attainment at 38.5% (five) of the sites. The locations not attaining the recreational use were most likely due to unsanitary conditions from household sewage treatment systems (HSTS) and/or agricultural activities such as pasture land runoff and manure land application. Table 1-31 lists the aquatic life use attainment status and Table 1-32 lists the recreational use attainment status of sites examined throughout this study region on the Muskingum River (OEPA, 2009).

Table 1-31
Aquatic Life Use Attainment Status for Tributary Sites of the Muskingum River

Aquatic life use attainment status for sampling locations in the Muskingum River Tributaries study area, 2008. The Index of Biotic Integrity (IBI), Modified Index of Well-being (MIwb), and Invertebrate Community Index (ICI) scores are based on the performance of the biological community. Stream habitat reflects the ability to support a biological community. The Muskingum River tributaries study area is located in the Western Alleghany Plateau (WAP) ecoregion. If biological impairment has occurred, the cause(s) and source(s) of the impairment are noted. NA = not applicable. For the Aquatic Life Use Designation, R denotes a recommendation that differs from the current use designation.

Stream	Sample Location River Mile	Sampling Type	Ecoregion	Aquatic Life Use Designation	Aquatic Life Attainment Status	IBI	MIwb	ICI[a]	Stream Habitat[b]	Aquatic Life Use Impairment Cause/Source[b]
Island Run	3.4	Headwater	WAP	WWH	PARTIAL	30*	NA	G	72.0	Agriculture, Natural/Past historical land use, Waterfall Barrier
South Branch Island Run	0.1	Headwater	WAP	WWH	PARTIAL	36*	NA	VG	69.0	Agriculture, Natural/Past historical land use, Waterfall Barrier
Big Bottom Run	0.2	Headwater	WAP	CWH-R	PARTIAL	28*	NA	G	59.5	Natural / Natural sources (interstitial flow)
Bluerock Creek	0.8	Headwater	WAP	EWH/CWH-R	FULL	48[ns]	NA	E	72.5	
Little Bluerock Creek	0.1	Headwater	WAP	CWH-R	FULL	50	NA	G	69.0	
Back Run	0.7	Headwater	WAP	WWH	PARTIAL	34*	NA	G	69.5	Natural (small drainage)/ Natural
Dry Riffle Run	0.2	Headwater	WAP	WWH	FULL	40[ns]	NA	MG[ns]	73.0	
Duncan Run	0.3	Headwater	WAP	WWH	PARTIAL	36*	NA	G	65.0	Flow & Habitat Alteration/ Unknown
Little Duncan Run	0.1	Headwater	WAP	CWH-R	FULL	48	NA	VG	59.0	
Brush Creek	7.3	Headwater	WAP	WWH-R	PARTIAL	28*	NA	G	73.5	Metals, Conductivity, TDS / AMD
Brush Creek	4.8	Headwater	WAP	WWH-R	NON	22*	NA	F*	75.0	Metals, pH,TDS / AMD
Brush Creek	1.2	Wading	WAP	WWH-R	NON	28*	3.9*	MG[ns]	52.5	Metals, Sediment, Conductivity, TDS / AMD
Baughman Run	0.1	Headwater	WAP	WWH-R	NON	20*	NA	F*	73.0	Sediment, TDS/ Reclaimed mine lands
Turkey Run	0.1	Headwater	WAP	WWH-R	NON	18*	NA	P*	56.5	Metals, conductance, TDS,pH/ Abandoned coal mines
Goose Run	0.1	Headwater	WAP	WWH-R	PARTIAL	36*	NA	G	68.0	Fish passage barrier/ Historic mining downstream limits fish migration to headwaters
Sycamore Hollow Run	0.2	Headwater	WAP	CWH-R	FULL	32	NA	VG	53.5	
Flat Run	0.3	Headwater	WAP	WWH-R	FULL	52	NA	G	61.0	

BIOCRITERIA – WAP ECOREGION		
INDEX - Site Type	WWH	EWH
IBI: Headwater/Wading	44	50
MIwb: Wading	8.4	9.4
ICI	36	46

[ns] Nonsignificant departure from biocriterion (≤4 IBI or ICI units; ≤0.5 MIwb units).
* Significant departure from biocriterion (>4 IBI or ICI units; >0.5 MIwb units). Poor and very poor results are underlined.
[a] Narrative evaluation used in lieu of ICI (E=Exceptional; VG=Very Good; G=Good; MG=Marginally Good; F=Fair; P=Poor; VP=Very Poor).
[b] Narrative habitat evaluations are based on QHEI scores as follows: Excellent =70-100, Good = 55-69, Fair = 43-54, Poor = 30-42 and Very Poor <30

Table 1-32
Recreational Use Attainment Status for Tributary Sites of the Muskingum River

A summary of E. coli data for locations sampled in the Muskingum River Tributaries study area, June 30 – August 28, 2008. Recreation use attainment is based on comparing the geometric mean to the Primary Contact Recreation (PCR) Class B geometric mean water quality criterion of 161 cfu/100 ml (Ohio Administrative Code 3745-1-07). All values are expressed in colony forming units (cfu) per 100 ml of water. Gray shaded values exceed the PCR Class B geometric mean criterion.

Location	River Mile	Recreation Use	# of Samples	Geometric Mean	Maximum Value	Recreational Attainment Status	Source(s) of Bacteria
Flat Run	0.3	PCR Class B	5	550	1200	**NON**	HSTS, Agriculture
Sycamore Hollow Run	0.23	PCR Class B	5	92	450	FULL	
Island Run	3.4	PCR Class B	5	553	5200	**NON**	HSTS, Agriculture
South Br. Island Run	0.1	PCR Class B	5	166	3400	**NON**	HSTS, Agriculture
Big Bottom Run	0.2	PCR Class B	4	123	620	FULL	
Bluerock Creek	0.8	PCR Class B	5	78	580	FULL	
Back Run	0.6	PCR Class B	5	30	420	FULL	
Dry Riffle Run	0.2	PCR Class B	5	89	560	FULL	
Duncan Run	0.29	PCR Class B	5	123	720	FULL	
Little Duncan Run	0.06	PCR Class B	5	179	1700	**NON**	HSTS
Brush Creek	7.3	PCR Class B	5	320	890	**NON**	HSTS
Brush Creek	4.81	PCR Class B	5	106	2100	FULL	
Brush Creek	1.0	PCR Class B	4	98	1300	FULL	

Water Quality Sampling Data, STORET Database

The United States EPA STORET database lists data from before 1999 in their "STORET Legacy Data Center" and any data gathered since 1999 in their "STORET Data Warehouse". Water quality sampling surveys from 1987 to the current day on the Lower Muskingum River and several tributary streams exists within these databases. The database includes data taken from sampling sites on Meigs Creek, Olive Green Creek, Dyes Fork, Mans Fork, and at multiple sites on the Muskingum River from Marietta to Philo. Water quality parameters measured include conductivity, alkalinity, temperature, and concentrations of various nutrients, dissolved ionic species, and heavy metals.

Combined Sewer Overflow (CSO) List

Combined sewers are built to collect sanitary and industrial wastewater as well as storm water runoff and transport this combined wastewater to treatment facilities. During rain events, the volume of storm water and wastewater may exceed the capacity of the combined sewers or of the treatment plant. This may cause a portion of the combined wastewater to overflow untreated into the nearest surface water body. This discharge is known as combined sewer overflow (CSO). The two communities in the Lower Muskingum watershed with known CSOs are Malta and McConnelsville (Table 1-33).

Table 1-33

CSO Sites in Lower Muskingum River Watershed

Location (County)	Permit No.	Total CSOs
Malta (Morgan)	0PA00095	10
McConnelsville (Morgan)	0PC00000	9

Source: OEPA

ODOT Surveys

In the 1980's, the Ohio Department of Transportation would routinely conduct surveys of streams that would potentially be altered as part of the planning process for road and bridge construction but since the mid 1990's they began solely relying on existing data for investigating these impacts unless a specific project fell under a 404/401 permitting requirment. The stream surveys that they used to conduct early on included water quality sampling, fish and invertebrate surveys, and in some cases surveys of plant communities, vertebrate communities, and streambed characteristics. Within the Lower Muskingum River watershed, ODOT survey data from the 1980's is available for Cat Creek, Mans Fork, and Olive Green Creek. Cat Creek was surveyed in 1988, while Mans Fork and Olive Green Creek were both surveyed in 1986 (Appendix I.A: ODOT Biological and Water Quality Survey Data). Table 1-34 shows the results of the ODOT invertebrate survey in Cat Creek. Table 1-35 shows the results of the ODOT fish survey in Mans Fork. Table 1-36 shows the results of water quality sampling in Olive Green Creek.

Table 1-34

ODOT Invertebrate Survey Data for Cat Creek

Taxa	Common Name	Number of Specimens Observed	Number of Specimens Collected	Total
Astacidae	crayfish	5	0	5
Gammaridae	scud	0	1	1
Aeshnidae	dragonfly	0	1	1
Corixidae	water boatman	29	6	35
Gerridae	water strider	29	15	44
Mesoveliidae	water treader	0	1	1
Sialidae	alderfly	8	6	14
Dytiscidae	diving beetle	6	6	12
Haliplidae	crawling water beetle	0	6	6
Chironomidae	midge	12	6	18
Dixidae	dixa midge	0	1	1
Simuliidae	black fly	1	0	1
Gastropoda	aquatic snail	14	20	34
Sphaeriidae	fingernail clam	0	3	3

Table 1-35

ODOT Fish Survey Data for Mans Fork

Common Name	Number of Specimens Observed	Number of Specimens Collected	Total
creek chub	10	2	12
striped shiner	86	2	88
silverjaw minnow	18	1	19
bluntnose minnow	14	1	15
golden redhorse	18	2	20
hog sucker	7	3	10
white sucker	2	2	4
channel catfish	1	0	1
rockbass	4	1	5
smallmouth bass	4	1	5
green sunfish	9	2	11
johnny darter	2	2	4

Table 1-36

ODOT Water Quality Data for Olive Green Creek

Pollutant	**Concentration (mg/l)**
Dissolved Oxygen	11.7
Ammonia	0.41
Nitrate	2.6
Nitrite	0.01
Phosphate	0.32
Chloride	46
Alkalinity	108
Iron	0.18
Sulfate	112
Total Hardness	248
Other Parameters	
Water Temperature	29 °C
pH	8.7
Turbidity	16 NTU

In 2009, ODOT completed a 5 year monitoring project of Slemmons Creek which is located just West of McConnelsville. This project consisted of relocating 2,120 linear feet of Slemmons Creek and therefore required a 5 year monitoring study through the 401/404 permitting system. Throughout the 5 year study period, Headwater Habitat Evaluation Index (HHEI), salamander and aquatic macroinvertebrate inventories were conducted and it was concluded that Slemmons Creek was "recovering from construction activities" and has achieved Class III HHEI status which is supported by both aquatic macroinvertebrate communities as well as the presence of larval two-lined salamanders (ODOT, 2012). Results from this monitoring project can be found in Table 1-37.

Table 1-37
Post construction monitoring results for Slemmons Creek 2005 through 2009

Sample Locations	HHEI					HMFEI					Salamander Survey 30 minutes Eurycea cirrigera L = larvae A = adult				
	2005	2006	2007	2008	**2009**	2005	2006	2007	2008	**2009**	2005	2006	2007	2008	**2009**
Sample Location 1	71	71	51	70	**70**	NA					NA				
Sample Location 2	78	77	77	72	**72**	32	21	26	24	**19**	8L	2L;1A	3L;1A	2L	**18L**
Sample Location 3	71	71	76	67	**67**	25	24	24	31	**27**	2L	4L	none	8L	**12L**

ODNR Unionid Surveys

Unionid Survey 1993

In 1993, ODNR conducted a unionid survey on river miles 0.0-34.1 in the Lower Muskingum River watershed. This study was conducted in order to compare current unionid (freshwater mussel) populations with those identified in a previous study (Stansbery and King, 1983). Mussel surveys were conducted in beds found at six sites adjacent to lock and dam numbers 1-5 on the Lower Muskingum River (Table 1-38).

Table 1-38

Comparison of Unionid Populations among Muskingum River Mussel Beds

Location	Total Individuals	Total Species	Endangered Species	Average Density (Individuals/mi2)
Bed 1 (Luke Chute)	540	26	6	3.1
Bed 2 (Beverly)	1326	19	2	31.0
Bed 3 (Lowell)	2855	25	7	17.8
Bed 4 (Lowell-Devola)	483	21	7	9.0
Bed 5 (Devola)	4730	28	9	41.9
Bed 6 (Devola-mouth)	1205	18	7	31.2

At the time of the Stansbury and King unionid study (1983), five Muskingum River unionids were on the Federal Endangered Species list. According to the 1993 ODNR study, nine Muskingum River unionid species are federal endangered, with a tenth species becoming endangered late in 1993 (Table 1-39). This study found that the largest unionid populations, largest numbers of species, and greatest species densities on the Lower Muskingum River persist in the free-flowing river reaches found immediately below locks and dams rather, than in pools between and upstream of dams (Ecological Specialists, Inc. 1993).

Table 1-39

Federally Endangered Mussel Species Recorded in Mussel Beds (RM 34.1-0)

Scientific name	Common name	Date Listed
Cryptogenia stegaria	fanshell	6/21/90
Epioblasma obliuqata	white catspaw	7/10/90
Epioblasma torulosa	tubercled blossom	6/14/76
Hemistena lata	cracking pearlymussel	9/28/89
Lampsilis abrupta	pink mucket	6/14/76
Obovaria retusa	ring pink	9/29/89
Plethobasus cicatricosus	white wartyback	6/14/76
Plethobasus striatus	orange-foot pimpleback	6/14/76
Pleurobema plenum	rough pigtoe	6/14/76

Unionid Survey 1996

In 1996, ODNR conducted a unionid survey on river miles 34.1-77.4 in the Lower Muskingum watershed. The purpose of this study was to determine current unionid status in the Lower Muskingum River from below Zanesville to the Luke Chute Dam. Unionid mussels were surveyed by brailing and diving in five pools adjacent to the lock and dam numbers 6-10 on the Lower Muskingum River (Table 1-40).

Table 1-40

Comparison of Unionid Populations among Muskingum River Pools

	1983		1995	
Location	Total Unionids	Total Species	Total Unionids	Total Species
Pool 1 (Philo)	44	9	104	13
Pool 2 (Rokeby Lock)	104	10	219	18
Pool 3 (McConnelsville)	19	7	113	12
Pool 4 (Stockport)	22	6	257	13
Pool 5 (Luke Chute)	26	7	206	15
TOTALS	215	17	899	23

This study identified unionid mussels throughout the Muskingum River, but it failed to find any clearly discernable mussel beds at sampling sites. Unionids were primarily associated with patches of sand and gravel located downstream of dams. This study found unionid species richness and abundance to be greatest downstream of dams. It also concluded that unionid species abundance decreased in the lower reaches of the Muskingum River (RM 34.1-0) (Ecological Specialists, Inc. 1996).

Freshwater Mussels of Ohio, 2009

In 2009, with supporting funds from the Ohio Department of Natural Resources Division of Wildlife, Thomas Watters, with the Division of Molluscs at The Ohio State University collaborated with other researchers to write the comprehensive book "Freshwater Mussels of Ohio". According to the "Freshwater Mussels of Ohio", unionids were primarily deposited in the Ohio river basin once the glaciers had receded but the introduction of the Ohio and Erie Canals allowed for mussel populations to migrate throughout the state (Watters, 2009).

Aquatic Population Surveys

ODNR has conducted periodic surveys of fish populations, invertebrate populations, and water quality in the Lower Muskingum River and several of its tributaries. These studies were conducted from 1984-1999 on Olive Green Creek, Meigs Creek, Dyes Fork, and the entire Lower Muskingum mainstem from Marietta to Philo. Stream surveys include water quality sampling, fish population surveys, and invertebrate surveys. The data also includes IBI, ICI, and QHEI scores for each tributary sampled and for the Lower Muskingum mainstem (Appendix I.B: Summary of IBI, ICI, and QHEI Scores for Lower Muskingum River and Tributary Streams).

USGS Sampling Data

The USGS conducted water quality sampling surveys on the Muskingum River and certain tributary streams from 1985-1997. Sampling sites are located on the Muskingum River at McConnelsville, and on Meigs Creek, Bald Eagle Run, and Dyes Fork. Water quality parameters measured include temperature, pH, turbidity, and concentrations of various nutrients, dissolved ionic species, and heavy metals (Appendix I.C: Summary of USGS and ORSANCO Water Quality Sampling Database, Lower Muskingum River).

USACE Channel Maintenance Dredging Sampling Program

The USACE conducts ongoing dredging and water quality sampling of the Lower Muskingum River as part of the Channel Maintenance Dredging sampling program. Sampling sites are located between the river mouth and river mile 5.71. Water quality parameters measured include temperature, pH, turbidity, and concentrations of various nutrients, inorganic compounds, dissolved ionic species, and heavy metals. Sediment size distribution analyses are also available from sites where elutriate analyses of bed material is accessible.

AEP Copper Concentration and Biological Communities Study 1994-1995

In this study, instream biological and chemical sampling was conducted to assess potential adverse effects of heavy metals contained in coal ash discharge from a coal-fired power plant. The study was conducted adjacent to Ohio Power Company's Muskingum River power plant, about 28 miles upstream from Marietta. This site was selected because elevated levels of copper were previously measured in the discharge from this plant. In this study, total copper, dissolved copper, total suspended solids (TSS), and pH were measured monthly at sampling stations adjacent to coal ash discharge sites. Macroinvertebrate communities were sampled at locations proximal to the coal ash discharge, and at locations removed from discharge influence.

This study found that total copper concentrations at sites adjacent to coal ash discharge sites were higher than levels at upstream sites but that dissolved copper concentrations were similar among all sites. This study also found that the macroinvertebrate community proximal to the coal ash effluent site had the highest number of taxa, the highest total number of individuals, a high number of mayfly and caddis fly taxa, and the highest Invertebrate Community Index (ICI) score (Appendix I.D: Macroinvertebrate Taxa Collected at the Sampling Sites). Table 1-41 summarizes the copper concentrations in coal ash effluent sampled in this study. The authors of the study concluded that the high water velocity of the discharge, the concentrations of algae, and organic matter in effluent discharge created a favorable microhabitat that superseded the potential adverse effects of high copper levels (Reash 2002).

Table 1-41

Summary of Copper Analyses for Coal Ash Effluent Discharge

Parameter	Effluent Discharge	Instream Site One	Instream Site Two	Instream Site Three
Total Copper (ppb)	58	4	11	10
Dissolved Copper (ppb)	20	2	3	4
% Dissolved Copper	32	53	37	31
TSS** (ppm)	14	*	*	*
pH	7.9	*	*	*

* Data Not Collected

**Total Suspended Solids

Ohio Tributary Monitoring Program

The National Center for Water Quality Research laboratory, located at Heidelberg University, conducts long-term studies of the impacts of land use on regional water resources. Work includes tributary loading studies in the Lake Erie and Ohio River basins, assessments of the ecological integrity of Lake Erie and its wetlands and tributaries, and large-scale studies of groundwater quality through private well testing. The Heidelberg Tributary Loading Program studies total water volume and water quality constituents transported annually in seven of the largest rivers in Ohio, including the Muskingum River. The Muskingum River sampling site is located in McConnelsville, Ohio. Table 1-42 shows water monitoring stations in Ohio.

Table 1-42

Ohio Tributary Monitoring Program Stations

River (Location)	Drainage Area Above Station (mi^2)	Land Use Above Station (Percent)			
		Agriculture	Urban	Wooded	Other
Maumee (Waterville)	6330	89.9	1.2	7.3	1.6
Sandusky (Freemont)	1253	84.1	0.9	13	2.0
Cuyahoga (Independence)	708	30.4	9.6	50.1	9.9
Grand (Painsville)	686	40.0	0.9	45.2	13.1
Muskingum (McConnelsville)	7420	52.0	1.7	43.4	2.9
Scioto (Chillicothe)	3854	80.2	4.6	12.9	2.3
Great Miami (Miamisburg)	2685	82.1	4.7	10.3	2.9

The 1996-2012 Report from the Ohio Tributary Monitoring Program presents concentrations of sediments, nutrients, pesticides, and chloride in each of the seven Ohio River tributaries. The report states that pesticide concentrations do not exceed corresponding health standards in any of the seven tributaries, and that the Muskingum River tends to have lower pesticide concentrations than the Maumee, Scioto, Sandusky, and Miami rivers. Of the seven tributaries, the Muskingum River generally has lower or lowest loads of sediment, chloride, and phosphorous. Table 1-43 summarizes the data collected in this study.

Table 1-43
Time-Weighted Mean Concentrations of Pesticides, Muskingum River

Pesticide	1995	1996	1997	1998	Health Advisory Concentration*
Acetochlor	0.07	0.053	0.143	0.062	2.0
Alachlor	0.048	0.045	0.015	0.028	2.0
Atrazine	0.457	0.471	0.766	0.397	3.0
Metolachlor	0.35	0.32	0.52	0.38	70.0
Simazine	0.11	0.09	0.07	0.08	4.0

Concentrations are in µg/L (ppb)
*Lifetime Health Advisory Levels for herbicides established by the USEPA

ORSANCO

Ongoing Ohio River Water Quality Sampling Data

ORSANCO conducts ongoing water quality studies of the entire Ohio River mainstem, and has a permanent survey station in Marietta at the mouth of the Muskingum River. The most recent data available is from 2000-2011 and can be found in Appendix I.B. Concentrations of heavy metals, nutrients, and inorganic compounds are sampled, as well as temperature and conductivity (ORSANCO 2012).

Total Maximum Daily Load (TMDL) for PCBs

In 1997 the United States EPA (USEPA) entered into a Federal Consent Order to complete a TMDL study for polychlorinated biphenyls (PCBs) for a section of the Ohio River listed on West Virginia's Section 303(d) list. This study established the allowable PCB loadings within the Ohio River study area and quantified the reductions necessary to meet applicable Ohio water quality standards. ORSANCO developed and conducted the study on behalf of the USEPA. This study covers the Ohio River from the Pennsylvania-West Virginia border (RM 40.0) to the West Virginia-Kentucky border (RM 317.1) and includes data taken from the confluence of the Muskingum and Ohio rivers at Marietta, Ohio (RM 171.8). This study found that the Muskingum River contributes PCB loads to the Ohio River that far exceed allowable PCB loadings.

According to the ORSANCO study, PCB loads from the Muskingum River would have to be reduced by 98.9 percent in order for the Ohio River to meet Ohio water quality standards (Table 1-44). The study also identified multiple potential sources of PCBs in the Muskingum River in both Muskingum and Washington Counties (Table 1-45).

Table 1-44
Ohio Tributary Load Allocations and Necessary PCB Reductions

Tributary	Enters Ohio River (RM)	Existing Load (g/day)	Allocated Load (g/day)	Percent Reduction
Allegheny	0.0	39.624	1.053	97.3
Monongahela	0.0	33.507	0.602	98.2
Beaver	25.4	48.687	0.215	99.6
Muskingum	172.2	37.504	0.409	98.9
Little Kanawha	184.6	0.26	0.041	84.1
Hocking	199.3	0.749	0.037	95.1
Great Kanawha	265.7	23.083	0.915	96.0
Guyandotte	305.2	2.904	0.074	97.4

Table 1-45
Potential PCB Sources in the Ohio River Basin

County	City	Facility name	Activity
Muskingum	Zanesville	ARMCO, Inc.	Manufacturing
Muskingum	Zanesville	Burnham Corporation	Manufacturing
Muskingum	Zanesville	McGraw-Edison Co.	Manufacturing
Washington	Beverly	Muskingum River Plant	PCB Generator
Washington	Marietta	ELKEM Metals Co.	PCB Generator
Washington	Marietta	American Municipal Power	PCB Generator
Washington	Marietta	Marietta Polystyrene Plant	PCB Generator
Washington	Marietta	Washington Electric Co-op	PCB Generator

BIOLOGICAL FEATURES

Fish

More than a decade has passed since major studies were conducted to determine which species of fish live in the Muskingum River. A compilation of EPA data collected from 1986 to 1994 indicates that 71 species of fish can be found within the river. These fish include high quantities of bait- and minnow-type fish and certain species of sport fish (Marietta Times 2000). A 1988 ODNR angler survey recorded high quantities of catfish, bullheads, carp, suckers, bass, white bass, and hybrids (Isbell 1988).

The prevalence of sport fishery continues to increase on the Lower Muskingum River. Today the most popular fish among sport fisherman include: bluegill, largemouth bass, spotted bass, crappie, channel and flathead catfish, sauger, walleye, and saugeye. The saugeye, a hybrid cross between a walleye and sauger, has been stocked in the Muskingum River since the late 1980's (Marietta Times 2000; ODNR 2003b). The School of Natural Resources at Ohio State University conducts ongoing research on the saugeye in order to find out more about their reproductive status and their impact on native stocks. Research in 1999 also studied the impact of elevated water temperatures from the Muskingum River Power Plant and Conesville Power Plant on three species of redhorse (Root and Ackakaya 1999).

Information on the less abundant species was derived from ODNR Division of Natural Areas and Preserves (DNAP) records. A complete list of all the rare, threatened, and endangered species found within the watershed can be found in Appendix I.C. These records indicated that four state-listed endangered species, four threatened species, and two species of concern and one federal-listed species of concern have been observed in the Lower Muskingum River (Schneider, 2012). The presence or absence of these species can be excellent indicators of water quality. Observed rare species include: Eastern Sand Darter (Ammocrypta pellucida), seen in 1988; Tippacanoe Darter (Etheostoma tippecanoe), seen in 1991; Goldeye (Hiodon alosoides), seen in 1971; Ohio Lamprey (Ichthyomyzon bdellium), seen in 1991; River Redhorse (Moxostoma carinatum), seen in 1988; Mountain Madtom (Noturus eleutherus), seen in 1991; Northern Madtom (Noturus stigmosus), seen in 1991; Pugnose Minnow (Opsopoeodus emiliae), seen in 1977; Channel Darter (Percina copelandi), seen in 1987; River Darter (Percina shumardi), seen in 1987.

Mussels

The Lower Muskingum River is known for its diverse, dense beds of freshwater mussels. Since the mussels live underwater and are not easily observable, environmentalists, fisherman, and river enthusiasts often overlook them. Mussels are bivalve mollusks that belong to the same group of animals as clams and oysters. Of the eighty mussel species recorded in Ohio, many are found in the Muskingum River. Historically, the Muskingum River has supported more than 63 unionid (freshwater mussel) species (Stansbery and King 1983; Stansbery *et al.* 1985; Ecological Specialists Inc. 1993, Watters 2009). Currently, two-thirds of these species are either extinct, extirpated, or in some way threatened (Gross 2000). Among the endangered unionid species in the Lower Muskingum are the last remaining Ohio populations of the fanshell (*Cyprogenia stegaria*), monkeyface (*Quadrula metanevra*), Ohio pigtoe (*Pleurobema cordatum*), and butterfly mussels (*Ellipsaria lineolata*) (Ortt 2012).

Due to its large and diverse number of mussels, the Muskingum River has been the site of numerous malacological (mollusk-related) surveys. These studies have made the Muskingum River one of the best-studied rivers for unionids in the country. Dr. Thomas Watters, a malacologist and senior research associate from the Ohio Biological Survey and curator of the Division of Molluscs at Ohio State University's Museum of Biological Diversity, has been one of the most active researchers on unionids in the Muskingum. He participated in the last known mussel survey, which was conducted in two stages, one in 1993 and one in 1995 (Ecological Specialists Inc. 1993 and 1996). The survey covered the stretch of the Muskingum River from Zanesville to the mouth of the river in Marietta. Dr. Watters' more recent research projects include "*Small dams as barriers to freshwater mussels*" (Watters 1996), "*Freshwater mussels and water quality: A review of the effects of hydrologic and instream habitat alterations*" (Watters 2000), "*The Freshwater Mussels of Ohio*" (Watters 2009), "*Distribution and prevalence of glochidia-infested wild-caught fishes at a Muskingum River site in southeastern Ohio*" (Kelly 2010).

Along with attracting researchers, the mussels historically attracted commercial harvesters. The Ohio commercial mussel industry began in the mid 1870's when a process was developed for manufacturing garment buttons from mussel shells. The U.S. Bureau of Fisheries estimated the annual harvest of mussels from 1912 to 1915 at 700 tons from the Muskingum River, with demand driven mainly by the pearl button industry. The development of plastics in the mid-1900's caused the button industry to fade, but the cultured pearl industry of the Far East brought the harvest of freshwater mussels back to a new high. Shells were harvested and

exported to Asia, where they were made into nuclei for insertion into oysters creating cultured pearls. Nevertheless, the commercial mussel harvest was banned in Ohio in 1974 (Gross 2000).

The over-harvesting of mussels was a significant contributing factor to their decline. Another factor was the impoundment of the river by dams constructed in the late 1830's and early 1840's. Studies indicate that the majority of mussels appear to favor free-flowing water and a sand-and-gravel substrate. Their current distributions are concentrated in areas immediately below dams, the only river location where this favored habitat now exists. The mussels have also been threatened by pollution, siltation, and runoff into the streams, and are an important indicator species for water quality.

Another potential threat to native unionids is an invasive species known as the zebra mussel. The zebra mussel made its first known attack on Europe in the early 1800s, proliferated in the 20th century, and was carried (probably in ship water ballasts) to North America around 1986, eventually invading all of the Great Lakes (Griffiths *et al*. 1991). Two species of zebra mussel (genus *Dreissena*) are now prominent freshwater pests; they proliferate readily and adhere in great numbers to virtually any surface. These mussels have established themselves in the Great Lakes, the Ohio River, and rivers feeding into Lake Erie, but fortunately have not yet made their way into the Muskingum. If they did, this mussel would pose a severe threat to the native unionids.

Studies conducted in Europe claim that zebra mussels can interfere with feeding, growth, locomotion, respiration, and reproduction of native mussel species, and that they prefer to attach to live unionids rather than to dead ones or to rocks (Schloesser and Kovalak 1991). Its voracious appetite tends to wipe out phytoplankton and disrupt the food chain. Researchers are observing some of these effects as they study interactions between zebra mussels and native unionids in the Great Lakes. Moreover, zebra mussels can cause severe damage to commercial infrastructure. They cluster on water-intake valves and pipes, bridge abutments, and other structures. They are notorious for their biofouling capabilities, a process involving colonization of water supply pipes of hydroelectric and nuclear power plants, public water supply plants, and industrial facilities (USGS 2002b).

Birds

The Muskingum River plays an important role for both resident and migrant bird species. Endangered species in Ohio that are found along the river include bald eagle (*Haliaettus eucocephalus*), and northern harrier (*Circus cyaneus*) (ODNR-DNAP 2012). Sharp-shinned hawks, belted kingfishers, great blue herons, Canada geese, turkey vultures and various species of waterfowl also make use of the waterway. Commonly found waterfowl include mergansers, scaup, canvasbacks, redheads, pie-billed grebes, mallards, and black ducks. Popular game species include Ruffed Grouse and wild turkeys though grouse numbers throughout Ohio have declined as forests have matured and the young growth forest habitat that the grouse prefer have declined.

There are several birding "hot spots" located along the river. Local Audubon members know Devol's Dam as a prime site for observing flocks of ducks and geese, and for occasional bald eagle sightings. During the fall, the dam hosts migrants of all kinds. The confluence of the Muskingum and Ohio Rivers provides rich avian habitat that has hosted as many as 1,000 ring-billed gulls during the winter. Local groups and organizations such as the Marietta Natural History Society, the Mountwood Bird Club and the Bird Watchers Digest work to promote interest in birding throughout the watershed. The natural history society published two brochures to help guide birders in the area, which are the "Birding Trails: Lower Muskingum River Southeastern Ohio" and "Birding Trails: Birding Year Round in Marietta, Ohio", both of which can be found on FLMR's website at www.muskingumriver.org.

Reptiles and Amphibians

Formal surveys of reptiles and amphibians in the Lower Muskingum watershed have not been conducted. However, there are historical records documenting the occurrence of two endangered species: the eastern hellbender (*Cryptobranchus alleganiensis*) and eastern spadefoot toad (*Scaphiopus holbrookii*) (Ortt, 2012). In 2007, FLMR acquired the Dana Island Conservation Area in part by funds from the Ohio DNR, Division of Wildlife Ohio Endangered Species Program. In May of 2009, through the funds provided by this program, Eastern Spadefoot toad eggs were introduced into ponds located on the Dana Island Preserve and two properties owned by FLMR's land trust; the Luke Chute Conservation Area and the Reno pond. The Eastern Spadefoot toad spends most of its life below ground in sandy soil and only emerges to mate when there is a good rain event of approximately 3 inches. Due to the toads lifecycle, there have been no official sightings of the toad since its eggs were introduced to these sites (Ortt, 2012).

Macroinvertebrates

Macroinvertebrate surveys of the Meigs Creek subwatershed were completed in 2002 and 2003 as part of the development of the Meigs Creek Watershed Action Plan. Other surveys have been conducted in the Lower Muskingum River basin, but these surveys encompass the largest drainage region of any of the surveys. Other surveys that included Macroinvertebrate research, which were discussed previously, were completed by ODNR, OEPA, ORSANCO and the Army Corps of Engineers. The Ohio EPA is currently conducting a TMDL study within the Southern subwatershed and is scheduled to survey the remaining watersheds of the Lower Muskingum River basin beginning in 2013.

Macroinvertebrates are one of the main tools used in assessing stream health. Based on the populations, diversity and type of species found within a stream or river, biologists can count these results as one metric in determining the health of a stream or river. In general, the streams or river segments of the Lower Muskingum River basin that have been surveyed have showed a large diversity in macroinvertebrate communities. The use of macroinvertebrates in Meigs Creek surveys, however, determined that of the 11 sites sampled, four sites received a "poor" score using the Macroinvertebrate Aggregated Index for Streams (MAIS) method. Section two of the "Lower Muskingum River Management Plan: Meigs Creek" discusses these surveys in more depth and investigates the causes and sources of these poor scores.

Invertebrates

Earlier studies that were performed involved the gathering of aquatic invertebrate data by the Ohio EPA or American Electric Power (AEP) for water quality studies but no formal studies on other invertebrate communities have been recorded. Historical data provides no documented sightings of rare, threatened, or endangered invertebrates within the Lower Muskingum watershed. However, there are confirmed records of sightings in Morgan, Muskingum, and Washington Counties of one state-endangered butterfly, the regal fritillary (*Speyeria idalia*). Preferred habitat for this butterfly is tall-grass prairie and other open sites, including damp meadows, marshes, wet fields, and mountain pastures. The preferred food is nectar from flowers of milkweeds, thistles, red clover, and mountain mint (USGS NPWRC 2003).

Mammals

Once again, formal surveys for mammals in the Lower Muskingum watershed have not been conducted. Common mammal sightings include muskrat, white-tailed deer, raccoons and squirrels. The bobcat is also starting to become a common sighting throughout the basin, though it is still listed as a state threatened species (ODNR-DNAP 2012). There are several endangered species that may potentially already exist within the watershed but that have not been officially documented. One such species is the river otter, which was successfully reintroduced in Ohio and is now found in the Little Muskingum River watershed and throughout portions of eastern Ohio including the Muskingum River watershed (Wise 2000, ODNR 2012). Other potentially existing endangered species include black bears and Indiana bats; the latter could be roosting in riparian areas.

Plants

Historical records document the presence of two threatened plant species within the watershed, the downy white beard tongue (*Penstemon pallidus*) and golden-knees (*Chrysogonum virginianum*). There are also several species whose status as endangered species is pending, including the butternut tree (which is in precipitous decline due to butternut canker, a fungal disease), the narrow-leaved toothwort, pale green panic grass, the tennessee bladder fern, and the turk's cap lily. Several different types of forest environments exist within the watershed, ranging from mixed mesophytic to floodplain. Hardwoods, such as oak, maple, and hickory, predominate in the hills. Walnut, elm, cottonwood, and sycamore inhabit the floodplain valleys. Dense paw-paw thickets can also be found along the banks of the mainstem.

The spread of the gypsy moth (*Lymantria dispar*) into Ohio continually poses a threat to forests within the watershed. The gypsy moth is one of the most destructive insect pests threatening eastern American forests, trees and shrubs. The gypsy moth has colonized Ohio on two fronts, spreading from Pennsylvania in the east and from Michigan in the northwest. It has now found its way into the counties of the Lower Muskingum River basin and is continually moving west. Severe defoliation by the moth can kill or weaken trees, making them more susceptible to disease, drought, and attacks by other insects. It is not possible to completely eradicate the gypsy moth but both state and federal governments have found ways to control the spread. One method is to quarantine the spread of the gypsy moth by regulating movement of things such as trees and woody shrubs, including cut Xmas trees; logs, pulpwood, slab-wood,

firewood, and wood-bark chips; outdoor household articles, including: tables, benches, chairs, doghouses, birdhouses, and feeders, etc. Washington, Noble, Morgan and Muskingum counties have all been put under quarantine at this point as an attempt to control the spread of the gypsy moth into other regions. Within Ohio, the Department of Agriculture has played the biggest role in controlling the moth populations by working to eradicate populations through treatments of bacteria's, insecticides, viruses and pheromones. The goal of their work is to slow the spread of the populations and to eradicate populations of the moth in areas that are being most impacted (ODA, 2012).

Another insect posing a threat to our forests within the watershed is the Emerald Ash Borer (EAB) (Agrilus Planipennis). The EAB is a destructive insect that lives its larval life under the bark of Ash trees and feeds from the woody material, eventually causing irreversible damage and killing the tree. Much of Michigan and the City of Toledo have seen complete destruction of Ash tree populations from this invasive beetle. The EAB was first identified in Ohio in 2003 and has quickly made its way throughout the state. In May of 2012, EAB was officially confirmed in Muskingum county making it the first sighting within the Lower Muskingum River basin (Michigan State, 2012).

Invasive plant species also threaten the native plants within the watershed. The Nature Conservancy has done a great deal of work both in educating Ohio's citizens about non-native species and in trying to fight their spread. Over 700 non-native species are currently naturalized in Ohio (Cooperrider, *et al*. 2001; TNC 2000), including the autumn olive (*Elaeagnus umbellate*). Also included on the list of non-native invasive species are the multiflora rose, purple loosestrife, Eurasian water milfoil, and several species of honeysuckle. Some of these plants pose serious threats to native species and the ecological integrity of Ohio's native biological diversity. Species like milfoil can proliferate in high densities in waterways, and cause serious impairments to water recreation such as boating, fishing and swimming. The Muskingum Watershed Conservancy District (MWCD) is another organization concerned with managing aquatic plants that have reached nuisance levels and specifically have choked off access to certain parts of several lakes for swimming, boating and fishing. The American Lotus, a large lilly-pad type plant, is among the more visible problem species. The **Hydrilla** (Esthwaite Waterweed) is another species of invasive aquatic plants that has became a nuisance species throughout Ohio as well. Currently the Ohio River is experiencing major blooms of Hydrilla and threatens to make its way into the Muskingum River (Ortt, 2012).

PHYSICAL ATTRIBUTES

Data collection on physical attributes of the entire Lower Muskingum River Watershed is not feasible on such a large scale. However, available physical data was researched and analyzed for the mainstem of the Lower Muskingum River. A more detailed analysis of physical attribute data of the Meigs Creek Subwatershed is available in the "Lower Muskingum River Watershed Management Plan: Meigs Creek Subwatershed". Physical attribute infromation for the Southern Subwatershed can be found in Section II of this Watershed Action Plan. The Brush Creek-Muskingum River basin and Olive Green Creek basins will be addressed in future action plans as funding is made available.

Dams

Forty-five regulated dams are located in the Lower Muskingum River watershed. Of these forty-five dams, seven are installed on the main stem of the Muskingum River for navigational purposes. Paired with locks these dams allow boat traffic on the Muskingum from the mouth in Marietta to Philo at the very edge of the Lower Muskingum River watershed. Two more dams are also located on the Muskingum upstream of the Northern boundary of the watershed. These dams and locks were constructed in the mid 1800's and have been maintained through present day (ODNR 2012). They are of timber crib/concrete construction and have a total principal spillway storage of 24,722 acre-feet . These dams have modified the physical properties of the Muskingum by controlling the stream height and flow of the entire river. Dredging is conducted periodically upstream of the locks and dams to remove sediments that quickly accumulates behind these structures (ODNR 2002b).

Of the other thirty-eight regulated dams of the Lower Muskingum River, twenty-seven are earth fill structures created as a result of surface mining operations and their reclamation. These dams are all located in the Meigs Creek Subwatershed where extensive strip mining for coal was previously conducted. Combined, these dams hold back surface water from a drainage area of 29.33 square miles and have a principal spillway storage of 2741 acre-feet. The total combined top of dam storage for these dams is 6478.5 acre-feet (Ohio ERIN, 2012). The remaining eleven dams lie within the Brush Creek-Muskingum River, Olive Green Creek, and Southern (Rainbow Creek) subwatershed's and were created for either public/private recreation, agricultural water supplies, or waste retention.

Twenty-two other dams exist within the Lower Muskingum River basin, but they are exempt from ODNR regulation. Seventeen of these exempt dams lie within the surfaced mined areas of the Meigs Creek subwatershed, three lie within the Northern (Brush Creek-Muskingum

River) subwatershed, and two lie within the Southern (Rainbow Creek-Muskingum River) subwatershed. These dam are all earth fill structures created either as a result of surface mining operations and their reclamation or they are privately built for recreational purposes. Combined, these dams hold back surface water from a drainage area of 17.62 square miles and have a principal spillway storage of 270.4 acre-feet (Ohio ERIN, 2012).

Streambank Protection

The Friends of the Lower Muskingum River also serve the Lower Muskingum River basin as a Land Trust organization. Currently FLMR owns & manages approximately 275 acres of land. Most of this acreage was purchased through the Clean Ohio Conservation fund but other collaborators either donated acreage or made a monetary contribution to aid in purchasing these properties. On two tracts of land trust property the Eastern Spadefoot toad has been re-introduced and we hope to see established populations of the toad soon.

FLMR also currently holds conservation/agricultural easements on 665 acres of land within the basin. The majority of these properties lie within the floodplain of the Muskingum River and help to permanently protect the degrading stream bank. The Muskingum River Parkway and the City of Marietta are also playing a role in streambank protection. The Parkway service owns and manages the streambanks near the historic lock and dam structures throughout the Muskingum River. The City of Marietta has an established "Riverbank Management Task Force". The task created a strategic management plan for the purposes of protecting the streatmbanks within the City of Marietta to reduce loss of city property to erosion and to increase water quality for recreational purposes. The management plan sets guidelines for the zoning of streambank corridors as "parks and/or green space" and lays out proper procedures for streambank vegetation maintenance (Ortt, 2012).

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SECTION II. SOUTHERN WATERSHED ACTION PLAN

INTRODUCTION

Background information on plan development, demographics, organizational structure, partners, history, geology, water resources, and biological features for the entire Lower Muskingum River Watershed are documented in Section I of this management plan. The background information in Section I included those areas within the Southern Watershed and therefore will not be repeated in Section II. The purpose of Section II of this plan is to specifically address water resources and water quality of the Southern Watershed. A detailed analysis of the Southern Watershed will aid in developing strategies to address nonpoint source water quality impairments and design implementation plans to improve or protect water quality within this basin.

WATERSHED DESCRIPTION

The Southern Watershed lies in un-glaciated Southern Ohio, and extends into Morgan, Noble and Washington Counties. Map 2.1 shows the boundaries of the Southern Watershed. This watershed is the last drainage basin on the Muskingum river before it discharges into the Ohio River at the City of Marietta. This basin of the Muskingum River drains an area of 90.2 square miles (or 57,728 acres), encompasses 341 miles of streams and small rivers, and is home to approximately 15,804 people (ERIN, 2012). Four smaller drainage basins, comprised of a mix of land uses including forested, agricultural and urban areas, make up the boundary of the Southern watershed. Approximately 17 miles of the main stem Muskingum River flows through the heart of the watershed as it passes through the Village of Lowell and the City of Marietta, which is the only Phase 2 Stormwater community in the basin.

The main stem section of the Muskingum River contained in the Southern Watershed begins just below the mouth of the Big Run tributary. During the Muskingum's 17 mile journey from that point it drops in elevation from approximately 615 feet to 581 feet at its confluence with the Ohio River in Marietta. This gives that stretch of river a total fall of 34 feet or 2 feet per mile. The four tributary basins that input into the Muskingum river extend into the un-glaciated, Appalachian foothills that make up this region. These sub-basins exhibit much steeper terrains and therefore have much faster and larger falls in elevation. Table 2-1 gives elevation information for the four sub-basins that make up the Southern Watershed.

Map 2.1

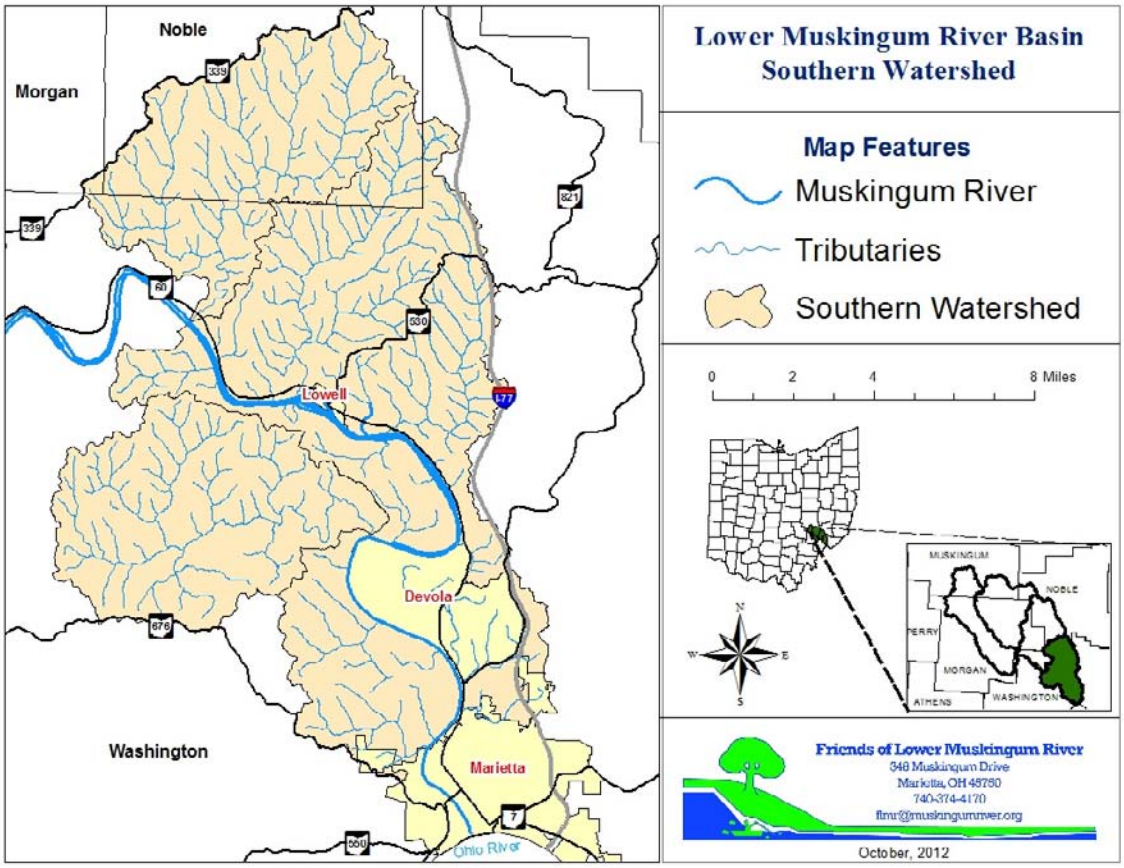


Table 2-1
Elevations (ft) for the 4 Sub-basins of the Southern Watershed

Subwatershed Name	Elevation at Source	Elevation at Mouth	Total Fall	Average Fall (ft/mile)
Devol Run	920	591	329	118
Cat Creek	1,000	600	400	58
Big Run	1,010	603	407	45.2
Rainbow Creek	826	593	233	22.4

(Google Earth, 2012)

ADMINISTRATIVE BOUNDARIES

The drainage basin of the Southern Watershed reaches into three counties, eleven townships and includes two incorporated areas. This basin is also a part of two soil and water conservation districts and five school districts. Tables 2-2 thru 2-6 detail the breakdown of the watershed by these administrative boundaries.

Table 2-2
Counties in the Southern Watershed

Counties	Acres of Watershed in County
Washington	47,621
Noble	10,034
Morgan	89

(ERIN, 2012)

Table 2-3
Townships in the Southern Watershed

Townships	Acres of Watershed in Township
Adams (WASH)	18,653
Muskingum (WASH)	12,999
Jackson (NOBLE)	10,034
Watertown (WASH)	6,638
Salem (WASH)	3,079
Marietta (WASH)	2,419
Warren (WASH)	1,423
Waterford (WASH)	1,112
Fearing (WASH)	708
Aurelius (WASH)	590
Center (MORG)	89

* WASH = Washington County ; NOBLE= Noble County ; MORG = Morgan County

Table 2-4
Incorporated Areas in the Southern Watershed

Incorporated Areas	Acres of Watershed in Incorporated Area
City of Marietta (including Devola)	11,056
Village of Lowell	255
Acres of watershed unincorporated:	**46,433**

(ERIN, 2012)

Table 2-5
Soil and Water Conservation Districts in the Southern Watershed

Soil & Water Conservation Districts	Acres of Watershed in Conservation District
Washington	47,612
Noble	10,041
Morgan	90

(ERIN, 2012)

Table 2-6
School Districts in the Southern Watershed

School Districts	Acres of Watershed in School District
Fort Frye Local	25,840
Marietta City	16,387
Caldwell Exempted Village	10,418
Wolf Creek Local	3,899
Warren Local	1,200

(ERIN, 2012)

GEOGRAPHIC LOCATORS

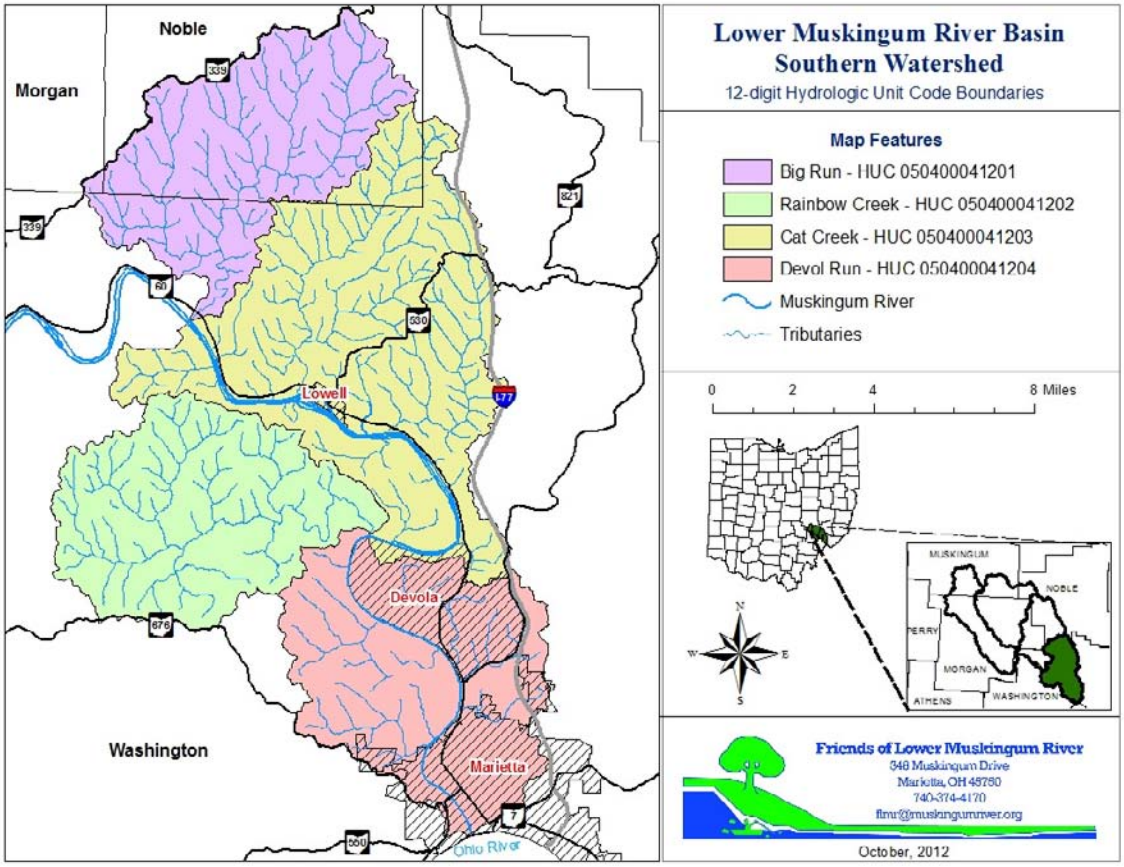
In the United States, Hydrologic Unit Codes (HUCs) are given to every watershed in the nation to aid in the identification of that water body. These codes range from 2-12 digits in length and each section of the code represents the different hierarchal levels of the hydrologic system. The Southern Watershed, for instance, is identified by a 10-digit HUC, 0504000412. A break down of that code tells us that this hydrologic unit is of the Ohio region (05), Muskingum River Basin subregion (04), Muskingum cataloging unit (0004), and the Southern Watershed (12). Watersheds are then also broken down into smaller subwatershed which each have a 12-digit HUC. The Southern Watershed that this plan is discussing contains four 12-digit HUC subwatersheds which are listed in Table 2-7. The 12-digit HUC's within the Southern Watershed can be seen in Map 2.2.

Table 2-7
12-digit Hydrologic Unit Codes for the Southern Watershed

12-digit HUC	Subwatershed Name	Size (acres)	Size (sq. mi.)
0504000412-01	Big Run	11,648	18.2
0504000412-02	Rainbow Creek	12,032	18.8
0504000412-03	Cat Creek-Muskingum River	20,800	32.5
0504000412-04	Devol Run-Muskingum River	13,248	20.7

(ERIN, 2012)

Map 2.2



ACTION PLAN DEVELOPMENT

PUBLIC PARTICIPATION

One of the biggest goals of a Watershed Action Plan is to identify every issue that may be impacting the watershed. Much of this is accomplished through extensive research and data collection, but the key component in making sure every possible issues is identified is to obtain input from the general population that lives and works within the watershed. During the development of this plan numerous hours were put into engaging the public and gathering their input into the issues. The main tool used to gather this knowledge was a one page survey that was created early on in the planning process.

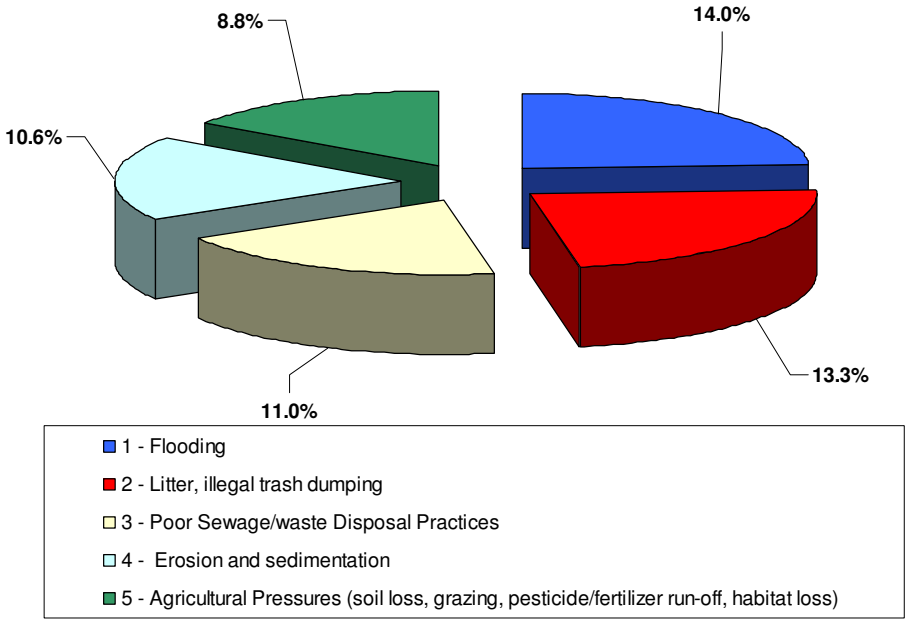
This survey was distributed all throughout the development of this plan and in many different fashions. One attempt FLMR made at gathering the publics input was to present at numerous clubs and organizations represented in the watershed and ask that they fill out the survey. Seven presentations were given to seven different clubs and/or organizations including the: Muskingum Valley Area Chamber of Commerce, Marietta/Washington County League of Women Voters, Kiwanis Club of Marietta, Marietta Civitan Club, Pioneer Ladies Civitan Club, Marietta Noon Lions Club, and the Marietta Morning Rotary Club. Eighty-six surveys were filled out and returned from these presentations.

In an attempt to reach the more rural population of the watershed, FLMR hosted a public meeting in February of 2012 at the Village of Lowell's fire department. Other than advertising in the local newspapers, FLMR also attended Muskingum and Adams Township trustee meetings as well as spoke with trustees from Watertown Township with the intent of having them reach out to their constituents to spread the word about this meeting. Overall, 8 residents attended the meeting and filled out the survey. The survey was also sent out to all FLMR members, put on our website (www.muskingumriver.org/SSWPlanning.html), 90 were sent as an insert to our quarterly newsletter, and numerous others were distributed at various FLMR functions and outreach opportunities.

In total, 115 surveys were filled out representing 789 acres of land within the Southern Watershed. Each survey listed 17 of the most common issues associated with water quality degradation and provided an "other option" to share other issues being seen. Figure 2:1

shows the top five concerns gathered from the survey responses. Other notable responses were "Pollution from oil and gas wells and other hazardous materials" and "Stability of stream banks (loss of tress, wetlands, floodplain development etc.)", each receiving 6% of the overall responses. The actions laid out in the latter portion of this section strive to encompass the best fit solutions to address these concerns.

Figure 2:1
Top 5 Public Concerns



STAKEHOLDER ADVISORY COMMITTEE

Throughout the development of the Southern Watershed Action Plan, stakeholders came together on three separate occasions and worked extensively with FLMR's Watershed Coordinator to provided invaluable knowledge to be incorporated in the plan. These individuals were chosen to represent their organization or agency due to their special vested interest in the plan. This group represented 22 organizations or agencies and came to be known as the Stakeholder Advisory Committee. Table 2-8 lists the organizations represented by this committee. The Stakeholder Advisory Committee was also charged with the function of being the entities empowered to endorse the watershed action plan at the local level and in doing so, agreeing to work toward implementing projects outlined in the plan.

Table 2-8
Organizations Represented by the Stakeholder Advisory Committee

Name of Organization or Agency	
U.S. Army Corps of Engineers	Marietta College
Ohio State University Extension	Ohio State University Extension
RJF International	Washington County Commissioners
Noble County Commissioners	City of Marietta - Engineering Department
City of Marietta - Safety Service	City of Marietta - Community Development
City of Marietta - City Council & Mayor	USDA - Natural Resources Conservation Service
Washington County - Soil & Water Conservation District	Washington County- Engineer Department
Washington County - Health Department	Washington County - Muskingum Township Trustee
The Putnam Community Water Corporation	OEPA - Division of Surface Water
ODNR - Division of Soil & Water Resources	Muskingum Watershed Conservancy District
Southeastern Ohio Oil and Gas Association	Friends of Lower Muskingum River

A detailed list of Stakeholder Advisory Committee members can be found in Appendix II.A. Note that even though Tri-County Rural Water & Sewer, Putnam Community Water Corporation, and the City of Marietta Water Treatment Plant were not originally involved with developing this Action Plan, they were added to the Stakeholder Advisory Committee Contact List so that a future partnerships can be developed. These Public Water Supplies (PWS) potentially possess the resources to enable future plan development such as data sharing and data collection efforts. It is recommended that future implementation of this plan should be carried out in partnership with these PWS's.

DEMOGRAPHICS FACT SHEET

** A more detailed look at demographics for the entire Lower Muskingum River basin, including information for the Southern Watershed, can be found in Section I starting on page 12. Data for this Fact Sheet comes from the U.S. Census Bureau.*

Table 2-9
Population in Regions of the Southern Watershed

Region of the Southern Watershed	Population
Washington County	61,778
Noble County - Jackson Township	536
City of Marietta (including Devola)	16,737
Village of Lowell	549

Table 2-10
Households in Regions of the Southern Watershed (in Housing Units)

Region of the Southern Watershed	# of Households
Washington County	28,367
Noble County - Jackson Township	193
City of Marietta (including Devola)	7,700
Village of Lowell	289

Table 2-11
Educational Attainment for Residents in Regions of the Southern Watershed

Education Category	Washington County	Noble Co. - Jackson Twp.	City of Marietta (including Devola)	Village of Lowell
Enrolled K-12	14,223	89	2,278	89
HS Graduate (or GED)	19,177	248	4,008	132
Some College	8,618	51	2,466	71
Bachelors Degree	4,598	0	1,394	33
Graduate Degree or Higher	2,301	12	1,008	18

Table 2-12
Economic Characteristics for Residents in Regions of the Southern Watershed

Economic Characteristic	Washington County	Noble Co. - Jackson Twp.	City of Marietta (including Devola)	Village of Lowell
# Employed	27,272	188	7,304	183
# Unemployed	2,456	10	752	17
Median Household Income	$41,654	$39,107	Marietta: $31,315 Devola: $57,593	$43,438
% Residents Below Poverty Level	15.2%	27.3%	Marietta: 24.0% Devola: 5.0%	24.6%

WATERSHED INVENTORY

LAND USE CHARACTERISTICS

Changes in land use activities throughout a watershed can impact many facets of the water resources in that basin. According to the Earth Resources Information Network (ERIN) Watershed Reports, the Southern Watershed has historically been comprised of a forested land use. This makes since due to the regions steep terrain and hilly topography which makes much of the land not suitable for agricultural uses. Though, even in these steep terrain conditions, agriculture is the second highest use of the land within the watershed. Traditionally, row crop production has been accomplished in the ravines and river bottoms with pasture lands comprising gently slopped hills leading out of the valleys.

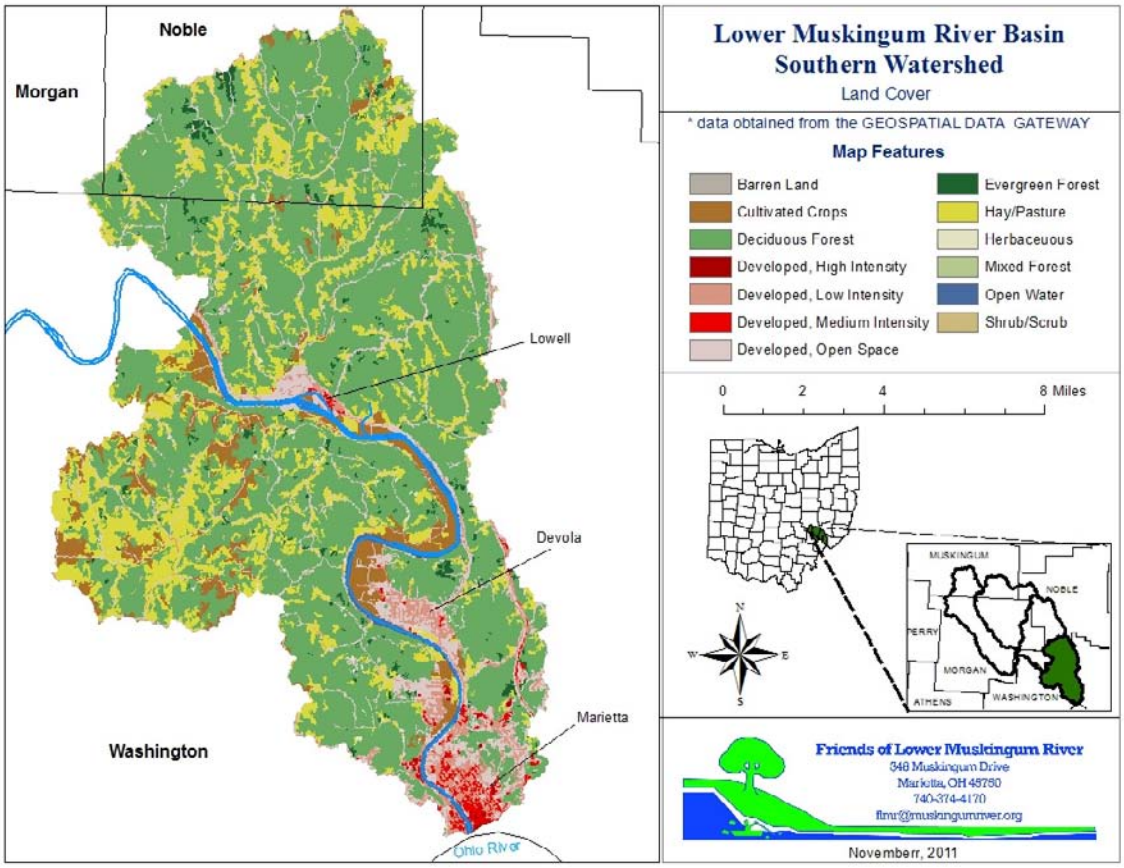
Since 1994 the generally trend in this basin has been a move toward more urban areas and less agricultural regions throughout the basin. This seems to follow the national trend which showed that increased production in the agricultural sector was achieved through efficiency rather than through additional acreage (National, 2012). Essentially this means that less land is needed for high crop yields. An increased demand for bio-fuel production is predicted to positively impact the agriculture community, meaning an increase in agricultural land use may be seen nation wide as well as in the Southern Watershed in the coming years (Office, 2012). Table 2-13 details the trend of land use practices (as percentages of the Southern Watershed) from 1994 to 2009. A visual representation of land cover in the Southern Watershed, based on 2006 land use imagery, can be seen in Map 2.3.

Table 2-13
Trend of Land Use Practices (by percent) in the Southern Watershed from 1994 to 2009

Land Use Type	2009	2001	1994
Agricultural	21%	41%	26%
Water	0.5%	1%	1%
Urban	13%	5%	4%
Forrest	65%	53%	66%
Barren	0%	0%	0%
Shrub/Scrub	0.5%	0%	3%

(ERIN, 2012)

Map 2.3



Urban

The "urban" type of land use encompasses lands classified as "developed, open space," "developed, low intensity," "developed, medium intensity," and "developed, high intensity" categories. Map 2.4 highlights the urban areas of the Southern Watershed.

Urban Sprawl is a term most frequently used in association with highly populated cities, but does also apply on a smaller scale to the Southern Watershed. According to dictionary.com, "Urban sprawl" is the uncontrolled spread of urban development into neighboring regions. As previously mentioned, a current trend in the basin is for less land being used for agricultural reasons and more land being developed into urban areas. Even though the Southern Watershed is not highly urbanized (only 13% urban areas), certain subwatersheds in this region are experiencing more impacts from urban sprawl than others. For instance, the Devol Run-

Muskingum River Subwatershed (HUC #050400041204) is made up of 33% urban areas (Table 2-14). This basin experiences the most significant impacts from urbanization than any of the other subwatersheds in the Southern basin. Further detail on these impacts will be discussed later in this plan.

Map 2.4

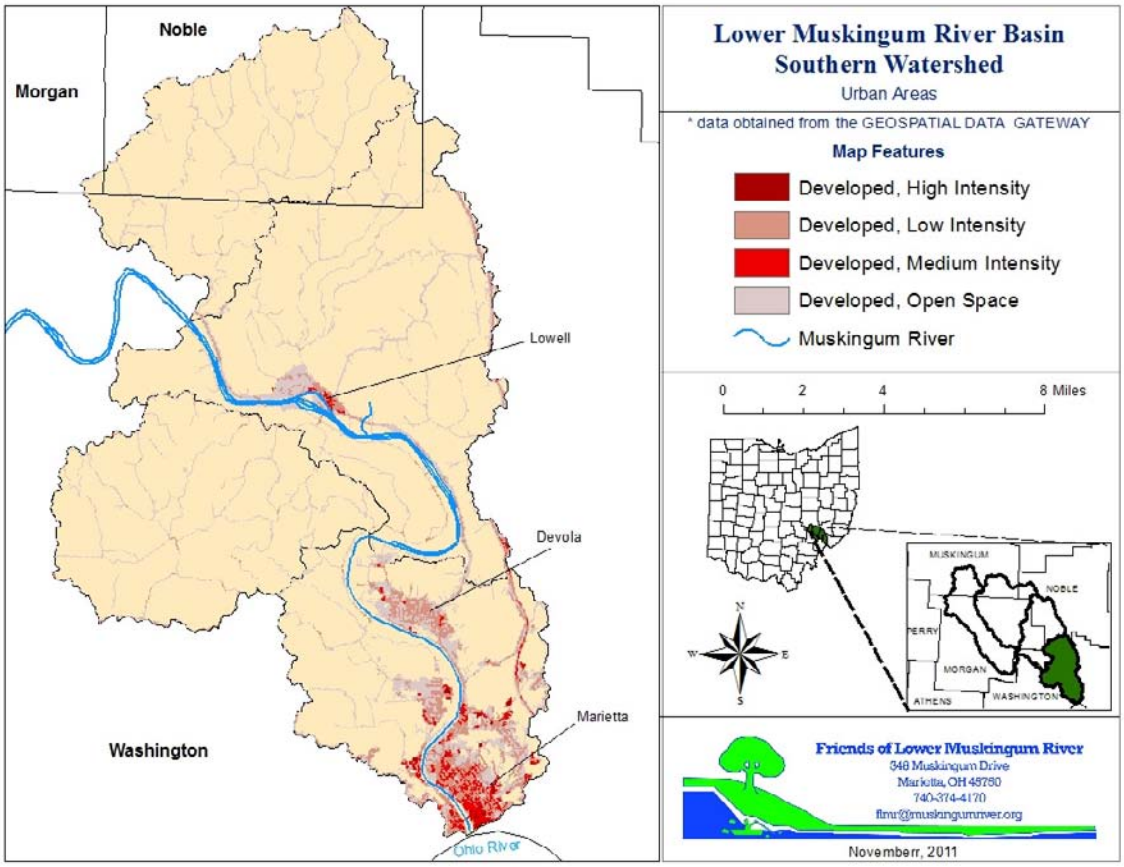


Table 2-14 Urban Areas Land Cover by Subwatershed

Subwatershed Name	Acres of Subwatershed	% of Subwatershed
Big Run	792.7	7 %
Rainbow Creek	860.2	7 %
Cat Creek	2,327.1	11 %
Devol Run	4,345.7	33 %

Impervious Surfaces

Urbanization within a watershed can have negative impacts on the hydrology of that basin. In many cases urbanization is a leading contributor to headwater degradation, increased siltation from development and many other impacts caused by the increased amount of impervious surfaces in these urban areas.

Impervious surfaces are surfaces that water can not infiltrate, such as rooftops, driveways, parking lots, sidewalks and roads. During rain events or when snow and/or ice melt, these surfaces create a sheet flow with the resulting waters. This flow of water picks up a host of pollutants before it enters a storm drain and is directed to the nearest body of water. Some of these pollutants include excess nutrients from fertilizers, pathogens from pet waste, gasoline, motor oil, heavy metals from vehicles, cigarette butts and other waste. The addition of these pollutants to a stream or river is not the only impact caused by impervious surfaces. These surfaces can also increase flooding and streambank erosion due to abnormally high flow velocities during rain events. They can degrade aquatic habitats with the increased erosion causing sedimentation into the stream, and finally they reduce they hydrologic systems groundwater recharge rate by decreasing the amount of water being infiltrated back into the ground.

Land cover data was used in ArcGIS software to estimate the percentages of impervious surfaces in the Southern Watershed and its sub-basins. Percentage estimates were created by measuring the area within the watershed occupied by roads and combining it with the areas that were categorized as "Developed- Low Intensity," "Developed- Medium Intensity," and "Developed- High Intensity" in the 2006 land cover data sets (GeoSpatial, 2012). Therefore, it is estimated that approximately 8.5% of the Southern Watershed is an impervious surface. Impervious surface estimates for the four subwatersheds of the Southern Watershed can be seen in Table 2-15.

Table 2-15
Estimates for the Amount of Impervious Surfaces in Each Subwatershed

Subwatershed Name	% of Watershed that is an Impervious Surface
Big Run	3.9 %
Rainbow Creek	4.5 %
Cat Creek	16.1 %
Devol Run	21.3 %

Household Sewage Treatment Systems

Household Sewage Treatment Systems (HSTS), or septic systems, are a common wastewater treatment structure utilized by the rural residents in the Southern Watershed. The Southern Watershed lies in the Gilpin-Upshur-Lowell-Guernsey soil region. The well drained soils of this region make gravity fed type HSTS ideal, but not practical for some homeowners in steep terrains. Aerator type HSTS are the next best option, and are widely used by many residents of the watershed.

Both types of systems have their benefits for rural residents that cannot connect to a centralized treatment system. These systems do require regular maintenance though, and that can easily be overlooked, causing the system to fail. Failing septic systems can have major impacts on a watershed if left unchecked. According to the U.S. Environmental Protection Agency, "Malfunctioning (leach field type) septic systems release bacteria, viruses, and chemicals toxic to local waterways. When these pollutants are released into the ground, they eventually enter streams, rivers, lakes and more" (Maintaining, 2012).

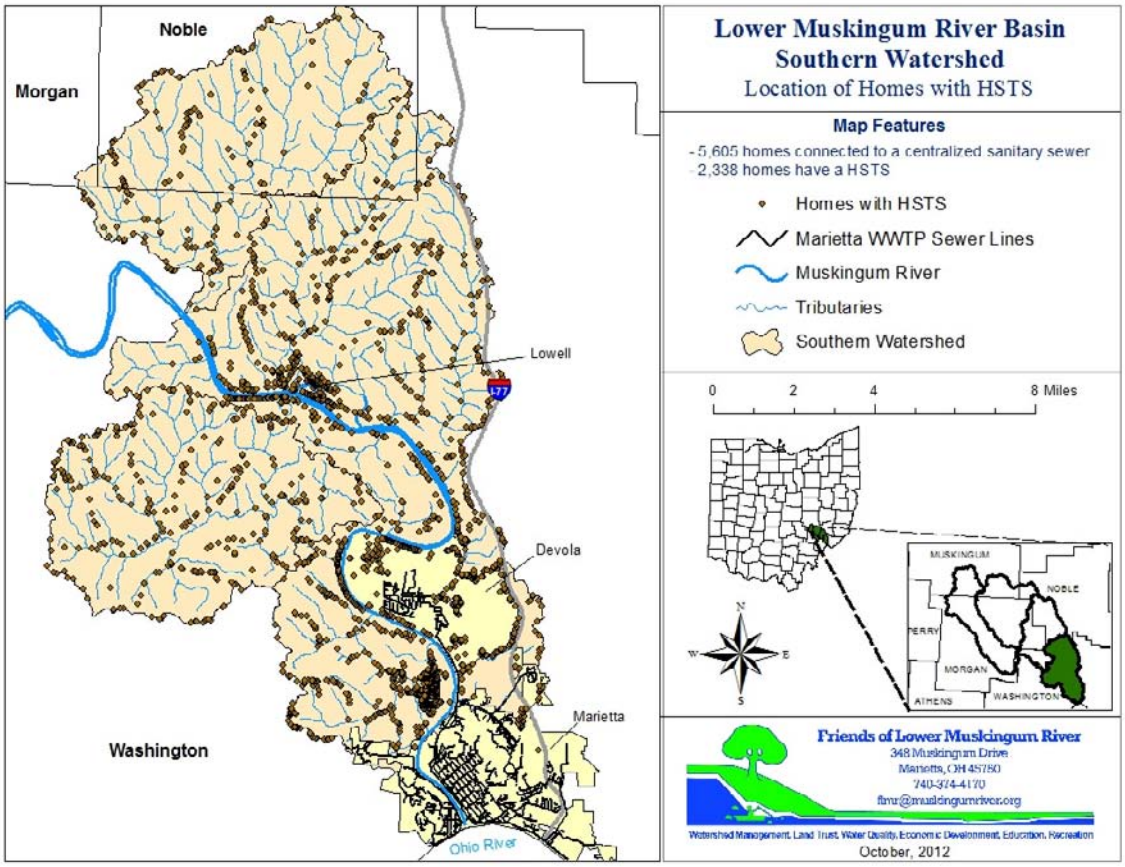
Aeration type HSTS can also impact the surface water of a watershed, but in a more direct way. If the aeration mechanism in these systems is allowed to fail then the result is a direct discharge of untreated sewage to the nearest ditch, stream or river. According to the Washington County Health Department, "at least 50% of aeration type systems (*HSTS*) do not work properly in Washington County." It would be safe to assume that this problem exists not only in Washington County, but throughout the rest of the Southern Watershed as well. As mentioned previously, the third main concern expressed by all participants that took the public survey was that "poor sewage/waste disposal practices" were an issue of major concern in the watershed. Therefore it is essential that actions laid out in this management plan work, in part, to better manage HSTS throughout the Southern basin.

To help determine if failing HSTS are contaminating waters in the Southern Watershed, a HSTS investigation was completed. The goal of this investigation was to approximate how many permitted systems exist and to identity potential “problem areas” created by failing HSTS in the basin. This investigation became a large study that utilized multiple "tools" including the Washington County Online Auditors website, Washington County Health Department's Registered Sanitarians, ESRI ArcGIS software, City of Marietta's Wastewater Treatment Plant (WWTP), and the Ohio EPA TMDL program.

Using ESRI ArcGIS software, a shape file depicting points on a map showing address

locations throughout both Washington County and Noble County was clipped to fit only within the boundaries of the Southern Watershed. This data was obtained from the Washington County Auditors office and the Buckeye Hills – Hocking Valley Regional Development District. From this mapping it was determined that there are approximately 7,943 homes within the basin. Sanitary sewer data layers depicting sewers that encompass regions of Marietta and Devola were then overlaid on the map. Address features that were near these sewer lines were removed from the map. Sanitary sewer data was not available for the Village of Lowell's WWTP, but a representative of the plant stated that approximately 350 homes are connected to the centralized sewer system in Lowell. Therefore, 350 address features (homes) in the Lowell area were removed from the map as well. By utilizing the ArcGIS software, it is estimated that 5,605 homes are served by the City of Marietta's and the Village of Lowell's WWTP; it is also estimated that approximately 2,000 homes manage their sewage onsite through HSTS in the Southern Watershed. Map 2.5 depicts the final cartography that was completed for this portion of the study

Map 2.5



According to an Ohio Department of Health report compiled in 2008, "sewage systems generate approximately 120 gallons per day (gpd) of waste effluent per person" (ODH, 2008). The 2010 United States census showed that, for Washington County, there are 2.38 persons per household. Table 2-16 lists the estimated approximate number of HSTS that were not recorded in the sanitarians database (which therefore are considered to be failing) and gives calculated effluent statistics based on the number of systems in each subwatershed.

Table 2-16
Estimated (using ArcGIS software) Approximate Number of HSTS by Subwatershed that are Considered to be Failing.

Subwatershed	Estimated Approximate # of HSTS	Calculated Effluent Discharge per Subwatershed (gals/day)
Big Run	190	54,264
Rainbow Creek	260	74,256
Cat Creek-Muskingum River	990	282,744
Devol Run-Muskingum River	560	159,936

Another purpose of this investigation was to try to identify specific areas of the watershed that may be impacted by failing HSTS and would require more attention in the implementation of this plan. To get a better feeling of the possible "problem areas" created by failing HSTS, two major pieces of information were obtained. First off, the Washington County Health Department's Registered Sanitarians provided their electronic permitting database to be used as a piece of the puzzle. According to the health departments website, their "office permits and inspects the installation of residential and commercial (1000 gallons/day or less flow) sewage treatment systems within Washington County" and inspects sewage treatment systems that are being sold (Washington, 2012).

While the database they provided does not include every system ever permitted in Washington County, it does provide consist permitting information from 1987 to the present day. This database was imported into the ArcGIS software using georeferencing to create points on the map based off of the addresses listed in the database. These points were clipped to the Southern Watershed and therefore represented homes in the Southern Watershed that have had a HSTS

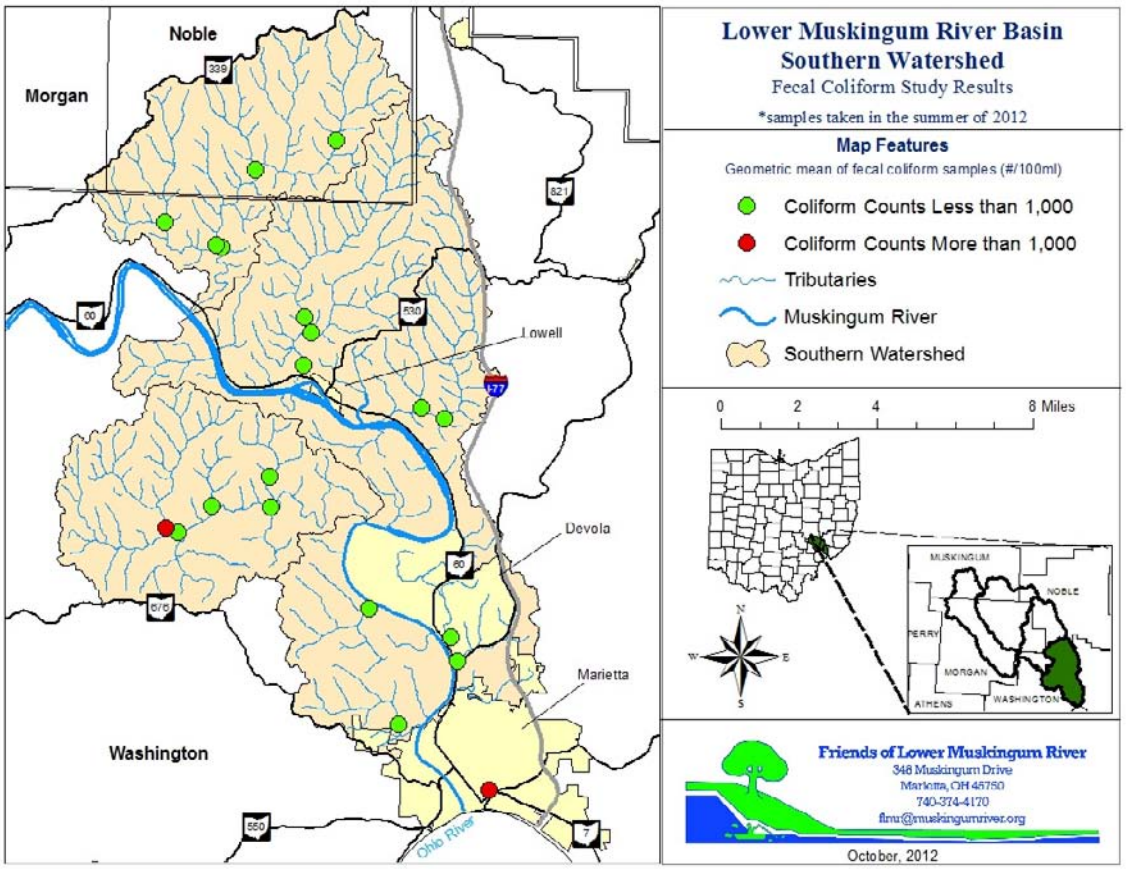
permitted within the past 25 years. This data was then compared to the address point features, discussed earlier, and any homes that had a permitted HSTS within the past 10 years were removed from the map. It was assumed that homes permitted within the past 10 years had a better probability of functioning properly and would not be contributing to bacterial contamination of the watershed.

The second piece of information obtained to help identify problem areas within the watershed was a Fecal Coliform investigation. In May and September of 2012, 20 sites throughout the watershed were sampled by FLMR. Forty total samples were taken by FLMR and analyzed by the City of Marietta's WWTP for Fecal Coliform bacteria. The Ohio EPA's Total Maximum Dailey Load (TMDL) survey also gathered fecal coliform data to help with this investigation throughout the summer of 2012. They took 45 fecal coliform samples from the same 20 sites throughout the watershed. This investigation analyzes the geometric mean of samples taken by the TMDL survey and FLMR.

It is important to note that Fecal Coliform contamination can be generated from a variety of sources, not solely from failing HSTS. *E. Coli* bacteria is a better indicator of fecal contamination from human or other mammalian origins and is widely used in this type of analysis. However, due to the limited financial means of this planning process, Fecal Coliform samples were all that could be obtained. The Ohio Environmental Protection Agency (OEPA) also gathered *E. coli* bacteria samples throughout the Southern Watershed during their TMDL study that was completed during the summer of 2012. Those results will be discussed in detail in the Water Quality portion outlined later in this plan.

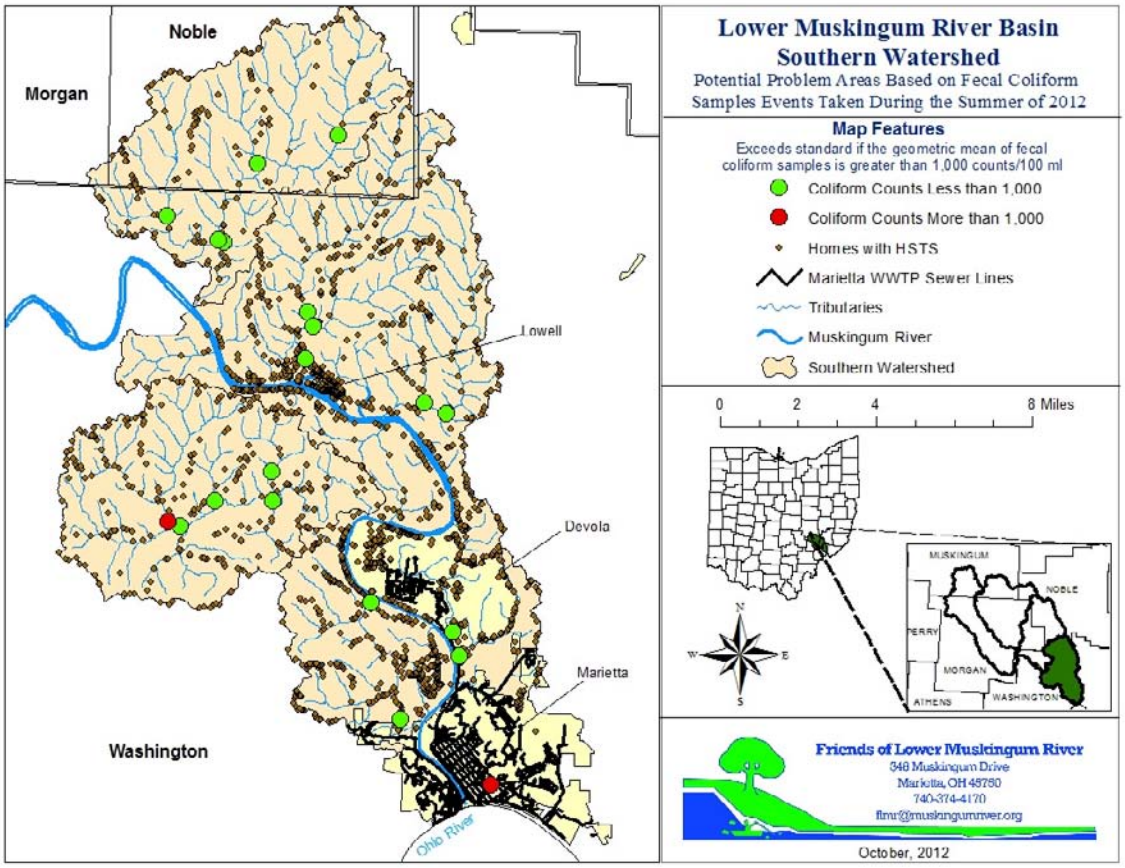
Before the OEPA adopted new water quality standards utilizing *E. coli* bacteria as an indicator for bacterial contamination, they used Fecal Coliform as their criteria. According to their old standards the "geometric mean fecal coliform content, based on not less than **five samples within a thirty-day period, shall not exceed 1,000 per 100 ml** and fecal coliform content shall not exceed 2,000 per 100 ml in more than 10 percent of the samples taken during any thirty-day period" (Skalski, 2012)**.** For this investigation, samples were taken over a four month period. Nonetheless, the former OEPA standards were still used and it was decided that if any of the geometric means from the samples gathered exceeded the 1,000 counts per 100 ml standard, then it would require specific attention during the implementation of this plan. It was determined that seven of the twenty sites sampled during this investigation exceeded the 1,000 counts per 100 ml standards. Map 2.6 details the results of the Fecal Coliform study.

Map 2.6



Finally, ArcGIS software was used once again to bring together all of the information gathered for this investigation of failing HSTS. Map 2.7 is the final product of this investigation and it displays areas throughout the watershed that are potentially impacting water quality due to failing HSTS. Homes that are located near sampling sites that exceeded the 1,000 count standard will be addressed by subwatershed later in this action plan.

Map 2.7



Forest

Forested areas account for 36,744 acres or 65% of the Southern Watershed. Temperate deciduous forest dominate this land cover making up 97.3% of the forest in the basin. Only 2.6% of the region is classified as an evergreen forest and 0.1% is a mixed deciduous/evergreen forest. The deciduous forest in this region are of the oak-hickory type. Dominant tree species of this forest type include oaks, hickories, maples, beeches and sycamores (Marietta, 2012). Map 2.8 displays the current forest environment for the Southern Watershed.

The large amount of forested land within the basin contributes greatly to some of the high quality streams in the subwatersheds. The Big Run subwatershed, for instance, has 9,097 acres of forested land (Table 2-17). Essentially, that means 78% of this subwatershed is covered in forest which act as a natural buffer to pollutants trying to enter the water bodies in this area.

Overall the forest communities found within the Southern Watershed are considered to be in an overall good state of health. However, two insects, the Gypsy Moth and the Emerald Ash Borer, are posing a serious threat to these regions. As discussed in Section I, the Gypsy Moth has already spread to the Southern Watershed and the Emerald Ash Borer was spotted just north of the watershed in May of 2012. These insects threaten to cause major destruction to many of the dominate deciduous trees in the basin.

Map 2.8

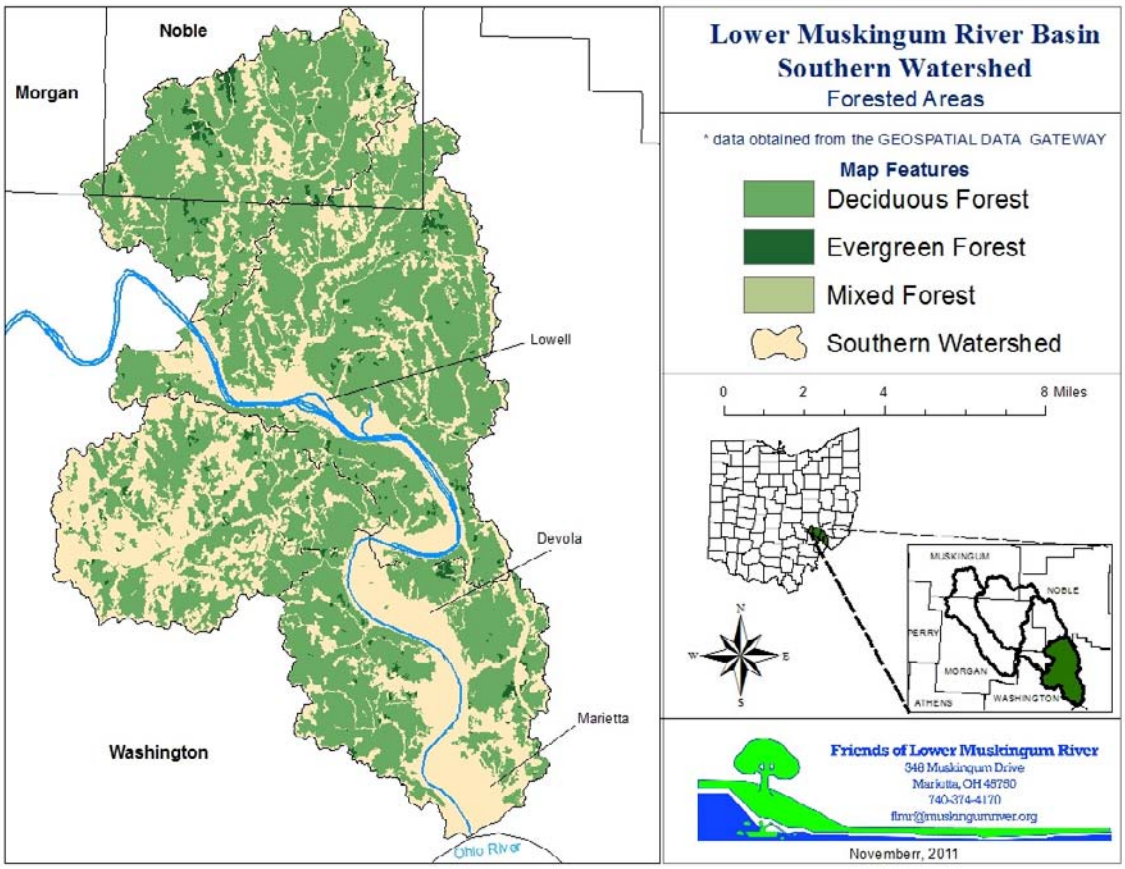


Table 2-17 Forest Land Cover by Subwatershed

Subwatershed Name	Acres of Subwatershed	% of Subwatershed
Big Run	9,097.6	78 %
Rainbow Creek	6,434.9	53 %
Cat Creek	14,152.4	68 %
Devol Run	70,58.7	53 %

Agriculture

Agriculture is the second largest land cover in the Southern Watershed and one of the biggest contributors to non-point source pollution in the basin. It accounts for 11,760 acres or 21% of the land area in the watershed. The agricultural land cover category includes those lands currently used for pasture/hay or cultivated crops. Pasture/hay areas are characterized by "areas of grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops, typically on a perennial cycle. Pasture/hay vegetation accounts for greater than 20% of total vegetation" (Multi-Resolution, 2006). Cultivated crop regions are characterized by " areas used for the production of annual crops, such as corn, soybeans, vegetables, tobacco, and cotton, and also perennial woody crops such as orchards and vineyards. Crop vegetation accounts for greater than 20% of total vegetation." (Multi-Resolution, 2006).

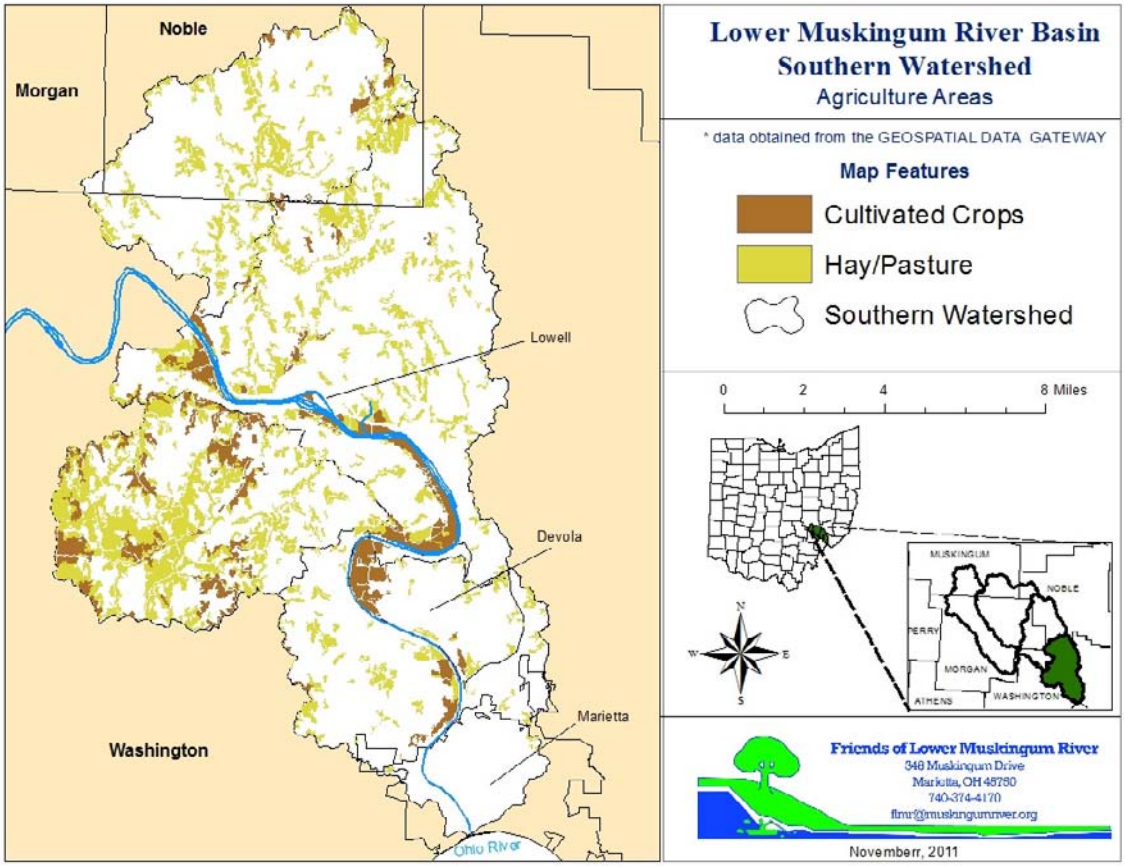
Of the agriculture areas in the watershed, 75.1% of the land is used for livestock grazing and/or hay crop production. The remaining 24.9% of agricultural lands is used for cultivating crops. Looking at Map 2.9, it becomes clear that many of the cultivated crops in the Southern Watershed are grown in former wetland flood plains of the Muskingum River basin or on some of the more gradual sloped terrains and hill tops. The flood plain areas exhibit extremely nutrient rich soils which are ideal for cultivation. Historically then, these areas were tiled and drained to make the flood plains useable for planting.

Some of the most severe impacts to the watershed are associated with the current agricultural practices utilized in the basin. The Rainbow Creek-Muskingum River subwatershed, for instance, is used more for agricultural purposes than any of the other subwatersheds. Rainbow Creek also exhibits the most water quality impairments of any of the other subwatersheds in the basin. Due to the topography of the region, forested areas still make up the number one land use in the Rainbow Creek subwatershed. However, agricultural land cover is the second biggest use of the land with 4,727 acres or 39% of this subwatershed being utilized for agricultural purposes (Table 2-18). Watershed impairments caused by agricultural practices will be discussed more thoroughly on a subwatershed basis later in this plan.

Table 2-18 Agriculture Land Cover by Subwatershed

Subwatershed Name	Acres of Subwatershed	% of Subwatershed
Big Run	1,780.8	15 %
Rainbow Creek	4,727.0	39 %
Cat Creek	3,811.1	18 %
Devol Run	1,440.6	11 %

Map 2.9



Crop type

Based on 2011 Cropland spatial data, gathered annually through the U.S. Department of Agricultures (USDA) Spatial Analysis Research Section, the main crop cultivated in the Southern Watershed is corn. Corn makes up 50% of all the cultivated crops in the watershed while soybeans account for 28%, alfalfa for 16%, cranberries for 3%, winter wheat for 2% and sweet corn, tomatoes, strawberries and rye all making up less than 1% (GeoSpatial, 2012). Production estimates for Washington County can be seen in Table 2-19. Estimates for Noble County were not available from the USDA.

Table 2-19
Washington County Crop Production Estimates for 2011

Crop Type	Acreage Harvested	Yield (bushels per acre)	Production (bushels)
Corn	9,230	148.0	1,366,000
Soybean	5,890	49.7	293,000
Alfalfa Hay	8,800	2.65	23,500

(National, 2012)

Tillage

It is estimated that at least 50% of cultivated lands in the Southern Watershed utilize "No-Till" or minimal tillage practices (Bourdon, 2012). The farmers practicing "no-till" cultivation usually keep their fields in a Corn-Bean-Wheat type rotation to maximize ground cover throughout the year. Studies have shown that "No-Till" farming increases water and organic matter (nutrients) in the soil and decreases erosion, resulting in less sedimentation impacting receiving bodies of water.

The other half of the cultivated lands in the watershed are conventionally tilled. This type of tillage involves disking, plowing and other methods to till up crop residue left behind after the harvest, leaving very little ground cover in the off season. Conventional tillage is considered to be an energy intensive practice that typically leaves less than 15% crop residue after completion. Farmers using conventional tillage typically keep their cultivated lands in a rotation consisting of two to three years corn followed by three to four years hay (Bourdon, 2012). Fields that are intensively tilled are a regularly associated with sedimentation of nearby bodies of water.

Chemical Use Patterns

Information regarding patterns in chemical applications within the agricultural areas of the Southern Watershed were not readily accessible during the development of this action plan. With nutrient loadings being a high concern throughout the state of Ohio, a future investigation into chemical use patterns in the watershed is recommended in future planning.

Soils

According to Watershed Reports generated through ODNR's Earth Resources Information Network (ERIN) program, the Southern Watershed consists of four soil types known as Hydrologic Soil Groups. These four soil types are classified as either Group A, Group B, Group C or Group D. From the ERIN reports it was determined that 47,165 acres (84%) of the

Southern Watershed is made up of Group C soils, 7,202 acres (13%) are Group B soils, 958 acres (2%) are Group A soils, and 576 acres (1%) are Group D soils (ERIN, 2012). Hydrologic Soil Groups are defined by the United States Department of Agriculture (USDA), Natural Resources Conservation Services in the "National Engineering Handbook" (USDA, 2009). The definitions from this handbook for each soil group are detailed in the bullets below. Table 2-20 details the amounts, by acres, of Hydrologic Soil Groups within each subwatershed of the Southern Watershed.

- *"Group A—Soils in this group have low runoff potential when thoroughly wet. Water is transmitted freely through the soil. Group A soils typically have less than 10 percent clay and more than 90 percent sand or gravel and have gravel or sand textures. Some soils having loamy sand, sandy loam, loam or silt loam textures may be placed in this group if they are well aggregated, of low bulk density, or contain greater than 35 percent rock fragments."*
- *'Group B—Soils in this group have moderately low runoff potential when thoroughly wet. Water transmission through the soil is unimpeded. Group B soils typically have between 10 percent and 20 percent clay and 50 percent to 90 percent sand and have loamy sand or sandy loam textures. Some soils having loam, silt loam, silt, or sandy clay loam textures may be placed in this group if they are well aggregated, of low bulk density, or contain greater than 35 percent rock fragments."*
- *"Group C—Soils in this group have moderately high runoff potential when thoroughly wet. Water transmission through the soil is somewhat restricted. Group C soils typically have between 20 percent and 40 percent clay and less than 50 percent sand and have loam, silt loam, sandy clay loam, clay loam, and silty clay loam textures. Some soils having clay, silty clay, or sandy clay textures may be placed in this group if they are well aggregated, of low bulk density, or contain greater than 35 percent rock fragments."*
- *"Group D—Soils in this group have high runoff potential when thoroughly wet. Water movement through the soil is restricted or very restricted. Group D soils typically have greater than 40 percent clay, less than 50 percent sand, and have clayey textures. In some areas, they also have high shrink-swell potential. All soils with a depth to a water impermeable layer less than 50 centimeters [20 inches] and all soils with a water table within 60 centimeters [24 inches] of the surface are in this group, although some may have a dual classification, as described in the next section, if they can be adequately drained."*

Table 2-20

Acres of Different Hydrologic Soil Groups in the Southern Watershed

	Hydrologic Soil Group (acres)			
Subwatershed	**A**	**B**	**C**	**D**
Big Run	28	590	10,971	64
Rainbow Creek	53	1,287	10,282	405
Cat Creek-Muskingum River	522	2,713	16,621	67
Devol Run-Muskingum River	355	2,611	9,291	40
Southern Watershed Totals	***958 (2%)***	***7,202 (13%)***	***47,165 (84%)***	***576 (1%)***

Irrigation

Generally, irrigation is not used in the agricultural regions of the Southern Watershed. As mentioned previously, most of the cultivated crops in the watershed are grown in the rich, floodplain soils of the Muskingum River and its tributary streams. The majority of the soils in the basin are Group C soils (see "Soils" in Section II, page 24) which are already poorly drained and therefore regularly tiled to remove the excess water. The mixture of these poorly drained soils and an average annual rainfall of 42 inches means that irrigation is not necessary for crop cultivation in the Southern Watershed.

Livestock Inventory

As previously discussed, 75.1% (or approximately 8,820 acres) of the land is used for livestock grazing and/or hay crop production in the Southern Watershed. The steep terrains of the basin make crop cultivation challenging, therefore livestock populations are sustained. It is estimated that currently in the watershed there are 400 dairy cows, 3,000 beef cattle (including calves), 250 sheep (including lambs), and 100 hogs (Bourdon, 2012). While some livestock do have direct access to streams within the basin for water consumption (see "Livestock Stream Access" in Section II on pages 74, 90, and 108) others do not and require an alternate watering source. Some of these alternate watering sources come from groundwater wells and springs, but in other cases require withdrawing water from streams within the watershed. Documented information pertaining to the amounts of water withdrawn for livestock consumption is not readily available, but is evident that this practice is not widely enough used for it to be a concern within the Southern Watershed.

Grazing

Grazing occurs on approximately 8,820 acres of land throughout the Southern Watershed. Many of the farms that have livestock allow them to openly graze in areas of steep terrains and other regions that are impractical to use for crop cultivation. Due to a lack of grazing management and alternate watering sources, many farms in the watershed allow the livestock to have unrestricted access to the streams.

As can be seen in Map 2.9, much of the pasture/grazing lands in the Southern basin lies in the Rainbow Creek subwatershed. Although a formal investigation has not been completed to identify all of the stream segments with unrestricted livestock access, it has been evident throughout the development of this plan that many of the unrestricted livestock have access to streams within the Rainbow Creek subwatershed. Unrestricted livestock access and its impact on the Southern Watershed will be more thoroughly discussed in the Problems, Actions & Implementation section later in this plan

Water

Less than 1% of the entire Southern Watershed is covered in surface water. Only 308 acres of land in the basin is occupied by ponds, streams or rivers, including the main stem portion of the Muskingum River. Of the subwatersheds, the Big Run basin has the highest percentage of surface water features within its boundaries. 0.73% or 85 acres of the Big Run subwatershed is occupied by surface waters (Table 2-21.

Table 2-20
Surface Water (ponds, streams and/or rivers) Land Cover by Subwatershed

Subwatershed Name	Acres of Subwatershed	% of Subwatershed
Big Run	85	0.73%
Rainbow Creek	59	0.49%
Cat Creek	115	0.55%
Devol Run	49	0.37%

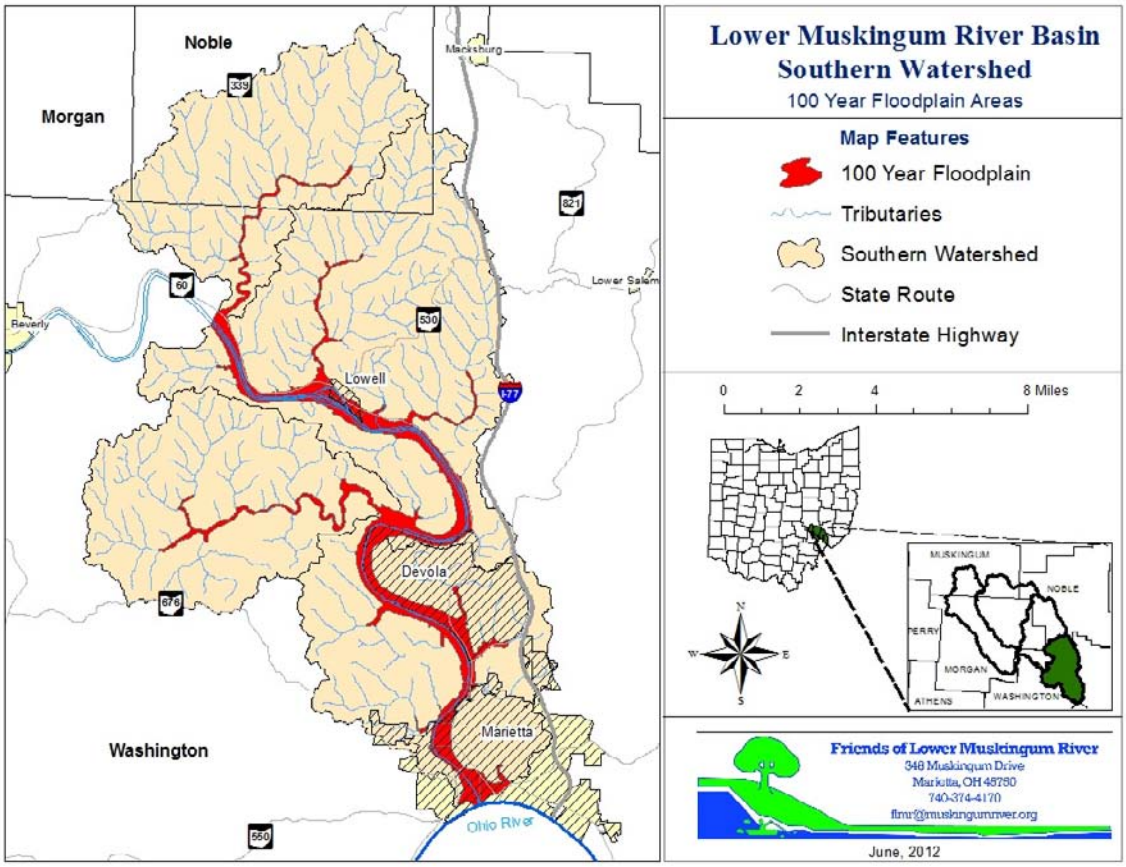
Flooding

Even though water does not make up much of the land area in the basin, the top concern of all participants that took the Southern Watershed planning survey was flooding. Map 2.10 depicts the 100 year floodplain within the basin. 7.8% of the Southern Watershed lies in the boundaries of the 100 year floodplain. With the Muskingum River draining into the even larger

Ohio River at the watersheds southern most boundary, the City of Marietta, the concern for flooding in the basin is not unjustified. The last major flood in the watershed was in September of 2004 were in which the Muskingum river crested at 44.97 feet, about 10 feet about flood stage. Before that, the most recent flood had been 40 years prior in March of 1964 when the river crested at 45.2 feet.

Fortunately, flooding in this region has not gone unchecked. In response to historic serve flooding events, the Muskingum Watershed Conservancy District (MWCD), a political subdivision of the State of Ohio, was created in 1933 to carry out a comprehensive flood control and water conservation project in the Muskingum River Watershed. A series of 16 reservoirs were created by the U.S. Army Corps of Engineers in the early 20th century in the northern portions of the Muskingum Watershed to reduce flooding in the lower Muskingum River basin. To this day these reservoirs are still being utilized for flood control by the MWCD.

Map 2.10



After the flooding in 2004, agencies came together and began a long process of taking a closer look at ways to reduce the impacts of a flooding in the lower Muskingum River Watershed. Agencies like the United States Geological Survey (USGS), U.S. Army Corps of Engineers, National Weather Service and MWCD have all pitched in and are working on installing a state of the art early flood warning system. The system would give 24 hour early flood warnings to threatened communities like Marietta, Devola and Lowell, based off of USGS gauges and predictions of the National Weather Service. According to the USGS, a system similar to this is being used by the City of Findlay and has been highly successful at predicting floods before they happen, therefore saving the city thousands of dollars.

Large floods at the convergence of the Muskingum and Ohio rivers is always a threat to the people of the Southern Watershed, but flash floods in smaller tributary streams can be as big of an issue for residents as well. Goose Run, for instance, is a very small tributary stream to the Muskingum River. It drains approximately 1.4 square miles of land within the Devol Run-Muskingum River subwatershed, right through the heart of Marietta. It is not uncommon for Goose Run to rapidly flood during rain events of 4 to 5 inches. The City of Marietta has attempted to solve their flooding issues with this stream by installing a seven-foot duckbill backflow prevention valve at its outfall into the Muskingum River and by removing debris from storm drains but still the issues persists. Poor stormwater management is the main culprit behind Goose Run's issues. A detailed strategy to reduce the flooding impacts of Goose Run will be outlined in the Problems, Actions & Implementation section later in this plan.

Wetlands

There are very few remaining wetlands in the Southern Watershed. According to the National Land Cover Database (NLCD), less than 1% of the entire watershed is classified as a wetland. Historically a high number of wetlands existed within the floodplain regions of the Muskingum River and its tributaries. Those wetlands were tiled and drained long ago to allow access to those fertile soils for agricultural purposes.

Groundwater

The large groundwater aquifers and the underlying geological features accompanying the Muskingum River provide for an ample supply of drinking water to the communities in the Southern Watershed (see pages 43-47 in Section I of this plan). Within this basin 10 Public Water Supplies (PWS), combining for a total of 22 wells, exist that utilize the aquifers of the Muskingum River to provide drinking water to its residents (Table 2-22). Other than the Village of Lowell's PWS, which resides in the Cat Creek-Muskingum River subwatershed, the remaining 9 PWS have wells within the Devol Run-Muskingum River subwatershed. Of these 10 PWS, 4 are **community water systems**, 5 are **transient non-community systems**, and 1 is a **non-transient non-community system**. Community water systems serve at least 15 service connections used by year-round residents or regularly serve at least 25 year-round residents; transient non-community systems serve at least 25 different persons over 60 days per year; and non-transient non-community systems serve at least 25 of the same persons over six months per year.

Table 2-22

Public Water Supplies in the Southern Watershed

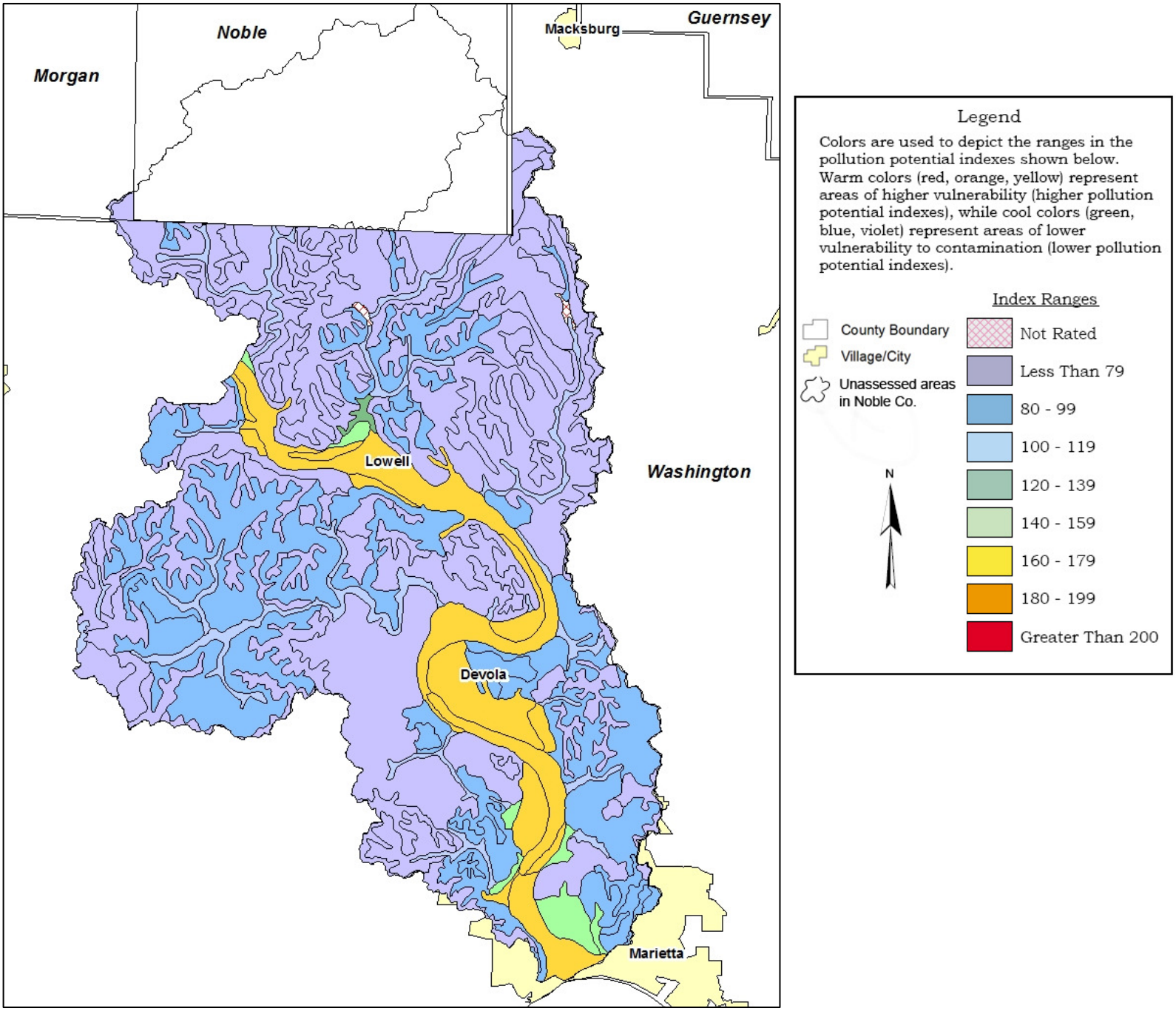
# of Wells	Water System Name	Type of System
7	City of Marietta	Community
4	Putnam Community Water Association	Community
3	Warren Community Water & Sewer Association	Community
2	Village of Lowell	Community
1	Ashland RV Park	Transient Non-Community
1	Edgewater Café	Transient Non-Community
1	House of Wines	Transient Non-Community
1	Marietta Shrine Club	Transient Non-Community
1	Oak Grove Complex	Transient Non-Community
1	Marietta Bible Center Church	Non-Transient Non-Community

As was described in Section I, pages 38-41, the Ohio Department of Natural Resources (ODNR) completed DRASTIC modeling within the Lower Muskingum River Watershed to assess the groundwater pollution potential within this basin. Map 2.11 focuses the DRASTIC modeling specifically on the Southern Watershed. For this map, pollution potential index scores were generated and color coded to depict the ranges in pollution potential for the Southern Watershed. Warm colors represent areas of higher vulnerability while cool colors represent areas of lower vulnerability to contamination (Angle, 2002).

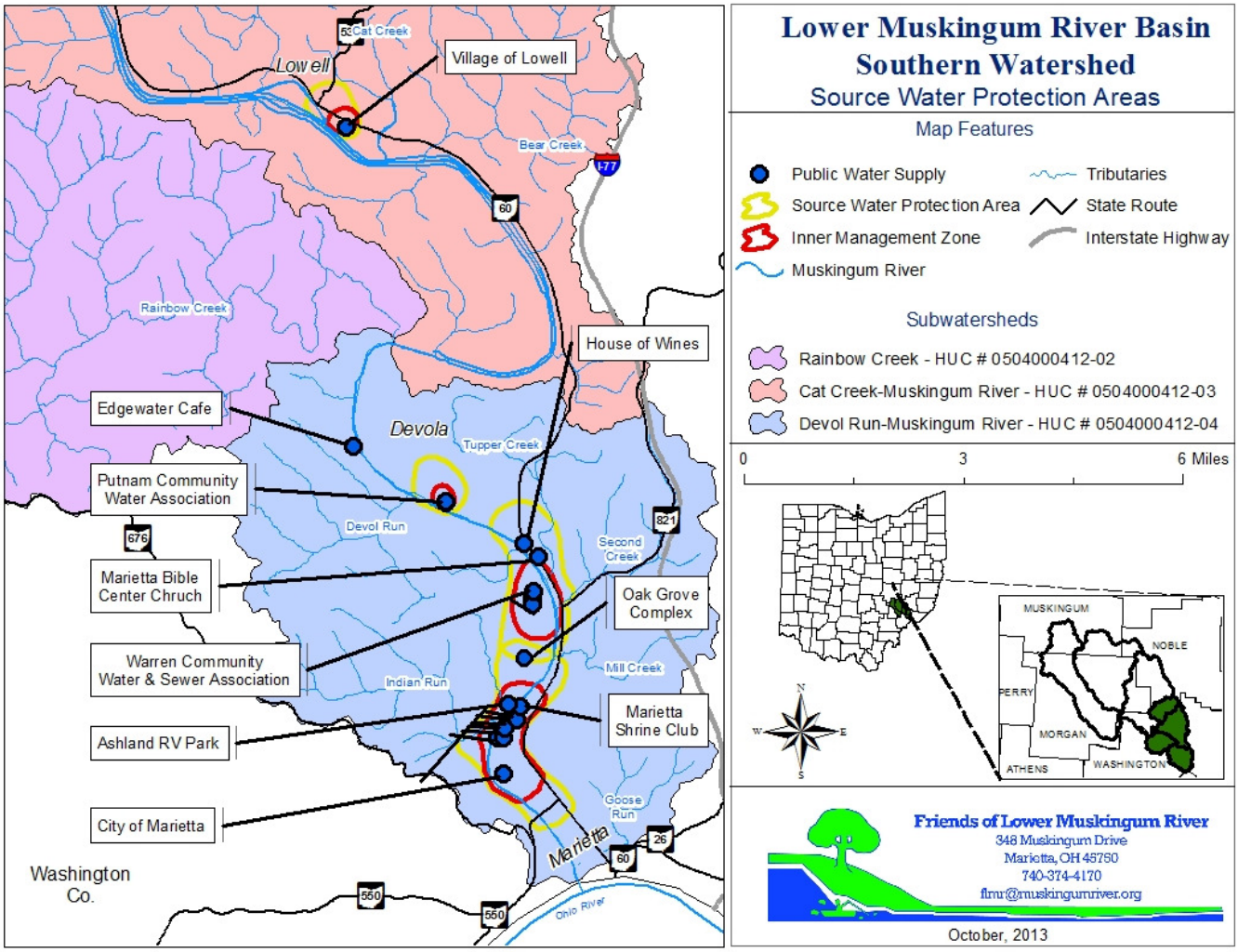
From Map 2.11 it can be seen that most of the headwaters in the Southern Watershed have a low threat of potential groundwater pollution. Areas near the mouths of Cat Creek, Devol Run, Indian Run, Tupper Creek, Mill Creek and Goose Run all show a moderate vulnerability to potential groundwater pollution. The regions of the Southern Watershed with the highest vulnerability to groundwater pollution lies within the valley of the Muskingum River. A serious threat to the residents of the Southern Watershed is that all of the PWS within the basin also lies within these high vulnerability zones of the Muskingum River.

In an effort to protect the precious water supplies within the Southern Watershed, the Ohio EPA has completed Source Water Assessment and Protection (SWAP) plans for every community PWS within the basin (see Section I, page 48). These SWAP plans have set aside specific protection areas for the well fields of each PWS. Map 2.12 shows the PWS and their respective protection areas as determined by the SWAP plans. Actions that are addressed later in this plan focus on bettering surface water impairments, but also take into account the vulnerability of the groundwater supplies in the Southern Watershed.

Map 2.11
Groundwater Pollution Potential in the Southern Watershed



Map 2.12



Protected Lands

There are six organizations/agencies that possess the ability to protect lands for conservation reasons in the Southern Watershed. They include the Friends of Lower Muskingum River (FLMR), Appalachian Ohio Alliance (AOA), the Ohio Department of Natural Resources, Washington and Noble Counties Soil & Water Conservation District (including the Farm Service Agencies), and Buckeye Hills Resource Conservation and Development (RC&D). Currently, FLMR protects approximately 51 acres of land within the watershed. 40 acres of this land is riverfront property owned by FLMR along the Muskingum River and the other 11 acres is a combination of Conservation Easements, all put together to form the Devol Run Preserve. All

together the Devol Run Preserve permanently protects approximately 1.2 miles of Muskingum River riparian corridor. AOA is the only other active land trust in the watershed. Currently they hold a Conservation Easement on a 37 acre historic farm on the Muskingum River between Marietta and Lowell.

ODNR owns a small, 11 acre piece of property adjacent to the mouth of Cat Creek. The design of lock & dam number 3 on the Muskingum River made it so that Cat Creek would drain into the canal instead of the main stem Muskingum. Historically, this has created abnormal flooding issues negatively impacting adjacent agricultural fields and homes. In 2003, ODNR designed a large scale project to fix this issue, but it was never funded. Instead, this 11 acre portion of land was purchased to allow for adequate flooding of the creek and for access for periodic dredging of the canal.

Both the Washington and Noble Counties SWCDs, as well as the Buckeye Hills RC&D, have the ability to hold Conservation and/or Agricultural Easements, but currently do not protect lands through this means. The USDA Farm Service Agencies (FSA), within each respective SWCD, do work towards protecting and preserving lands though. Instead of agricultural easements, they work through the Conservation Reserve Program (CRP) which allows them to offer farmers incentives to preserve portions of their land that are environmentally sensitive. CRP participants plant long-term, resource-conserving covers to improve the quality of water, control soil erosion, and enhance wildlife habitat. In return, FSA provides participants with rental payments and cost-share assistance. There are currently zero acres in Jackson Township of Noble County and approximately 650 acres of land in Washington County protected through the CRP.

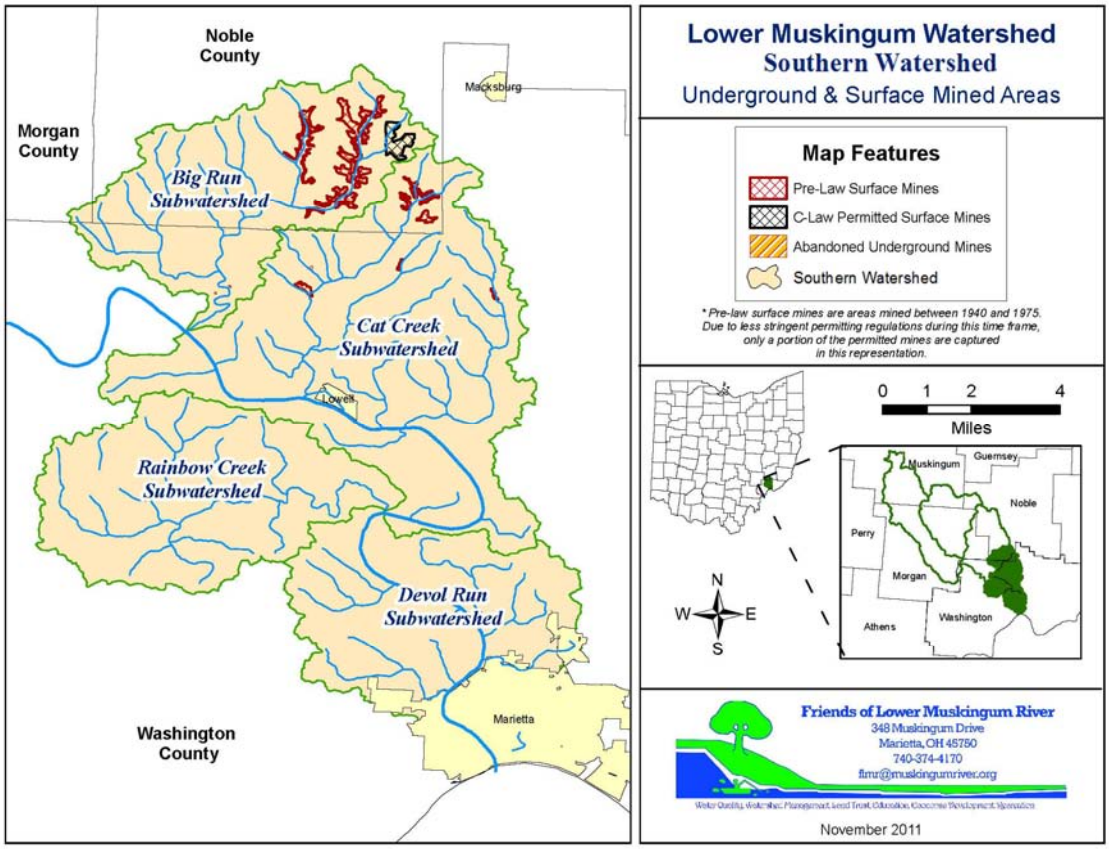
There are no county, state or national parks or forests within the Southern Watershed. The only other protected lands within the Southern Watershed come in the form of City of Marietta parks and "green space". Two official parks exist within the Southern Watershed portion of Marietta, the East Muskingum Park and the Kiwanis Club sponsored West Muskingum Park. These two parks represent a total of approximately 15 acres (0.3 miles) of Muskingum River front park space. Green Space within the City of Marietta was purchased and is permanently protected through the Clean Ohio Conservation fund. Two "Green Space" properties exist within the Southern Watershed portion of the City of Marietta, they are the Kris Mar Woods and the Walnut Hills tract of lands. These two Green Space areas make up close to 60 acres of protected lands that are mainly utilized for hiking and mountain biking.

Other Land Uses

Coal Mining

The amount of land mined for coal in the Southern Watershed is minimal compared to other watersheds in the Lower Muskingum River basin. Currently there are no lands being mined for coal but throughout this basins history, approximately 708 acres of land, mainly in the Big Run and Cat Creek subwatersheds, were mined for coal. There are only two known mine openings and the extend of the Abandoned Underground Mines (AUM) is not readily available. The GIS data obtained shows that the AUM in the watershed only accounts for 3 acres of land. The remaining 705 acres of mined land was done so through surface mining practices. To FLMR's knowledge, all of the mined lands in this basin have since been reclaimed and do not pose a threat to water quality nor human health. Map 2.13 depicts the location of coal mined areas in the Southern Watershed.

Map 2.13

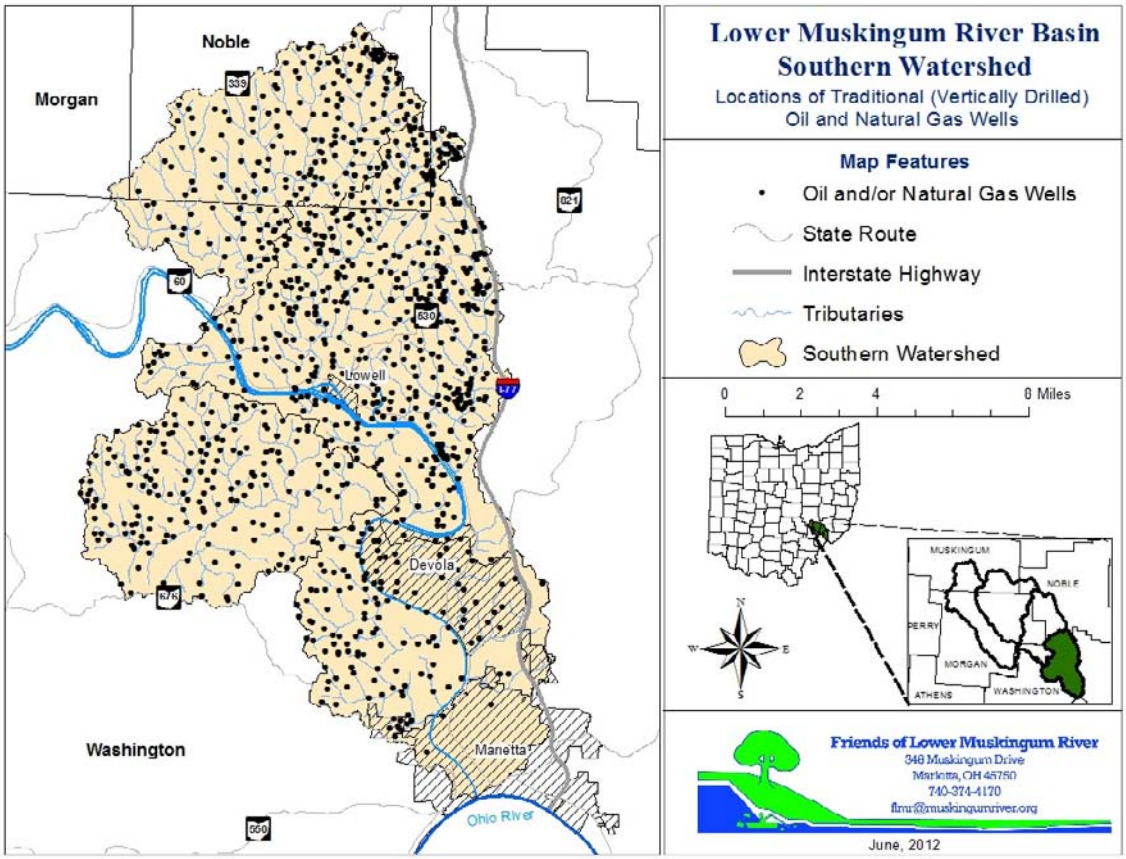


Oil & Natural Gas Exploration

Oil and natural gas have been found in 67 of Ohio's 88 counties; however, most current production comes from the eastern third of the state (ODNR, 2004). Historically, oil and gas have been produced from more than 30 individual geological formations (primarily limestone, dolomite, shale and sandstone). Traditionally, oil and gas deposits were accessed by drilling vertically into these geological formations. The stratigraphic layers containing these deposits were then mechanically fractured and the hydrocarbons were seized and put into production.

In the Southern Watershed natural gas is currently being obtained from three different stratigraphic intervals of the Permian-Pennsylvanian and Pennsylvanian bedrocks. These stratigraphic levels include the Silunrian "Clinton/Medina" sandstone and "Pack Shell", the Devonian Berea Sandstone and Cussewago Sandstone, and the Devonian Ohio Shale and Siltstone. Oil is currently being obtained from two different stratigraphic intervals; the Devonian Berea Sandstone and Cussewago Sandstone, and the Pennsylvanian Undifferentiated Sandstones and Coals. There are approximately 1,374 traditionally drilled wells currently being used to produce oil and/or natural gas within the Southern Watershed. Locations of these wells can be seen in Map 2.14

Map 2.14



In recent years, technological advances have allowed the oil and gas exploration industry to begin utilizing a new process commonly referred to as horizontal hydraulic fracturing to obtain hydrocarbons from extremely deep shale formations such as the Marcellus and Clinton shale. This controversial process involves drilling anywhere from 5,000 to 20,000 feet deep and then utilizing the horizontal fracturing process to access the hydrocarbons. One major concern that helps make this process so controversial is that it requires large amounts of fresh water to be utilized during the fracturing process (could be up to 5 million gallons). In eastern Ohio, exploration has shown large seams of natural gas in the Utica Shale formation. At this time there are no horizontal hydraulic fracturing wells present in the Southern Watershed though it is rumored that production may start in Washington County within the next year.

PHYSICAL ATTRIBUTES

Riparian Corridor Assessment

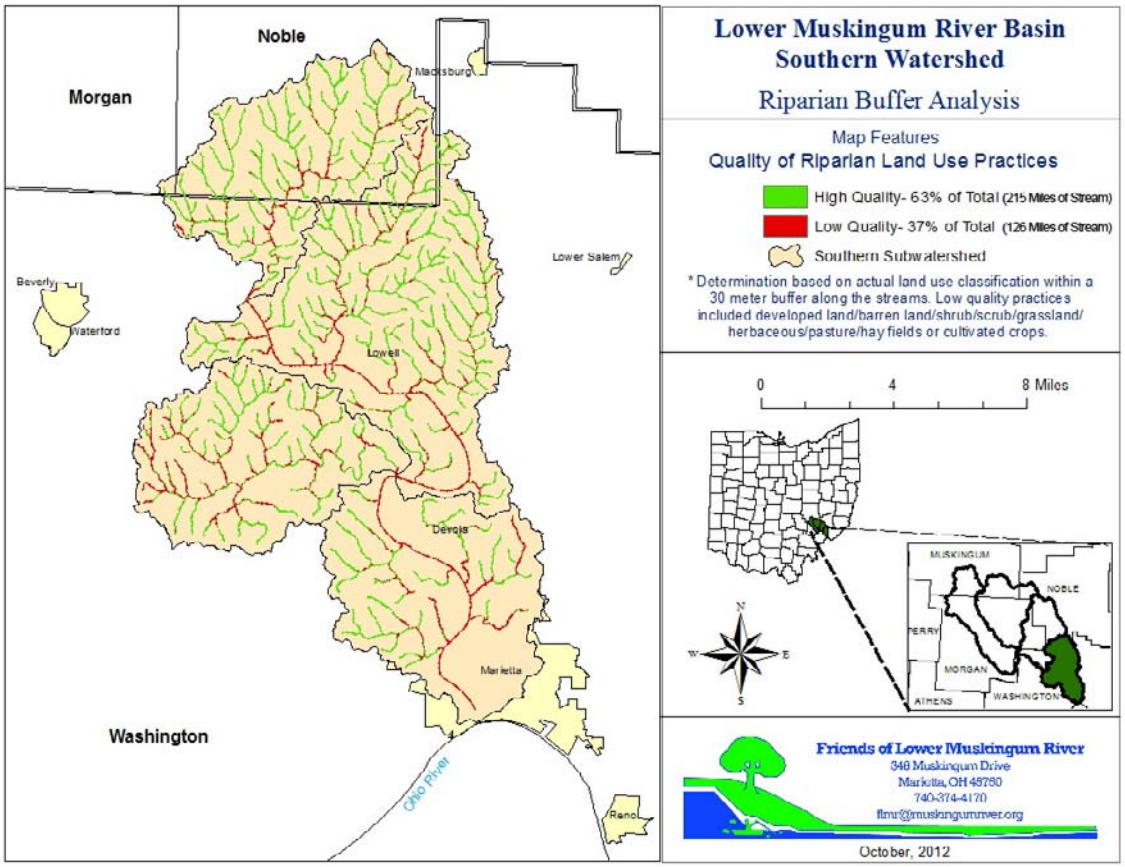
Riparian Corridors, or riparian buffers, are areas of undisturbed vegetation (usually forested) adjacent to a stream and between any land use activities. Forested buffer strips are the last weapon of defense in a streams fight against nonpoint source surface runoff. A well maintained buffer strip is effective at removing pollutants from stream flows, reducing streambank erosion, providing energy to stream ecosystems (through detritus), reducing water temperatures by shading streams, and providing habitat for both terrestrial and aquatic life (ODNR, 2007). While every stream has different dynamics, a general guide for an effective buffer can still be used. An effective riparian buffer should be at least a width equal to two and one-half times the bankfull channel width (or 50 feet, whichever is less), though, ideally, a riparian corridor would be at least 100 feet (30 meters).

To obtain a better understanding of the current effectiveness of riparian buffers within the Southern Watershed, land cover data was extracted within a 30 meter buffer around all of the water features within the basin using the ArcGIS software. The land use data was then separated into two classes, high quality and low quality. The high quality class consists of forested land use covers (e.g. deciduous, evergreen, mixed) and is descriptive of its ability to reduce the impacts from nonpoint source runoff. The low quality class represents those land uses that are not ideal covers for a riparian buffer. These land use types include the barren land, cultivated crops, hay/pasture, developed lands (open space and high, medium, low intensities), shrub/scrub and

herbaceous categories. Map 2.15 shows the current quality of riparian zones within the Southern Watershed.

In general, the Southern Watershed has mainly high quality riparian buffer zones, though some subwatersheds have lower quality zones than recommended. 63% (215 miles) of every water feature within the basin is surrounded by high quality forested buffers. Inversely, 37% (126 miles) of all water features have low quality riparian buffers. With the permanent protection of the Devol Run Preserve and the City of Marietta's "East and West Muskingum Parks", a total of approximately 1.5 miles of Muskingum River riparian corridors within the Southern Watershed are currently protected from further development (see "Protected Lands" on page 32).

Map 2.15



A common threat to the riparian corridors in the Southern Watershed seems to be encroaching agricultural practices and development. 100% of the 17 mile stretch of Muskingum River that flows through this basin has a low quality buffer zone. This is not a surprising find though considering that the lands adjacent to the Muskingum are utilized for either agriculture (due to the extremely nutrient rich flood plain soils) and urban/industrial development. Of the tributary streams that flow into the Muskingum River in the Southern Watershed, Rainbow Creek has, by far, the lowest quality riparian buffer zones. 43% of Rainbow Creek is classified as having a low quality riparian buffer. It is safe to assume that the low quality buffers in Rainbow Creek are also associated with encroaching agriculture practices. Table 2-23 details the quality of riparian buffer strips of other tributaries within the Southern Watershed.

Table 2-23
Percent Quality of Subwatershed Riparian Buffer Strips (30 meter buffer)

Subwatershed	% High Quality (miles of stream)	% Low Quality (miles of stream)
Big Run	79% (60 mi)	21% (16 mi)
Cat Creek-Muskingum River	76% (104 mi)	24% (33 mi)
Rainbow Creek	57% (39 mi)	43% (30 mi)
Devol Run-Muskingum River	67% (40 mi)	33% (19 mi)
Muskingum River main stem	0%	100% (17 mi)

Sinuosity

Sinuosity is a measure of deviation of a path between two points from the shortest possible path. In regards to stream dynamics, systems with high sinuosity ratios more closely resemble natural morphology and exhibit better sediment deposition characteristics than straight, channelized streams. Streams with ratio values equal to 1 means that sinuosity is absent within the system (e.g. the stream is channelized). Streams with ratio values greater than 1.4 means that the system has strong sinuosity and is considered to be a meandering stream (Fairfax, 2003).

Sinuosity measurements for the Southern Watershed were made using the ESRI ArcMap software. USGS stream line graphs were layered on top of 30 meter resolution digital elevation models and valley lengths and stream lengths were measured using the ArcMap measure tool (GeoCommunity, 2012). The entire Southern Watershed had an average sinuosity ratio of 1.33.

Tupper Creek and the 17 mile segment of the Muskingum River had the strongest sinuosity ratios of 1.75 and 1.53 respectively. While Little Cold Run (a tributary to Big Run) had the weakest sinuosity ratio of 1.05. Table 2-24 displays the sinuosity ratios for streams in the Southern Watershed.

Table 2-24
Sinuosity Ratios for Streams in the Southern Watershed

Stream Name	Sinuosity Ratio	Ratio Description
Muskingum River	**1.53**	**Strong**
Rainbow Creek	1.52	Strong
Rainbow Creek North Branch	1.15	Weak
Big Run	1.44	Strong
Straight Run	1.41	Strong
Little Cold Run	1.05	Weak
Cat Creek	1.33	Moderate
East Branch Cat Creek	1.18	Weak
Bear Creek	1.41	Strong
Devol Run	1.14	Weak
Tupper Creek	1.75	Strong
Second Creek	1.09	Weak
Indian Run	1.34	Moderate

Entrenchment

A stream that is entrenched or incised has deep and narrow trench-like channels. Entrenched streams do not have access to their floodplains and during flood events, contain the water flows within their channels (North Carolina, 1999). This inability to access the floodplain means that the stream cannot deposit the excessive sediment loads during flooding. These high sediment loads typically stay within the stream and negatively impact the aquatic biology.

Natural geology and stream morphology can create entrenched streams, particularly in steep terrains, though anthropogenic land use changes are typically the main contributor to stream entrenchment. An increase in urbanization throughout a watershed means an increase in impervious surfaces. Natural stream systems near increasing urbanized areas tend to become more and more entrenched as development occurs. In these regions larger volumes of stormwater runoff directly enter the stream at faster rates, changing the natural stream flow and causing it to become incised. Agriculture is another land use that tends to contribute to entrenched streams.

Management practices like allowing livestock to have constant access to the stream, intensive field tillage, and crop cultivation within the riparian corridor all contribute to the incising and sedimentation of streams.

The majority of the subwatersheds in the Southern basin have access to their floodplains, though some stream channels are considered entrenched. A formal entrenchment study was not completed during this planning process, but through a visual assessment it was apparent that some entrenchment does occur, particularly within the Rainbow Creek and Devol Run-Muskingum River subwatersheds. Many entrenched streams in the Southern Watershed seem to be naturally caused by the steep drops in elevation from source to mouth, but urbanized and agricultural areas also tend to contain entrenched streams.

Floodplain Connectivity

The main stem portion of the Muskingum River flowing through the Southern Watershed does not have great access to its floodplain. In the early 20th century, the Muskingum River was exhaustively used for the transportation of coal and other products throughout Ohio. Lock and dam structures were put in place to control the level of the river and make navigation easier. Currently, ten of these lock and dams structures are still in place and are maintained for their historical significance. Another system of reservoirs and impoundments exist in the headwater reaches of the Muskingum River with the purpose of reducing the hazards of flooding in the lower portions of the watershed. These reservoirs have saved cities like Marietta and Devola thousands of dollars since their introduction. Unfortunately, in regards to floodplain connectivity, this has also meant a loss of connection between the Muskingum River and its floodplain.

On the other hand, the streams in the subwatersheds of the basin seem to be reasonably connected to their floodplains, particularly the Big Run and Cat Creek sub-basins. The Rainbow Creek and Devol Run subwatersheds experience the largest loss of floodplain connectivity. The Rainbow Creek subwatershed has lost some of its connectivity due to agricultural practices in or near the streams (i.e. livestock stream access, field tiling, intensive tillage, etc.). The Devol Run-Muskingum River subwatershed has lost some of its connectivity due to urban development and industrialization. Table 2-25 details the acreage and percentage of lands in the 100-year floodplain of each subwatershed.

Table 2-25
Acreage and Percent of 100-year Floodplain in Each Subwatershed

Subwatershed	Acres of Subwatershed in Floodplain	% of Subwatershed in Floodplain
Big Run	262	2.25 %
Rainbow Creek	448	3.72 %
Cat Creek-Muskingum River	2,032	9.77 %
Devol Run-Muskingum River	1,778	13.43%

Table 2-26 gives a breakdown of the types of land uses within the 100-year floodplain of the Muskingum River. Agricultural areas make up approximately 43% of the 100-year floodplain of the Muskingum River as it flows through the Southern Watershed. Urban areas account for approximately 42% of the 100-year floodplain.

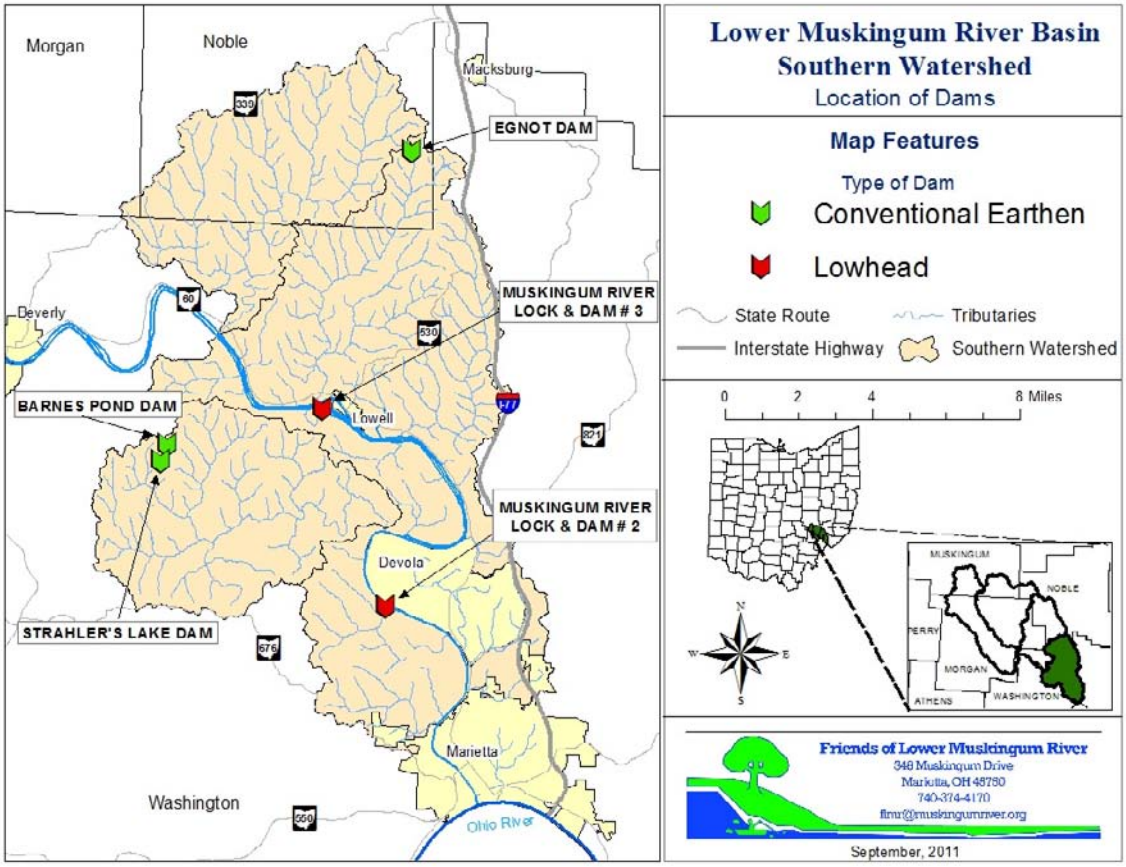
Table 2-26
Land Use Within the 100-year Floodplain

Land Use Category	Acres in 100-year Floodplain	% of 100-year Floodplain
Agricultural	1,921.55	42.77 %
Urban	1,866.61	41.54 %
Forrest	664.84	14.80 %
Barren	1.97	0.04 %
Shrub/Scrub	38.03	0.85 %

Dams

Five dams exist in the Southern Watershed. Two of these dams are located on the mainstem portion of the Muskingum River and the other three dams are located in the headwaters of the Rainbow Creek-Muskingum River and Cat Creek subwatersheds. Specific locations of these dams can be seen in Map 2.16.

Map 2.16



Lock and Dam numbers 2 and 3 on the Muskingum River are considered lowhead dams and are permitted through ODNR's Dam Safety Program as Class II (Dam Safety, 2012). These timber crib/concrete type impoundments were constructed by the U.S. Army Corps of Engineers in 1841 and were used exclusively for transporting goods throughout Ohio. Lock and Dam number 2 supports a drainage area of 8,029 square miles (or 5,138,560 acres) and has a principal spillway storage capacity of 3,024 acres/feet. Lock and Dam number 3 supports a drainage area of 7,995 square miles (or 5,116,800 acres) and has a principal spillway storage capacity of 4,492 acres/feet (Dam Safety, 2012). Due to the historical significance of these navigation systems, these locks and dams have been placed on the National Register of Historic Places are currently being preserved for recreational and historic purposes. These are the only two lowhead dams within the watershed and due to their historic designation can not be removed for water quality

restoration.

Barnes Pond Dam and Strahler's Lake Dam are two privately owned dams located on the headwaters of a tributary stream to Rainbow Creek. Barnes Pond Dam is a permit exempt, conventional earthfill dam and spillway impoundment owned by Ed Barnes and is used for private recreation (Dam Safety, 2012). This dam supports a drainage area of 0.05 square miles (or 30 acres) and has a principal spillway storage capacity of 7 acres/feet (Dam Safety, 2012). Strahler's Lake Dam is permitted as class III and is also a conventional earthfill dam and spillway impoundment. Strahler's Lake Dam is owned by Jeremy Strahler and is used for private recreation. This dam supports a drainage area of 0.17 square miles (or 110 acres) and has a principal spillway storage capacity of 12.9 acres/feet (Dam Safety, 2012). This dam is planned to be repaired soon to meet class III regulations (Libben, 2012).

Other than the previously discussed impoundments, there are no large lakes or reservoirs within the Southern Watershed. See Appendix II.C. for all information regarding these dams from ODNR's Dam Safety program.

Riparian Levees

There are no permitted riparian levees within the Southern Watershed.

Unrestricted Livestock Access

Unrestricted livestock access is detailed by subwatershed in the "Problems, Actions, and Implementation" section of in this plan.

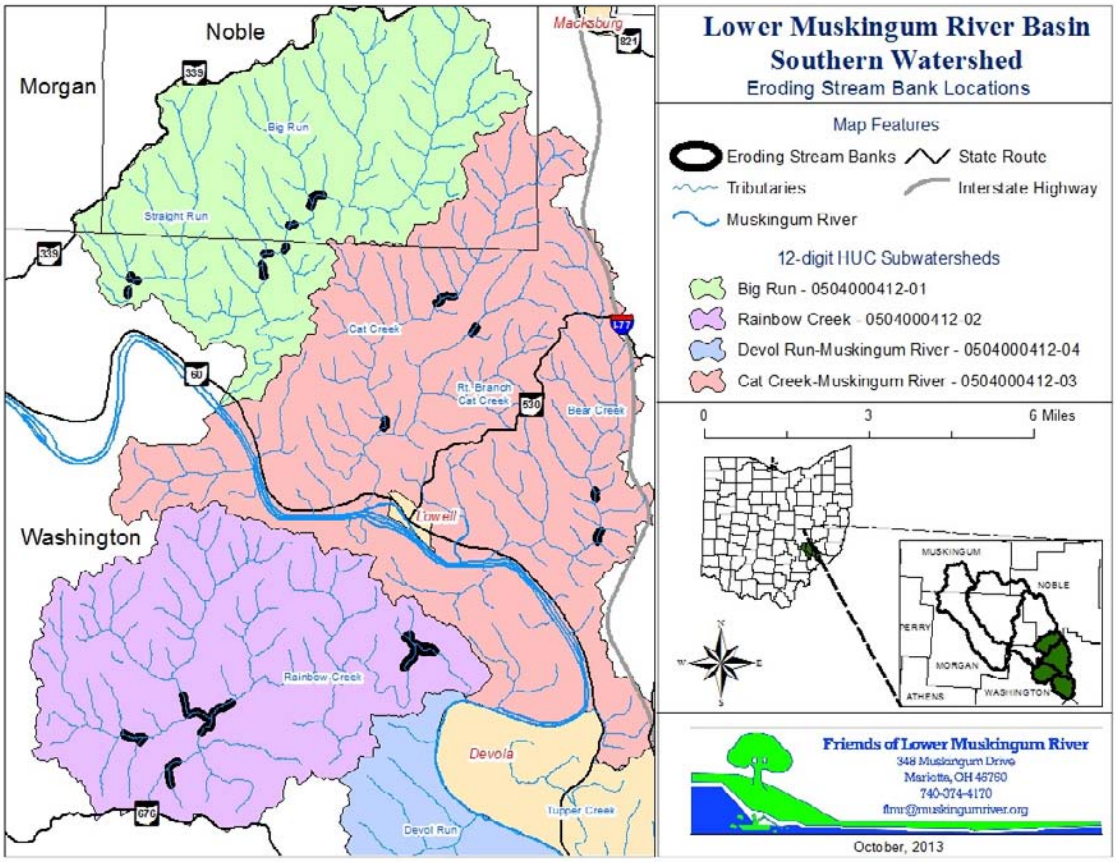
Eroding Banks

The steep terrains of the Appalachian foothills that extend through the Southern Watershed naturally contribute to eroding banks. 89% of the basin is classified as "Highly Erodible Land" (ERIN, 2012). Based on a Riparian Corridor Assessment (page 32) 37% of all the riparian corridors in the Southern Watershed are made up of "low quality" land use activities. A visual assessment, completed in the winter of 2012-2013, of the watershed confirmed that all of the eroding banks that are potentially adding an excess sediment load to the basin are located within the riparian zones classified as "low quality".

From this assessment it was determined that there are approximately 5.3 miles of stream banks within the Southern Watershed that have moderate to severe erosion problems. As can be

seen from Map 2.17, the largest concentration of eroding banks exists in the Rainbow Creek subwatershed. For the entire Southern Watershed, the majority of eroding banks coincide with areas where livestock have access to the stream (see Section II, pages 74, 90, and 108). Stream bank restoration is really only practical for these eroding banks if their is "buy-in" from the agricultural community within the basin. In general, the in-stream sediment concentrations caused by these eroding banks is not a threat to the aquatic life use of the basin. These streams are able to manage the sediment loads from these eroding banks through a natural floodplain depositing stream morphology process.

Map 2.17



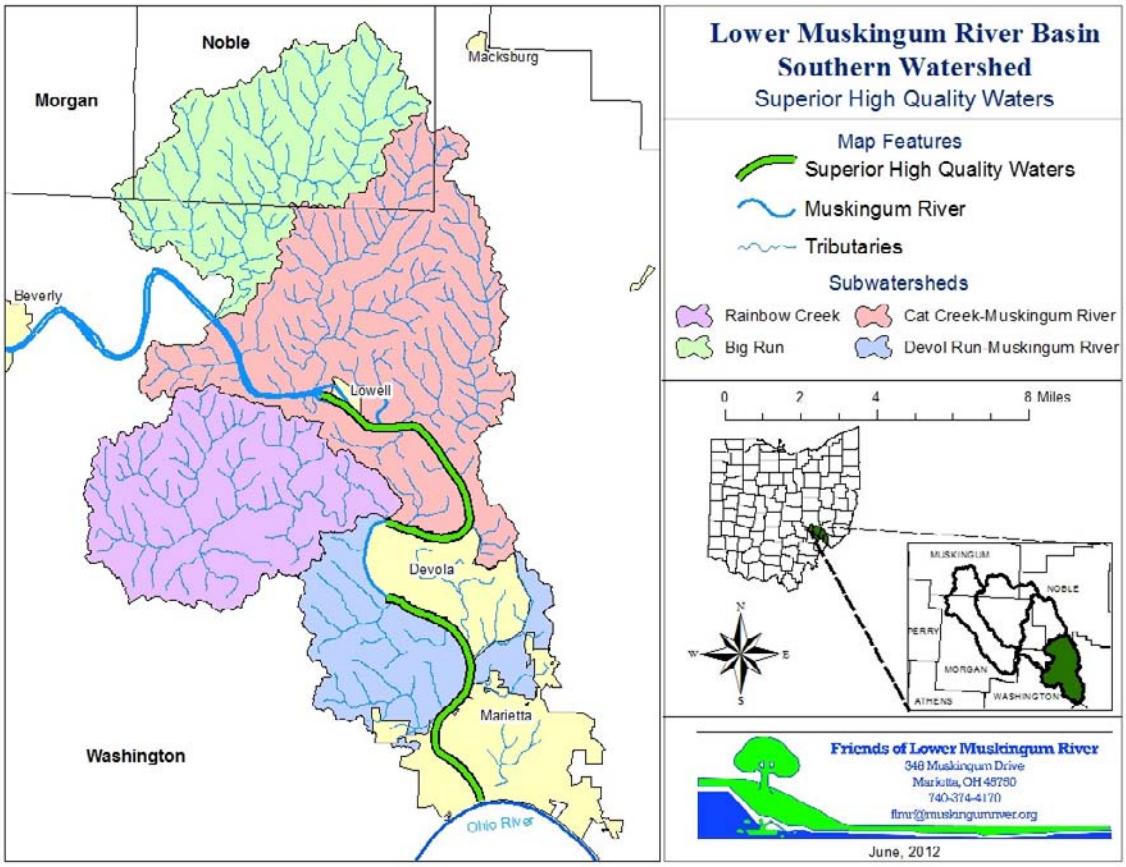
Scenic Rivers Designations

There are no portions of the Southern Watershed that are designated as either a state or national scenic river.

Number of Miles With Permanent Protection

Two segments of the mainstem portion of Muskingum River that flows through the Southern watershed are listed under Ohio's antidegradation rule (OAC Rule 3745-1-05) as "Superior High Quality Waters" (SHQW). SHQW are waters that possess exceptional ecological values and that have been so categorized based upon a combination of the presence of threatened or endangered species and a high level of biological integrity. The two segments of the Muskingum river that are designated as SHQW are Lowell dam (RM 14.1) to Rainbow Creek (RM 7.7) and Devol dam (RM 5.77) to the mouth of the Muskingum (Map 2.18). These segments were classified as SHQW due to their ability to sustain a habitat suitable for endangered species of freshwater mussels.

Map 2.18



Channelization

Most of the channelization that has occurred in the Southern Watershed can be associated with urban development and is primarily concentrated in the Devol Run-Muskingum River subwatershed. Unfortunately, a specific number of streams miles and locations of natural channels and modified channels is not currently available. According to Tony Duram with the Ohio Department of Transportation (ODOT), the portions of state highways and Interstate 77 that cut through this watershed have only minimally channelized or modified the water bodies in the basin. Some widening of State Route 821, Interstate 77 and work on State Route 60, at a few locations, are really all that have been modified due to ODOTs work. Most of the channelization and modification that has occurred is due to urban development in the Marietta and Devola areas. Goose Run and Mill Creek in the Devol Run-Muskingum River subwatershed have by far been the most modified all off the streams in the basin. Approximately 50% of Goose Run, for instance, has been modified to flow through culverts that go under the City of Marietta.

WATER QUALITY

USE DESIGNATIONS & ATTAINMENT STATUS

In Ohio beneficial use designations describe existing or potential uses of water bodies. These designations take into consideration the use and value of water for public water supplies, protection and propagation of aquatic life, recreation in and on the water, agricultural, industrial and other purposes (OEPA-B, 2012). Water bodies may have more than one designated use because the Ohio EPA assigns water bodies throughout the state designations based on public water supply, recreation, and aquatic life uses. A water body that is considered in full attainment of its designated use means that it is fully meeting the Ohio EPA water quality standards for that use.

All of the tributary streams and the portion of the Muskingum River mainstem that are within the Southern Watershed have been given beneficial use designations for aquatic life, water supply and recreation. As can be seen in Table 2-27 Muskingum River mainstem segment and the rest of the water body segments in the southern watershed are designated as as Warmwater Habitats (WWH) for aquatic life uses, Agricultural Water Supply (AWS) and Industrial Water Supply (IWS) for public water uses, and as Primary Contact Recreation (PCR) for their recreational uses. It should also be noted that two segments of the Muskingum River (from River

Mile (RM) 14.1 to RM 7.7 and from RM 5.77 to the mouth) have been designated as Superior High Quality Waters.

A biological and water quality study was completed on the entire (mainstem) Muskingum River by the Ohio EPA in 2006. Its findings showed that the Muskingum River was "fully attaining the Warmwater Habitat aquatic life use designation" (OEPA, 2006). The study also showed that, of the portions sampled within the Southern Watershed, all sites were fully attaining their recreational use designation.

The Ohio EPA's main tool at assessing if use designations are being met throughout the state is through a process called the Total Maximum Daily Load (TMDL). On a regular basis the TMDL reports and other available sources of data are collected and summarized into an "Integrated Water Quality Monitoring and Assessment Report" (a.k.a Integrated Report). These reports depict the general condition of Ohio's waters, identify waters not meeting standards, and prioritize TMDL schedules. The reports satisfy state requirements under the Clean Water Act.

Table 2-27

Use Designations for Segments of the Southern Watershed

(OAC Rule 3745-1-24)

Subwatershed	Water Body Segment	Aquatic Life Use	Water Supply	Recreation
Big Run	Big Run	WWH	AWS, IWS	PCR
	Straight Run	WWH	AWS, IWS	PCR
	Little Cold Run	WWH	AWS, IWS	PCR
Cat Creek	Cat Creek	WWH	AWS, IWS	PCR
	Right Branch	WWH	AWS, IWS	PCR
	Bear Run	WWH	AWS, IWS	PCR
	Bear Creek	WWH	AWS, IWS	PCR
	March Run	WWH	AWS, IWS	PCR
	Mason Run	WWH	AWS, IWS	PCR
Rainbow Creek	Rainbow Creek	WWH	AWS, IWS	PCR
Devol Run	Devol Run	WWH	AWS, IWS	PCR
	Bucks Run	WWH	AWS, IWS	PCR
	Russet Run	WWH	AWS, IWS	PCR
	Indian Run	WWH	AWS, IWS	PCR
	Tupper Creek	WWH	AWS, IWS	PCR
Southern Watershed	***Muskingum River mainstem***	***WWH***	***AWS, IWS***	***PCR***

***WWH= Warmwater Habitat, AWS= Agricultural Water Supply, IWS= Industrial Water Supply, PCR= Primary Contact Recreation**

Other than random sampling events, no formal water quality studies have been completed in the Southern Watershed to determine if these streams are attaining their use designations. Table 2-28 details the use designation attainment statues for the subwatersheds of the Southern basin shown in the 2012 Integrated Report. The TMDL was originally scheduled to begin in the Southern Watershed in 2013, but due to the development of this Watershed Action Plan, Ohio EPA agreed to begin sampling in 2012. A finalized TMDL report had not yet been prepared while this WAP was being developed. Although, the data collected during the TMDL survey was accessible and is utilized in determining causes and sources of impairment of the Southern Watershed in this action plan.

Table 2-28
Attainment Status for the Southern Basin by Subwatershed
(from the Ohio EPA, 2012 Integrated Report)

Assessment Unit	Assessment Unit Name	Sq. Mi. in Ohio	Human Health	Recreation	Aquatic Life
50400041201	Big Run	18.24	3	3	3x
50400041202	Rainbow Creek	18.81	3	3	3x
50400041203	Cat Creek-Muskingum River	32.53	5	3	3x
50400041204	Devol Run-Muskingum River	20.7	5	3	3x

*3 = Use attainment unknown, 3x = Use attainment unknown (Retained from 2008 Integrated Report), 5 = Impaired and TMDL needed

POINT SOURCES

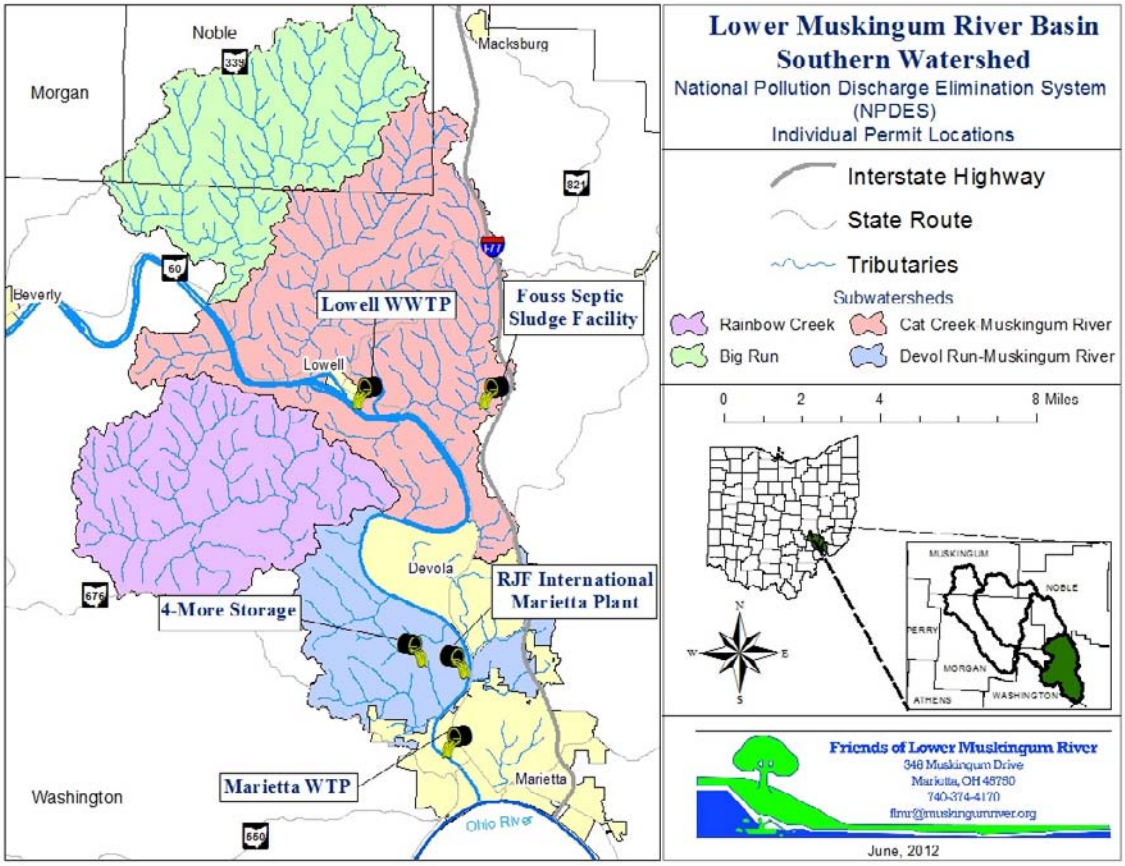
Permitted Discharges

Five facilities hold National Pollution Discharge Elimination System (NPDES) individual permits to discharge waste water into the Southern basin (Map 2.19). Table 2-29 details information regarding the facilities with these permits by subwatershed. Only the Cat Creek-Muskingum River and Devol Run-Muskingum River subwatersheds contains NPDES permitted facilities.

Table 2-29
NPDES Individual Permit by Subwatershed

Subwatershed (12-dight HUC)	Facility Name	Permit Expire Date	Type of Discharge
Cat Creek-Muskingum River (050400041203)	Village of Lowell Wastewater Treatment Plant	1/31/2018	Sewage treatment effluent
	Fouss Septic Sludge Facility	7/31/2015	Land application of biosolids (sewage sludge)
Devol Run-Muskingum River (050400041204)	4-More Storage	1/31/2013	Sewage treatment effluent
	RJF International Corporation Marietta Plant	8/31/2016	Industrial effluent
	City of Marietta Water Treatment Plant	2/28/2017	Drinking water treatment effluent

Map 2.19



Spills & Illicit discharges

Spills in the Southern Watershed that have been identified are reported to the Southeast District office of the Ohio EPA. They collaborate with the entity that reported the spill to handle the point source discharge properly. From 2007-2012, twenty-two spills were reported to the Ohio EPA and all were within the Washington County regions of the Southern Watershed. Of these 22 spills, one was reported in Muskingum Township, three in Adams Township and 18 in Marietta Township. Table 2-30 gives more details regarding these spills. The column titled "Spill ID #" in Table 2-30 is the number used to identify the spill report with the Ohio EPA.

Illicit discharges in the watershed are managed under the general MS4 NPDES permit held by the City of Marietta. Currently, Kathy Davis is the Stormwater Specialist with the Washington County Soil & Water Conservation District that is in charge managing this permit and any illicit discharges.

Table 2-30
Spills Reported to the Ohio EPA in Washington County From 2007-2012

Township	Spill ID #	Report Date	Location of Reported Spill	Type Of Spill Reported
Adams	1208-84-2094-0	8/28/2012	S.R. 60 9.4 MP @ Well Site	Crude Oil
Adams	1110-84-3166-0	10/4/2011	1120 Muskingum River Road	Oil
Adams	0704-84-1522-0	4/18/2007	7170 S.R. 60	Material Red
Muskingum	0807-84-3004-0	7/10/2008	S.R. 60 & 101 River Road	Sheen
Marietta	1209-84-2325-0	9/22/2012	1209 Cisler Drive	Bore Gel Bentonite
Marietta	1205-84-1045-0	5/2/2012	Mill Creek Road	Transformer Oil
Marietta	1109-84-3077-0	9/26/2011	413 3rd Street	Gasoline
Marietta	1011-84-3127-0	11/18/2010	RJF International	Sheen
Marietta	1011-84-3127-1	11/18/2010	RJF International	Sheen
Marietta	1008-84-2251-0	8/4/2010	Valley Gem Sternwheeler	Sheen
Marietta	1004-84-0928-0	4/15/2010	315 Market Street	Diesel Fuel
Marietta	0910-84-2920-0	10/5/2009	106 Grayling Drive	Mercury
Marietta	0901-84-0219-0	1/30/2009	203 Motgomery Street	Television Sets
Marietta	0810-84-4038-0	10/7/2008	S.R. 7 @ Market Street	Diesel Fuel
Marietta	0807-84-3269-0	7/31/2008	Mill Creek Road	Fish Kill
Marietta	0807-84-2927-0	7/7/2008	Muskingum River	Suds
Marietta	0805-84-2211-0	5/17/2008	Front Street & Muskingum Drive	Gasoline
Marietta	0804-84-1859-0	4/22/2008	813 Quarry Street	Sewage
Marietta	0804-84-1859-1	4/22/2008	813 Quarry Street	Sewage
Marietta	0707-84-2755-0	7/23/2007	Marietta Boat Ramp	Ground Water
Marietta	0707-84-2519-0	7/2/2007	Muskingum River Road	Sheen
Marietta	0706-84-2215-0	6/8/2007	RJF International	Waste Water

NON-POINT SOURCES

Watershed Development

As seems to be the trend throughout the entire Lower Muskingum River Watershed, the Southern basin has been experiencing minimal development (i.e. new homes & businesses being constructed) the past few years. According to a list of construction permits provided by the Washington County buildings department, less than 10 new homes were constructed throughout the county between 2011 and 2012. Most of the construction projects were renovations to homes and businesses. Demographics data (see "Demographics" in Section I, page 12) also showed that Washington County experienced a 2.3% decrease in population from 2000 to 2010. Therefore, it is determined that new construction projects are having a minimal impact on the Southern Watershed.

Highly Erodible Land

According to the Farm Service Agencies (FSA) website, "Highly erodible land is cropland, hayland or pasture that can erode at excessive rates. It would contain soils that have an erodibility index of eight or more. (Farm, 2012)" A producer that has a field identified as highly erodible land and is participating in any FSA or Natural Resources Conservation Service (NRCS) program is required to maintain a conservation system of practices that keeps erosion rates at a substantial reduction of soil loss. In the Southern Watershed 51,614 acres (89% of the basin) of land is classified as highly erodible. A breakdown of lands classified as highly erodible by subwatershed can be seen in Table 2-31

Table 2-31
Acreage and Percent of Highly Erodible Land in Each Subwatershed

Subwatershed Name	Acres of Subwatershed	% of Subwatershed
Big Run	11,242	96%
Rainbow Creek	11,491	94%
Cat Creek-Muskingum River	18,078	87%
Devol Run-Muskingum River	10,803	82%

(ERIN, 2012)

Culverts & Bridges

Using ArcGIS software to mark locations were stream features and road features intersect, it is estimated that there are approximately 190 culverts and/or bridges throughout the Southern Watershed. These culverts & bridges are maintained mostly by either Washington or Noble county or by the townships in which they reside. Table 2-30 details how many culverts/bridges exist in each subwatershed.

Table 2-30
Number of Culverts and/or Bridges Located in Each Subwatershed

Subwatershed Name	# Culverts and/or Bridges
Big Run	31
Rainbow Creek	36
Cat Creek-Muskingum River	61
Devol Run-Muskingum River	62

Petition Ditches and Ditch Maintenance

Neither Washington County nor Noble County has a petition ditch system. The counties highway departments and the townships highway departments within this basin are responsible for regular ditch maintenance if the ditch is within the right of way. Private culverts and ditches on private property are maintained at the landowners expense.

TOTAL MAXIMUM DAILY LOAD

A Total Maximum Daily Load (TMDL) is a plan put together by the Ohio EPA that defines the maximum load of pollution that a stream can handle and still meet its beneficial use designation. A TMDL study "defines how much pollution exists and where it is coming from; specifies the amount of pollution reduction needed to meet water quality goals; and recommends actions that will improve water quality in the streams" (OEPA, 2007). Section 303(d) of the Clean Water Act requires TMDLs be completed throughout the nation.

As discussed previously in the "Use Designations & Attainment Status" section of this plan, the Ohio EPA had originally been scheduled to begin the survey work for the TMDL in the Southern Watershed in 2013. Fortunately, due to the development of this Watershed Action Plan, Ohio EPA agreed to begin the TMDL survey in the summer of 2012. A finalized TMDL report had not yet been prepared while this WAP was being developed. Although, the data collected during the TMDL survey was accessible and is utilized as the main tool in determining if the streams of the Southern Watershed are meeting their use designations or not. The following details the results of the TMDL survey.

Biology

The Ohio EPA uses biological, chemical and physical monitoring and assessment techniques during TMDL surveys in order to determine the "extent to which use designations assigned in the Ohio Water Quality Standards are either attained or not attained" (OEPA, 2006). TMDL survey work completed in the Southern Watershed examined fish and benthic macro-invertebrate species composition, diversity and functional organization. The Index of Biotic Integrity (IBI) was used to measure fish communities and a narrative assessment was used for macro-invertebrate communities. Table 2-33 summarizes aquatic life use attainment status based on the IBI and macro-invertebrate narrative scores.

Table 2-33
Biological Use Attainment of Streams Segments in the Southern Watershed

Subwatershed	Stream Segment	Location	River Mile	IBI Score	Macro-invertebrate Score	Attainment
Big Run	Big Run	CR 56	2.32	56	Exceptional	Full
	Big Run	TR 14	4.5	54	Exceptional	Full
	Straight Run	Straight Run Rd	0.1	54	Exceptional	Full
Cat Creek - Muskingum River	Cat Creek	SR 60/Lowell Loop rd	0.35	50	Very Good	Full
	Right Br (Cat Creek)	TR 115	0.25	56	Exceptional	Full
	Bear Creek	SR60	0.11	44	Exceptional	Full
Rainbow Creek	Rainbow Creek	TR 32	0.95	54	Good	Full
	Rainbow Creek	CR 79 Huck Rd	4.25	50	Very Good	Full
	Rainbow Creek	CR 4	8.3	52	NA	Full
Devol Run - Muskingum River	Devol Run	CR 4	0.48	50	Good	Full
	Indian Run	T 50 or CR 4	0.7	38	NA	Non

Fish communities at eleven sites (Map 2.18) were sampled using standard DC current electro-fishing techniques for wadeable streams and each site was given an IBI score. The current standard in Ohio states that wadeable sites designated warmwater habitats in the Western Alleghany Plateau ecoregion should not exceed an IBI score of 44. As can be seen in Table 2-33, the only site in the Southern Watershed that did not meet the IBI standard was at Indian Run in the Devol Run-Muskingum River subwatershed. In total 14,349 fish from 42 different fish species were collected throughout the Southern Watershed. Table 2-34 details the amounts and species of fish gathered throughout the watershed during this survey.

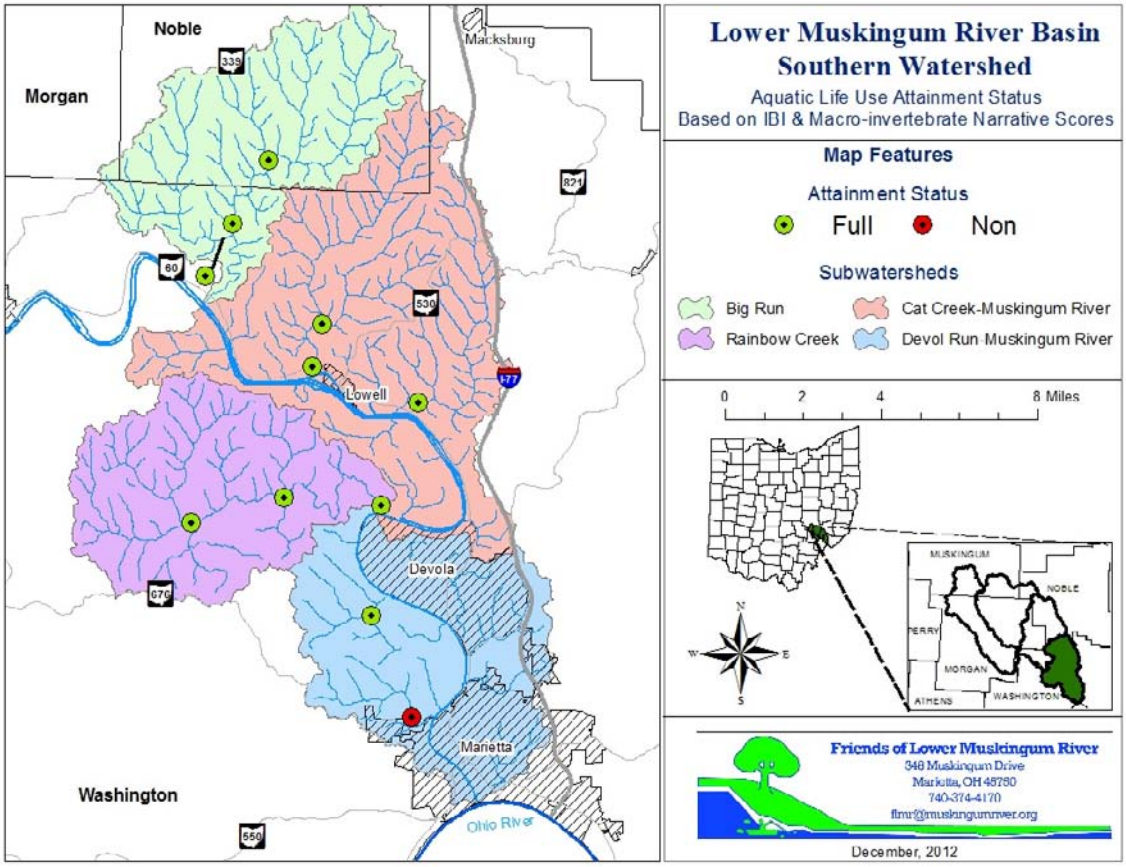
Table 2-34
Species of Fish Collected During the 2012 TMDL Survey

Species Name	Tolerance Level	# of Fish	Percent of Total
Gizzard Shad		122	0.85%
Quillback		5	0.03%
Silver Redhorse	M	7	0.05%
Black Redhorse	I	3	0.02%
Golden Redhorse	M	52	0.36%
Northern Hog Sucker	M	181	1.26%
White Sucker	T	330	2.30%
Spotted Sucker		1	0.01%
Smallmouth Redhorse	M	10	0.07%
Western Blacknose Dace	T	233	1.62%
Creek Chub	T	1,546	10.77%
Suckermouth Minnow		1	0.01%
South. Redbelly Dace		175	1.22%
Emerald Shiner		2,677	18.66%
Striped Shiner		932	6.50%
Spotfin Shiner		393	2.74%
Sand Shiner	M	80	0.56%
Mimic Shiner	I	1	0.01%
Silverjaw Minnow		177	1.23%
Bluntnose Minnow	T	1,996	13.91%
Central Stoneroller		3,573	24.90%
Channel Catfish		18	0.13%
Yellow Bullhead	T	16	0.11%
Black Bullhead	P	2	0.01%
White Crappie		1	0.01%
Rock Bass		61	0.43%
Smallmouth Bass	M	63	0.44%
Spotted Bass		33	0.23%
Largemouth Bass		9	0.06%
Green Sunfish	T	285	1.99%
Bluegill Sunfish	P	140	0.98%
Orangespotted Sunfish		9	0.06%
Longear Sunfish	M	27	0.19%
Pumpkinseed Sunfish	P	5	0.03%
Green Sf X Longear Sf		1	0.01%
Green Sf X Hybrid		6	0.04%
Logperch	M	84	0.59%
Johnny Darter		210	1.46%
Greenside Darter	M	15	0.10%
Banded Darter	I	1	0.01%
Rainbow Darter	M	287	2.00%

* I = Intolerant; M = Moderately Intolerant; No Code = Intermediate Tolerance; P = Moderately Tolerant; T = Tolerant.

Benthic macro-invertebrate communities were also sampled during the TMDL survey at the same sites the fish communities were assessed. Kick-seine and dip net methodology was used in gathering the macro-invertebrate samples. Narrative scores were given to describe the species composition, diversity and functional organization of the macro-invertebrates gathered. These scores can also be seen in Table 2-33. Macro-invertebrate data was not available from two sites, but every site sampled received either a "good", "very good", or "exceptional" narrative rating. Based on the IBI and narrative Macro-invertebrate scores it is determined that every site sampled in the Southern Watershed, other than the Indian Run location, is in "Full Attainment" of its warmwater habitat aquatic life use designation (Map 2.20)

Map 2.20



QHEI

Evaluating physical habitats of lotic environments are another priority in assessing stream segments beneficial use designation. Physical habitat assessments were also completed in the Southern Watershed by the Ohio EPA's TMDL survey crew during the summer of 2012. These assessments were completed at the fish sampling sites using the Qualitative Habitat Evaluation Index (QHEI). The QHEI is a "physical habitat index designed to provide an empirical, quantified evaluation of the general lotic macrohabitat characteristics that are important to fish communities" (QHEI, 2006).

The QHEI is designed to examine six principal metrics of a stream segment including substrate, instream cover, channel morphology, bank erosion and riparian zone, pool/glide and riffle/run quality, and gradient. Each metric is designated a numeric score that combined can have a maximum possible score of 100. Table 2-35 details the QHEI scoring system in a narrative form. Stream segments with QHEI scores over 70 typically are considered to have "excellent" habitat and streams that score less than 30 are considered to have "very poor" habitat.

Table 2-35
Qualitative Habitat Evaluation Index (QHEI) Narrative Rating

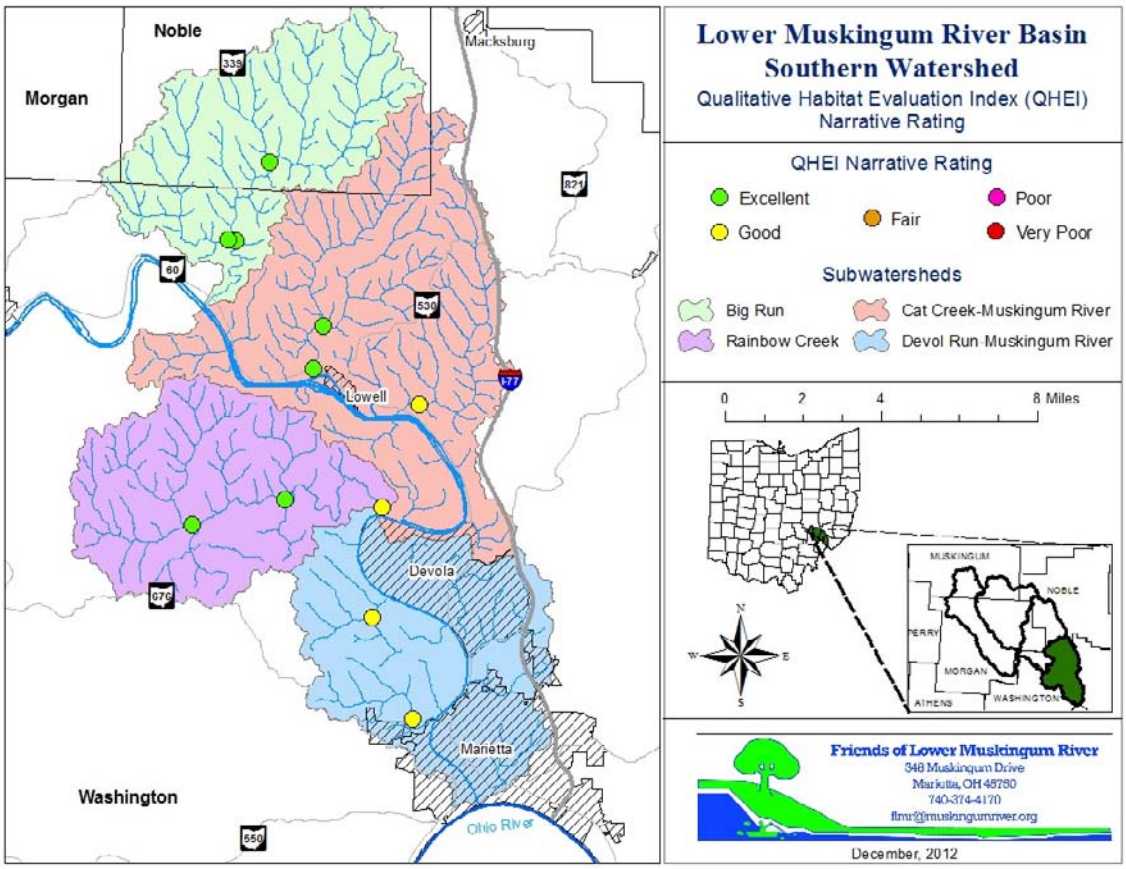
Narrative Rating	QHEI Range	
	Headwaters	Larger Streams
Excellent	≥ 70	≥ 75
Good	55 - 69	60 - 74
Fair	43 - 54	45 - 59
Poor	30 - 42	30 - 44
Very Poor	<30	< 30

QHEI scores generated during the TMDL survey are listed in Table 2-36. In general, stream habitats in the Southern Watershed are considered to be high quality. Seven of the eleven sites assessed during this survey scored above 70 which is considered “excellent” habitat. The remaining four sites all scored in the range of 55-60 which is considered to be “good” habitat. Map 2.21 provides a visual of the locations that were assessed with the QHEI and depicts the narrative rating of those sites.

Table 2-36
QHEI Scores for Stream Segments in the Southern Watershed

Subwatershed	Stream Segment	Location	River Mile	QHEI Score	QHEI Narrative Rating
Big Run	Big Run	CR 56	2.32	***72.8***	Excellent
	Big Run	TR 14	4.5	***70.0***	Excellent
	Straight Run	Straight Run Rd	0.1	***71.0***	Excellent
Cat Creek - Muskingum River	Cat Creek	SR 60/Lowell Loop rd	0.35	***78.0***	Excellent
	Right Br (Cat Creek)	TR 115	0.25	***71.3***	Excellent
	Bear Creek	SR60	0.11	***63.0***	Good
Rainbow Creek	Rainbow Creek	TR 32	0.95	***63.0***	Good
	Rainbow Creek	CR 79 Huck Rd	4.25	***71.8***	Excellent
	Rainbow Creek	CR 4	8.3	***72.0***	Excellent
Devol Run - Muskingum River	Devol Run	CR 4	0.48	***65.5***	Good
	Indian Run	T 50 or CR 4	0.7	***57.5***	Good

Map 2.21



According to Kelly Capuzzi, Ohio EPA- TMDL survey crew leader, the "Right Branch Cat Creek, Big Run and Straight Run have biological and habitat scores consistent with the Exceptional Warmwater Habitat (EWH) use designation so a recommendation will be made to change the current use designation of WWH to EWH. Devol Run, Rainbow Creek, and Bear Creek had biological and habitat scores consistent with the WWH use designation. Therefore those sites will be recommended to retain the WWH use designation" (Capuzzi, 2012).

Bacteria

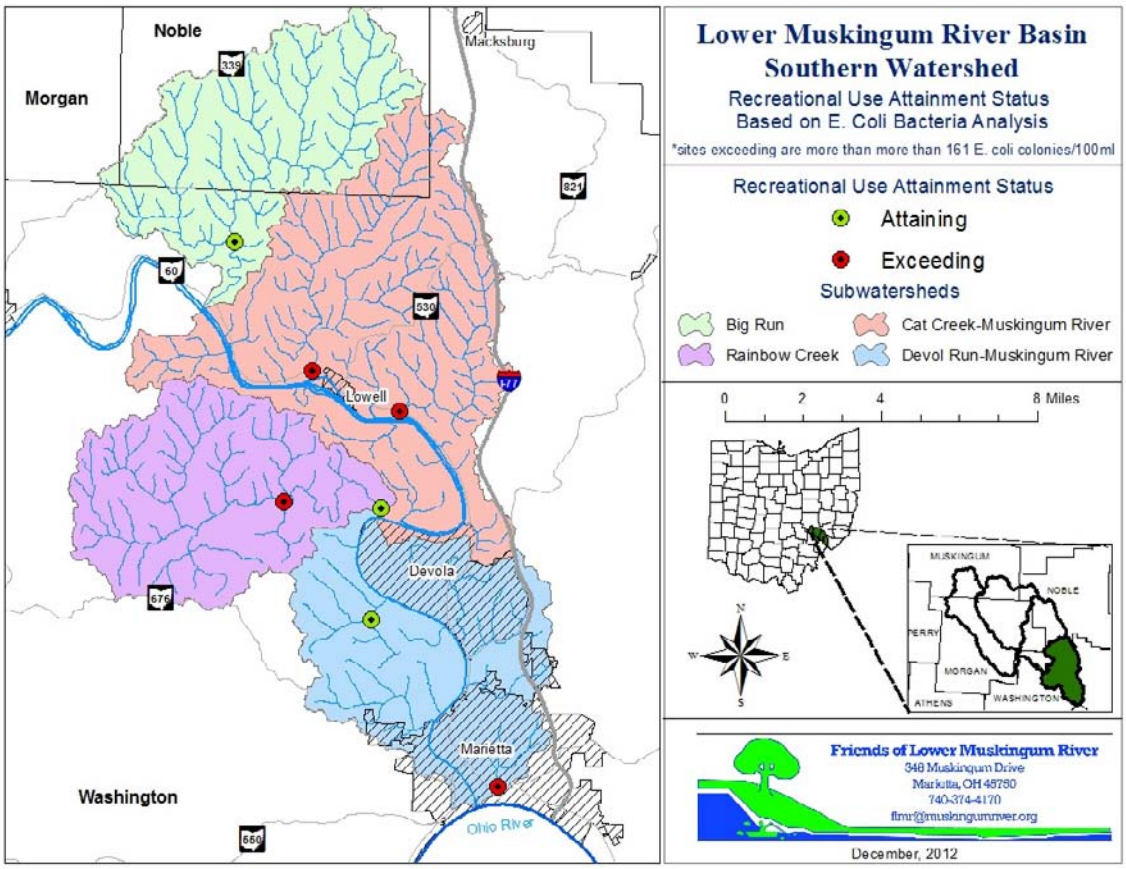
Seven locations (Map 2.22) were tested for bacteria indicators (*Escherichia coli*) during the TMDL survey to determine the recreational use attainment status of streams in the Southern Watershed. Evaluation of *E. coli* results revealed that only 3 of 7 locations attained the applicable geometric mean criterion, and thus were in full attainment of the designated recreation use (Capuzzi, 2012). Four locations were impacted by fecal matter due to unsanitary conditions from household sewage treatment systems (HSTS) and/or agricultural activities such as pasture land runoff and manure land application (Capuzzi, 2012). With the exception of Goose Run, all of the streams are located in subwatersheds with no centralized sewage collection systems. Ohio EPA's field staff also observed that Rainbow Creek had the most intensive agricultural activities of all the watersheds (Capuzzi, 2012). Table 2-37 gives a summary of E. coli data collected during the 2012 TMDL survey.

Table 2-37
Summary of E. coli Data Collected From Streams in the Southern Watershed during the summer of 2012

Subwatershed	Stream Segment	Location	# of samples	Maximum Value	Geometric Mean
Big Run	Big Run	CR 56	7	320	**129**
Cat Creek - Muskingum River	Cat Creek	SR 60/Lowell Loop rd	7	1,200	**204**
	Bear Creek	SR60	3	2,700	**748**
Rainbow Creek	Rainbow Creek	TR 32	2	60	**42**
	Rainbow Creek	CR 79 Huck Rd	6	2,700	**278**
Devol Run - Muskingum River	Devol Run	CR 4	6	510	**102**
	Goose Run	In Marietta at Butler/4th St.	6	55,000	**7,718**

* Recreation use attainment is based on comparing the geometric mean to the Primary Contact Recreation (PCR) Class B geometric mean water quality criterion of 161 cfu/100 ml (Ohio Administrative Code 3745-1-07). All values are expressed in colony forming units (cfu) per 100 ml of water. Values highlighted yellow exceed the applicable PCR Class B geometric mean criterion.

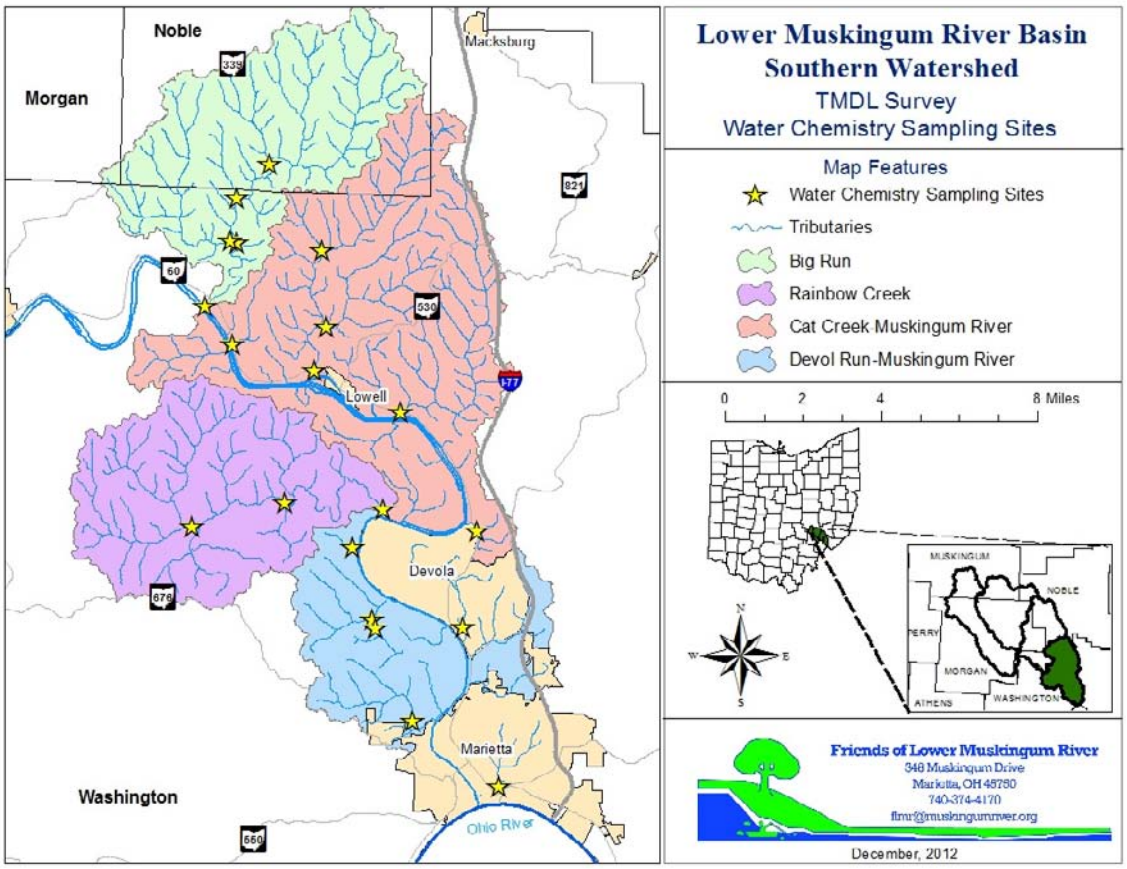
Map 2.22



Chemistry

A vast amount of water chemistry data was also gathered during the TMDL survey. Twenty sites (Map 2.23) were monitored for a variety of chemical parameters throughout the summer of 2012 for the purpose of aiding the Ohio EPA in determining potential causes and sources of contamination in the watershed. The chemical makeup of surface waters can change much more drastically and in shorter time frames than can the body of waters biological and habitat features. Therefore, fish, macro-invertebrates and habitat assessments are the main tool used by the Ohio EPA during their TMDL surveys to determine if a body of water is meeting its aquatic life use designation.

Map 2.23



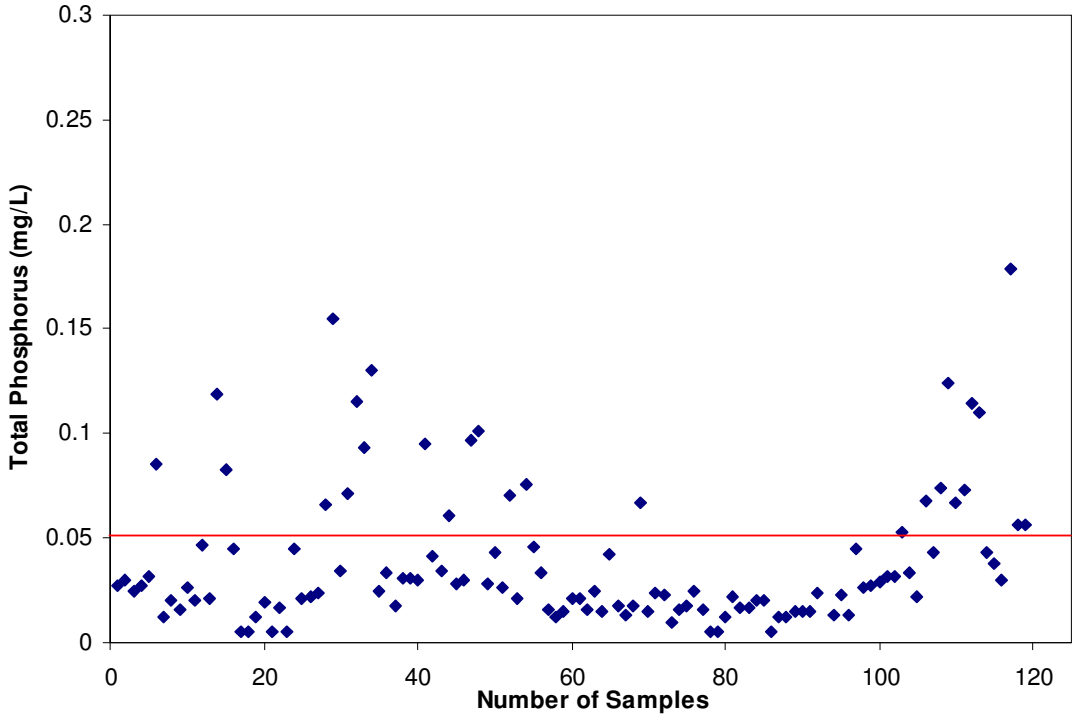
Since every stream segment surveyed in the Southern Watershed (excluding Indian Run) met and/or exceeded its Warmwater habitat aquatic life use designation, only certain chemical parameters will be discussed in this section of the WAP due to their potential impacts on the watershed. All of the chemical data gathered during the TMDL survey can be found in Appendix II.B.

Nutrient loading is a major topic of concern in watershed management throughout the agricultural, glaciated regions of northern Ohio. Non-point source impairment from nutrients such as phosphorus and nitrogen have been known to cause massive, sometimes harmful, algal blooms in the western basin of Lake Erie and in Grand Lake Saint Mary's. The largest contributor to nutrient loading in many of these areas is poor management of fertilizers and lack of BMP usage on agricultural lands.

In the Southern Watershed 119 samples were analyzed for Total Phosphorus content. Currently in Ohio a water quality standard does not exist for Total Phosphorus. Although, a 1999

study by the Ohio EPA titled the "*Association Between Nutrients, Habitat and the Aquatic Biota of the Ohio Rivers and Streams*" set a recommended target range for Phosphorus of 0.05 mg/L for samples taken in the Western Alleghany Plateau ecoregion where an IBI score between 40 and 60 was obtained. Twenty-eight of the 119 samples analyzed during this study were above the recommended 0.05 mg/L target (Figure 2:2)Of the samples that exceeded the recommended target, three were located in the Big Run subwatershed, four in the Cat Creek - Muskingum River subwatershed, six in the Rainbow Creek subwatershed, and fifteen in the Devol Run - Muskingum River subwatershed.

Figure 2:2
Total Phosphorus Levels from Sites Sampled During the TMDL Survey in the Southern Watershed (Summer, 2012)

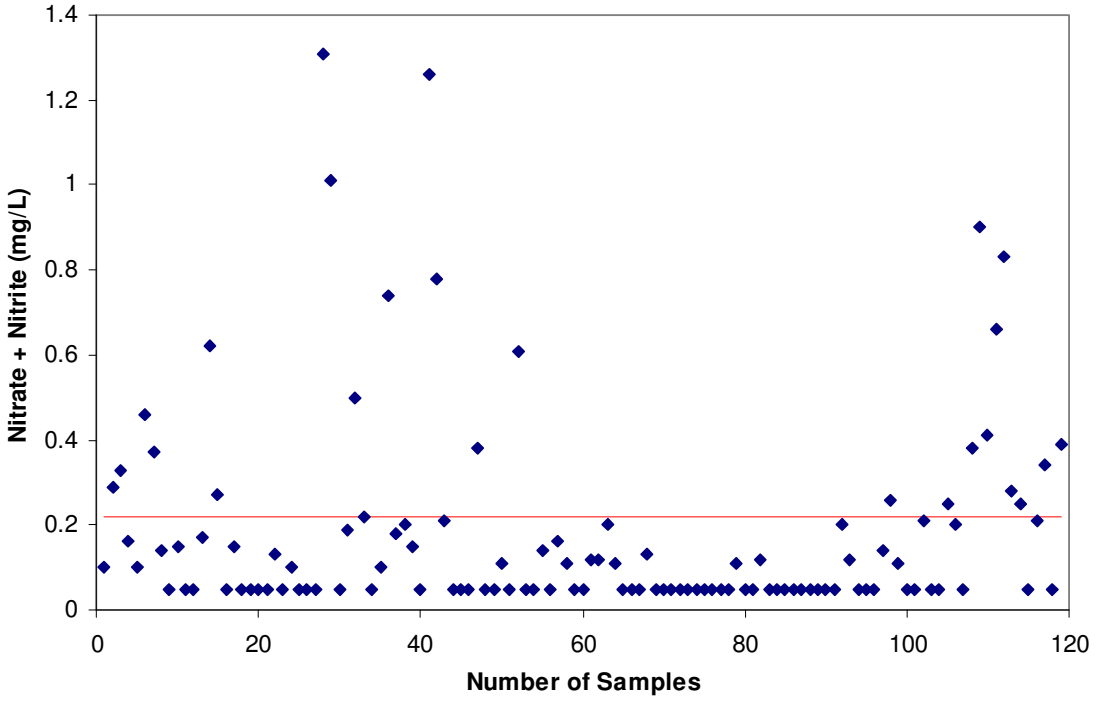


** red line represents the recommended target range of 0.05 mg/L in samples taken from streams in the Western Alleghany Plateau with an IBI score between 40 - 60. Recommendation based on the state-wide targets found in the Association Between Nutrients, Habitat and the Aquatic Biota of Ohio Rivers and Streams (OEPA, 1999).*

Nitrogen compounds are another nutrient associated with causing algal impairments to bodies of water in northern Ohio. In the Southern watershed, 119 samples were analyzed for Nitrate + Nitrite content. Ohio does not currently have an existing water quality standard for Nitrogen compounds, although it is recommended that 0.22 mg/L be the target range for nitrate-nitrite samples taken in wadable streams located in the Western Alleghany Plateau ecoregion.

Twenty-five of the 119 samples analyzed exceeded the recommended target range of 0.22 mg/L for Nitrate + Nitrite content (Figure 2:3). Of the samples that exceeded the recommended target, three were located in the Big Run subwatershed, two in the Cat Creek - Muskingum River subwatershed, five in the Rainbow Creek subwatershed, and fifteen in the Devol Run - Muskingum River subwatershed.

Figure 2:3
Nitrate + Nitrite Levels from Sites Sampled During the TMDL Survey in the Southern Watershed (Summer, 2012)

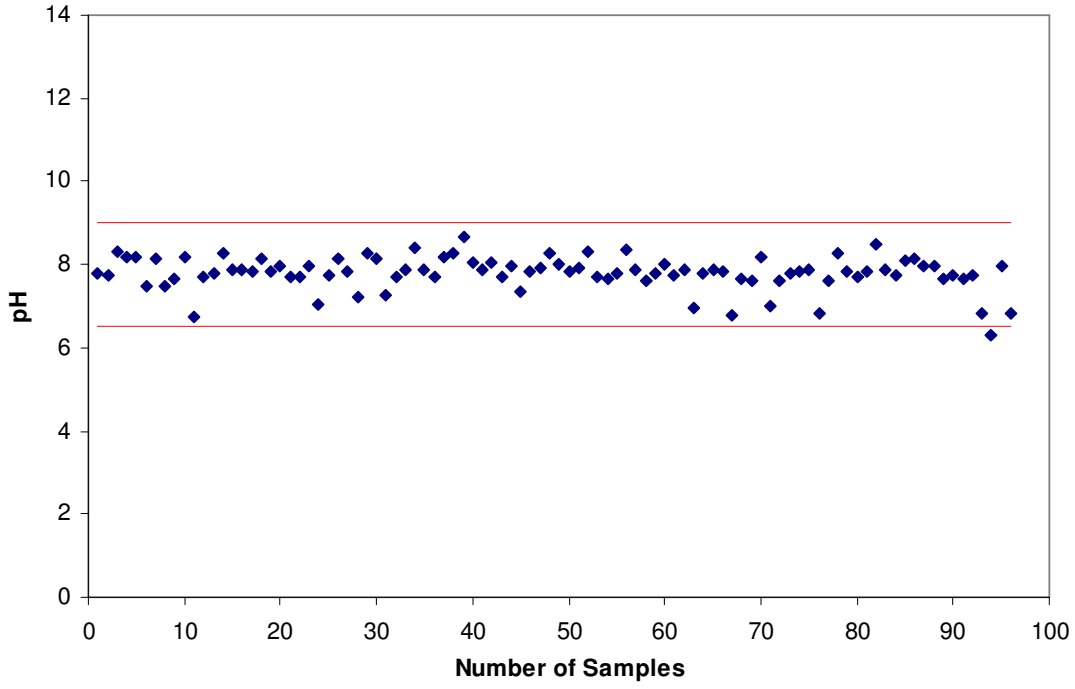


** red line represents the recommended target range of 0.22 mg/L in samples taken from wadable streams in the Western Alleghany Plateau. Recommendation based on the targets found in the Association Between Nutrients, Habitat and the Aquatic Biota of Ohio Rivers and Streams (OEPA, 1999).*

In Southeastern Ohio a major water pollution issue is Acid Mine Drainage (AMD) created from past coal exploration, both on the surface and underground. Thousands of dollars each year are put into streams like Sunday Creek, Monday Creek and Raccoon Creek to help reduce the impacts of AMD that has essentially killed these water bodies. Typically AMD streams suffer from extremely acidic pH conditions and high electrical conductance. Fortunately, in the Southern Watershed there has been very minimal coal exploration and there are no apparent threats of AMD.

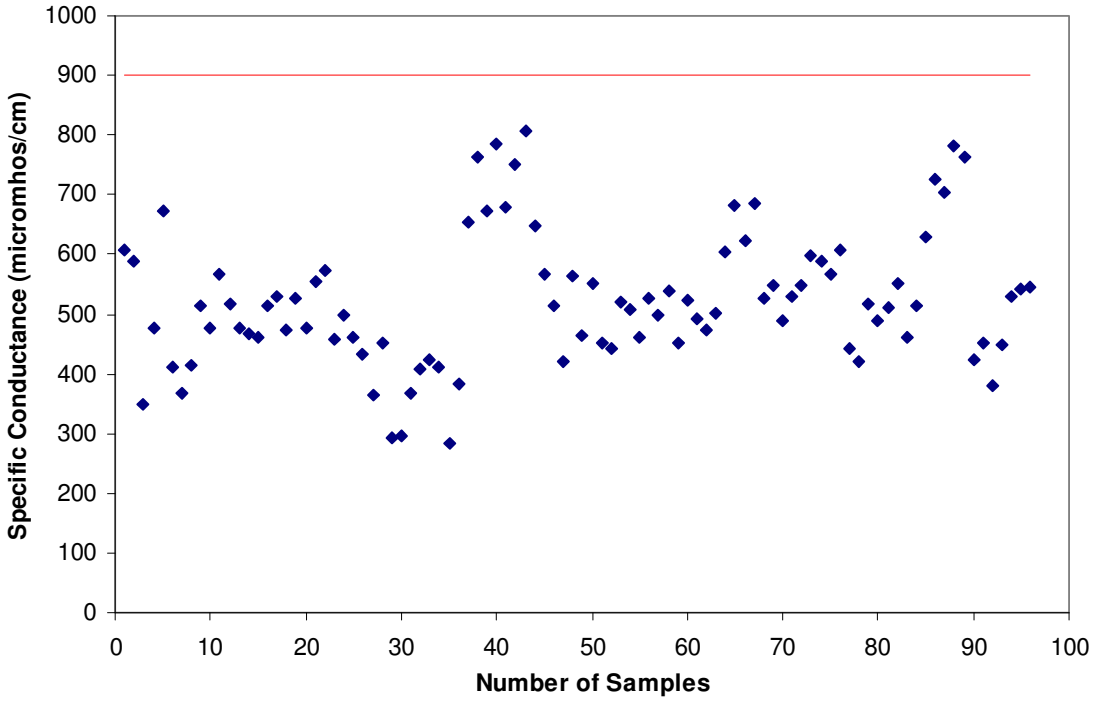
Nonetheless, pH and specific conductance are two parameters that were also gathered during the TMDL survey that could help determine if there is a threat of AMD and if so, how severe the threat would be. Ninety-six pH and specific conductance samples were taken throughout the Southern watershed during this survey (Figure 2:4 & Figure 2:5). Only one of the pH samples were outside of the statewide criteria for pH which is a range of 6.5 to 9.0 in Warmwater Habitats (OAC 3745-1-07). None of the specific conductance samples were over the recommended range of 900 micromhos/cm for identifying streams experiencing moderate mine drainage impacts.

Figure 2:4
pH Levels from Sites Sampled During the TMDL Survey in the Southern Watershed (Summer, 2012)



** red line represents the statewide water quality criteria for pH, which is a range from 6.5 to 9.0 in Warmwater Habitats (OAC 3745-1-07).*

Figure 2:5
Specific Conductance (micromhos/cm) Levels from Sites Sampled During the TMDL Survey in the Southern Watershed (Summer, 2012)

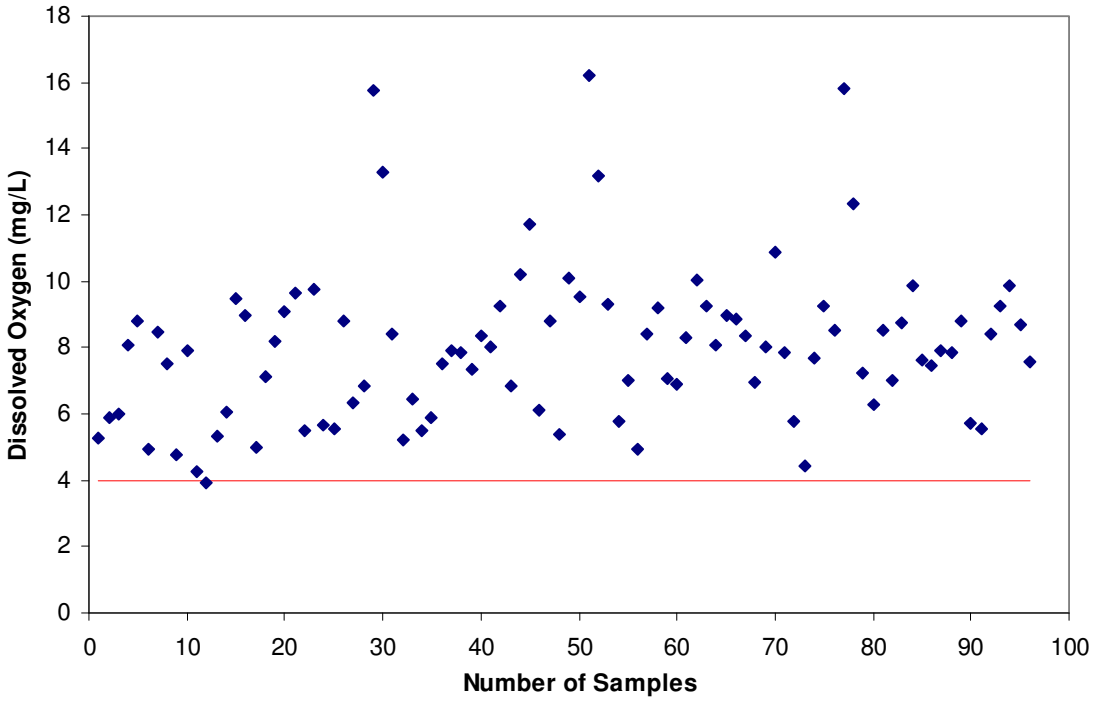


** red line represents the recommended exceedence level of 900 micromhos/cm to use in identifying moderate mine drainage impacts (Kinney, 2010).*

Other chemical parameters taken during the TMDL survey worth mentioning are Dissolved Oxygen (DO), Total Dissolved Solids (TDS), and Total Suspended Solids. The amount of dissolved oxygen in a stream is critical to the well being of the aquatic biota living in that habitat. A lack of dissolved oxygen in severe cases can lead to fish kills and if chronic reductions in DO persists, could lead to a stream segment not attaining its aquatic life use designation.

The current statewide water quality criteria for DO is that the Outside Mixing Zone Minimum content should not be less than 4.0 mg/L in Warmwater habitats (OAC 3745-1-07). Ninety-six dissolved oxygen samples were analyzed during the TMDL survey (Figure 2:6). All of the 96 samples analyzed were above the 4.0 mg/L criteria.

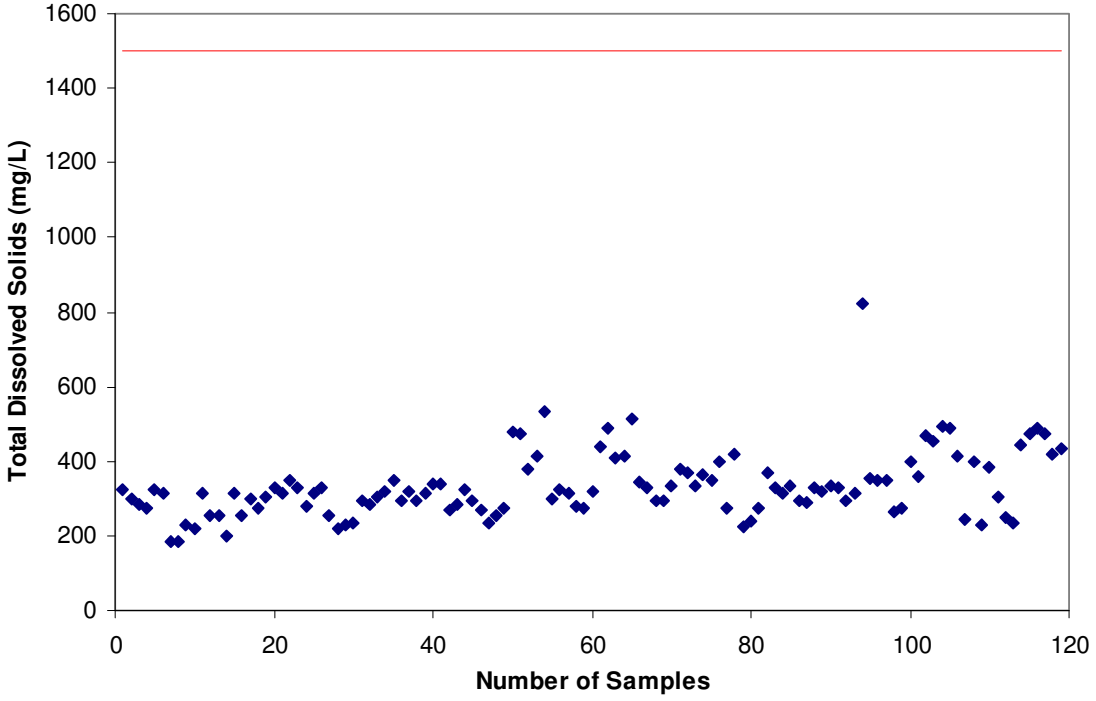
Figure 2:6
Dissolved Oxygen Content from Sites Sampled During the TMDL Survey in the Southern Watershed (Summer, 2012)



** red line represents the statewide water quality criteria for dissolved oxygen content. Criteria states that the Outside Mixing Zone Minimum (OMZM) content should not be less than 4.0 mg/L in Warmwater Habitats (OAC 3745-1-07).*

An excess of Total Dissolved Solids in a stream can also, in severe cases, lead to fish kills and eventually force the stream to not attain its aquatic life use designation. Increased TDS in many cases is associated with runoff from both urban and agricultural areas. The current statewide criteria for dissolved solid content is that the Outside Mixing Zone Average shall not exceed 1,500 mg/L (OAC 3745-1-07). During the TMDL survey 119 TDS samples were analyzed and all of them were substantially below the 1,500 mg/L criteria (Figure 2:7).

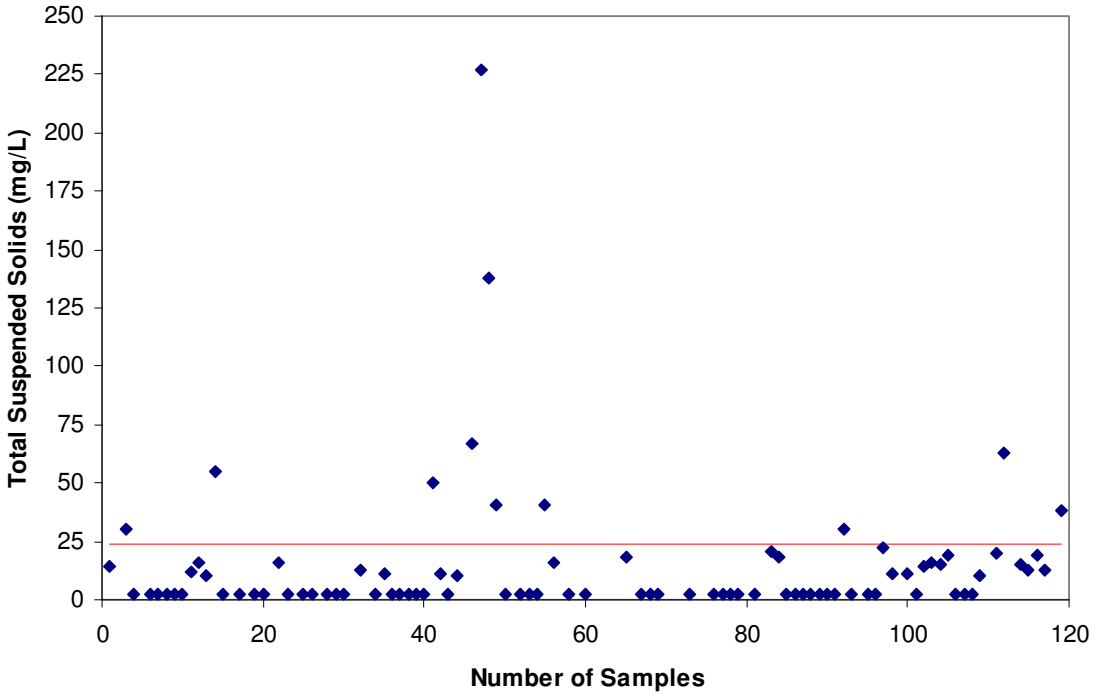
Figure 2:7
Total Dissolved Solids Content from Sites Sampled During the TMDL Survey in the Southern Watershed (Summer, 2012)



** red line represents the statewide water quality criteria for dissolved solids. Criteria states that the Outside Mixing Zone Average shall not exceed 1,500 mg/L (OAC 3745-1-07)*

Total Suspended Solids (TSS) are the final water chemistry parameter gathered during the TMDL survey that tends to be a contributing factor to watershed impairment throughout Ohio. Much like TDS, large quantities of suspended solids can cause a reduction of a streams aquatic life use designation due to eutrophication. Suspended solids essentially "chokes-out" a stream, reducing dissolved oxygen content and killing off sensitive species. In the Southern Watershed, 89 samples were analyzed for TSS content. Of the 89 samples analyzed, 11 exceeded the recommended maximum target level for streams in the Western Alleghany Plateau of 24 mg/L (OEPA, 1999). Figure 2:8 details the TSS content in samples gathered throughout the watershed. Of the 11 samples that exceeded, 1 sample was taken in the Big Run subwatershed, 2 were taken in the Cat Creek-Muskingum River subwatershed, 5 in the Rainbow Creek subwatershed and 3 in the Devol Run-Muskingum River subwatershed.

Figure 2:8
Total Suspended Solids Content from Sites Sampled During the TMDL Survey in the Southern Watershed (Summer, 2012)



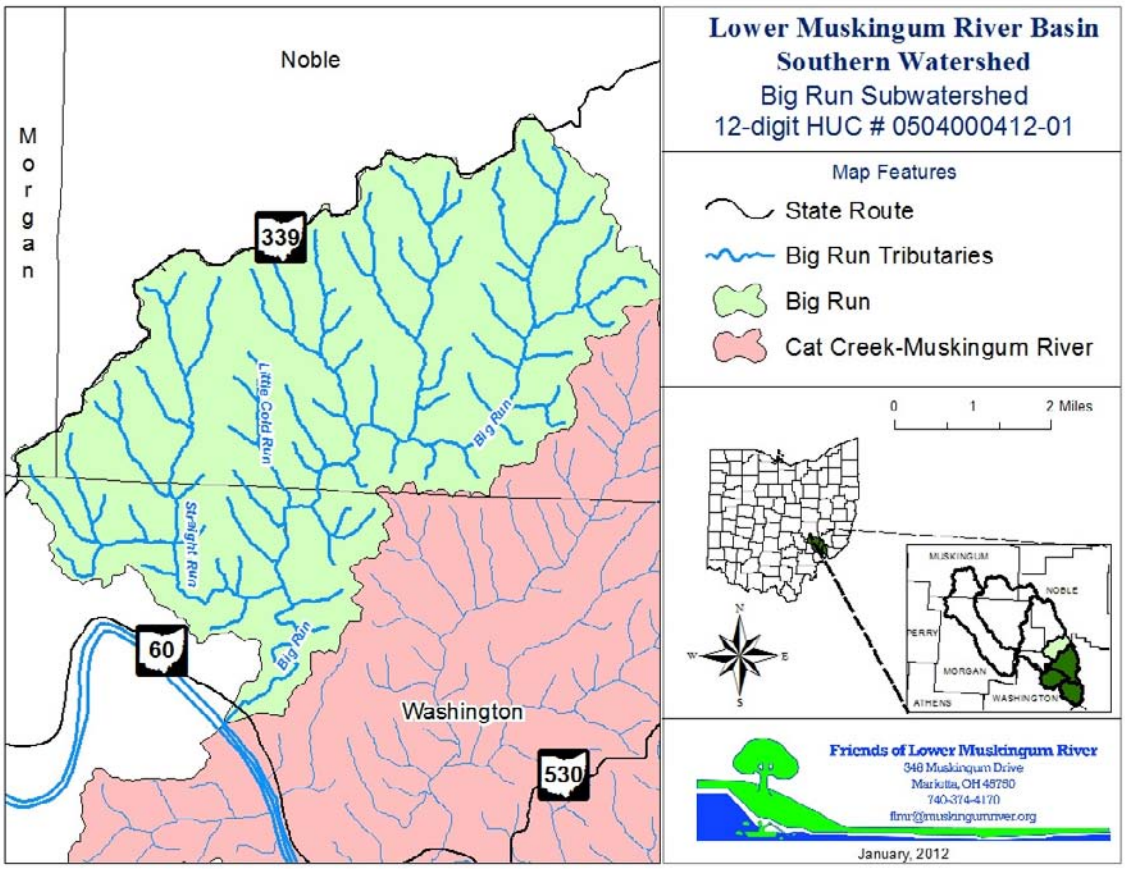
** red line represents the recommended maximum target range of 24 mg/L in samples taken from streams in the Western Alleghany Plateau. Recommendation based on the state-wide targets found in the Association Between Nutrients, Habitat and the Aquatic Biota of Ohio Rivers and Streams (OEPA, 1999).*

SUBWATERSHED IMPAIRMENTS, GOALS & ACTION PLAN

BIG RUN SUBWATERSHED

12-digit HUC: 0504000412-01

Map 2.24



Quick Facts	
Drainage Area:	18.2 sq. mi (11,648 acres)
Approximate Population:	468
Primary Land Use:	Forest (9,098 acres)
Secondary Land Use:	Agriculture (1,781 acres)
% of subwatershed in 100 yr floodplain:	2.25% (262acres)
% Highly Erodible Land:	96% (11,242 acres)
Aquatic Life Use Designation:	Warmwater Habitat
Aquatic Life Use Attainment Status:	**FULL**

Subwatershed Description

The Big Run subwatershed (12-digit HUC # 0504000412-01) is located just north of the Village of Lowell and lies within Jackson Township in Noble County and Adams Township in Washington County. It is the most rural of the subwatersheds and does not encompass any incorporated areas. Tables 2-38, 2-39, and 2-40 detail the administrative boundaries of the Big Run subwatershed.

Table 2-38
Counties in the Big Run Subwatershed

Counties	Acres of Subwatershed in County
Noble	8,678
Washington	2,898
Morgan	89

(ERIN, 2012)

Table 2-39
Townships in the Big Run Subwatershed

Townships	Acres of Subwatershed in Township
Adams (WASH)	2,702
Jackson (NOBLE)	8,678
Waterford (WASH)	196
Center (MORG)	89

* WASH = Washington County ; NOBLE= Noble County ; MORG = Morgan County

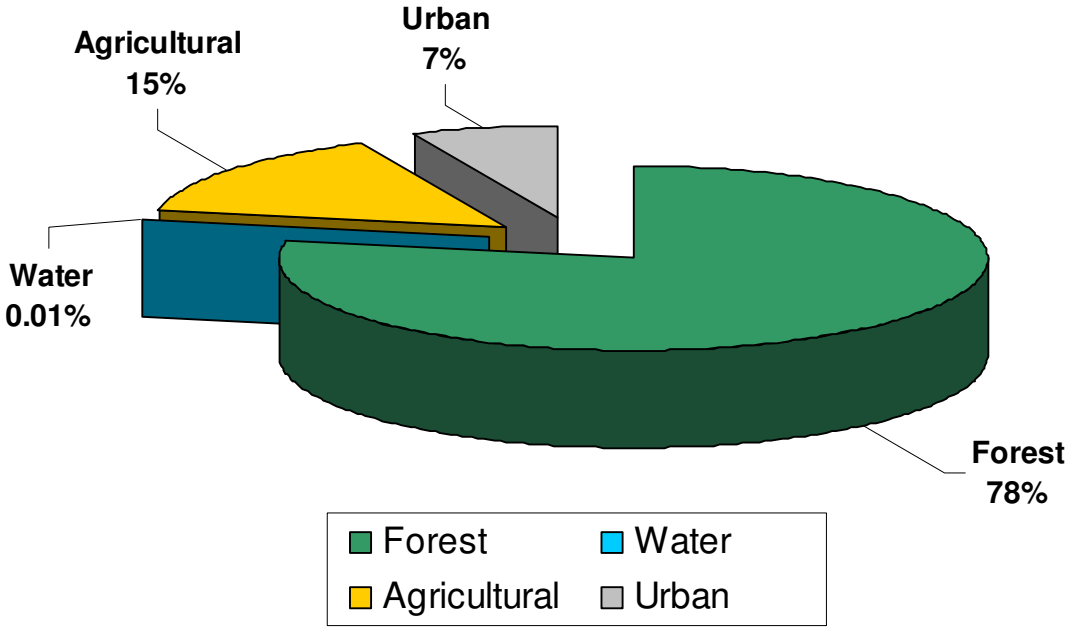
Table 2-40
School Districts in the Big Run Subwatershed

School Districts	Acres of Subwatershed in School District
Caldwell Exempted Village	8,678
Fort Frye Local	2,987

(ERIN, 2012)

The main land use within the Big Run subwatershed is primarily forested. Most of these woodlands are deciduous hardwoods but some evergreen softwoods are mixed in as well. The forested land use accounts for 78% (or 9,098 acres) of the subwatershed. A breakdown of land use practices in the Big Run subwatershed can be seen in Figure 2:9

Figure 2:9
Land Use in the Big Run Subwatershed

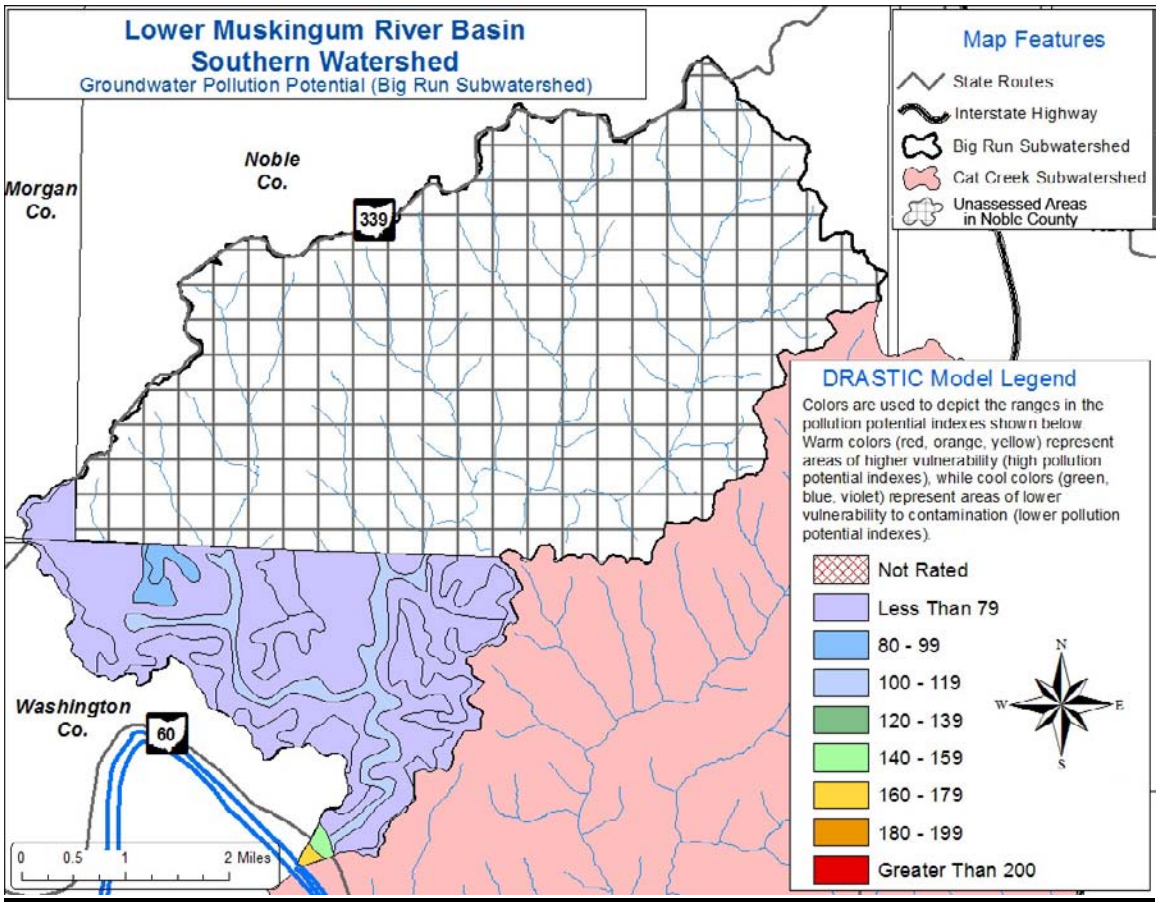


WATER QUALITY

Drinking and Ground Water

At this point, DRASTIC modeling has not been conducted in Noble County and therefore little information is available regarding Groundwater Pollution Potential in the Big Run subwatershed (see Section II, pages 29-32). The DRASTIC modeling that is available in the Washington and Morgan county portions of the Big Run subwatershed is depicted in Map 2.25. From this map it can seen that the mouth of the Big Run subwatershed has the highest potential of susceptibility to groundwater pollution and the rest of the subwatershed (that has been assessed) has a low susceptibility to pollution. While no Public Water Supply (PWS) wells exists in the Big Run subwatershed (see Map 2.12, Section II, page 32), many of the residents within this basin either receive their drinking water from the Tri-County Rural Water and Sewer District or from private wells. Since the main drinking water supply for the residents in the basin are outside of the Big Run subwatershed, the overall threat to groundwater pollution is minimal.

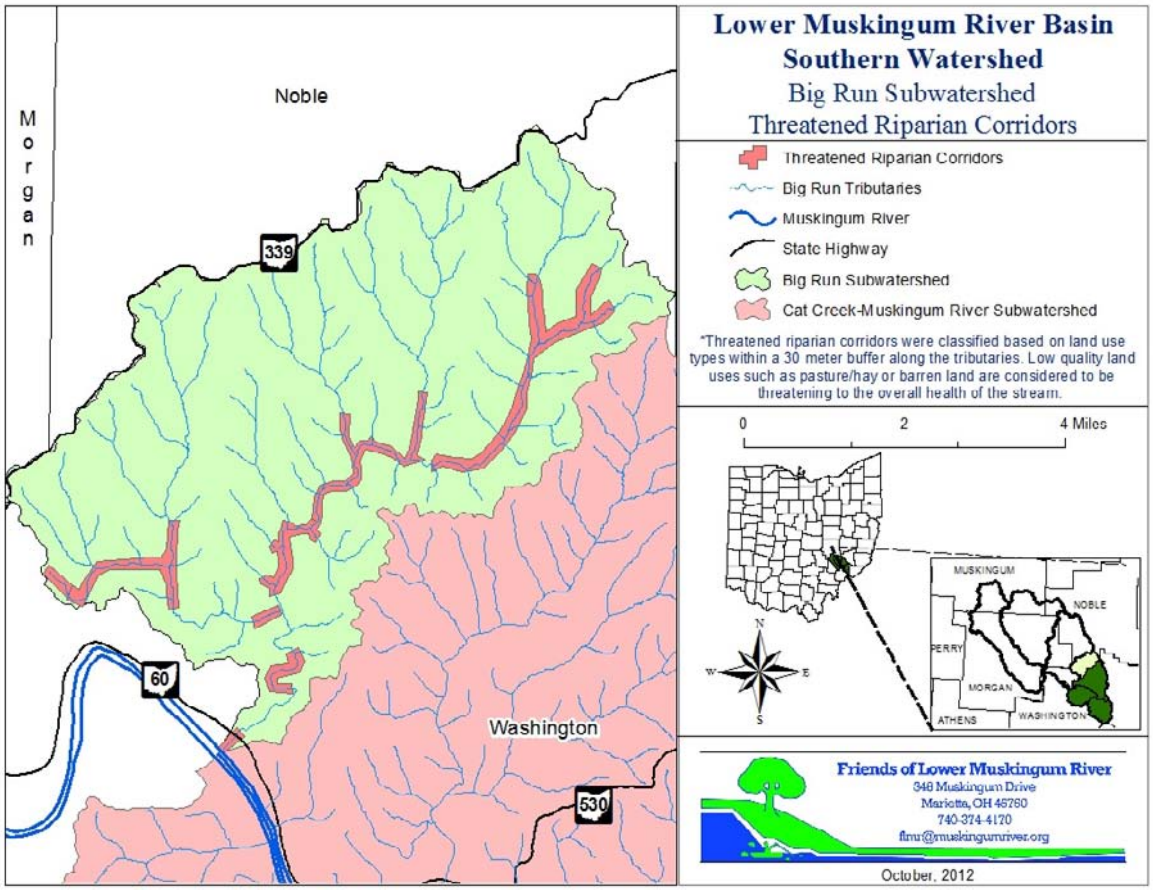
Map 2.25



Riparian Corridor

A riparian corridor assessment showed that 79% (716 acres and approx. 60 miles of stream) of the riparian corridors in the Big Run subwatershed are considered "High Quality" and 21% (183 acres and approx. 16 miles of stream) are considered "Low Quality". For this assessment, "Low Quality" riparian zones included land use practices such as developed land, barren land, shrub/scrub, grassland, herbaceous, pasture/hay fields, or cultivated crops. "High Quality" riparian zones include land use practices such as deciduous forest, evergreen forest, mixed forest and wetlands. Map 2.26 depicts the riparian corridor regions of the Big Run subwatershed that are threatened by the encroaching land uses around them.

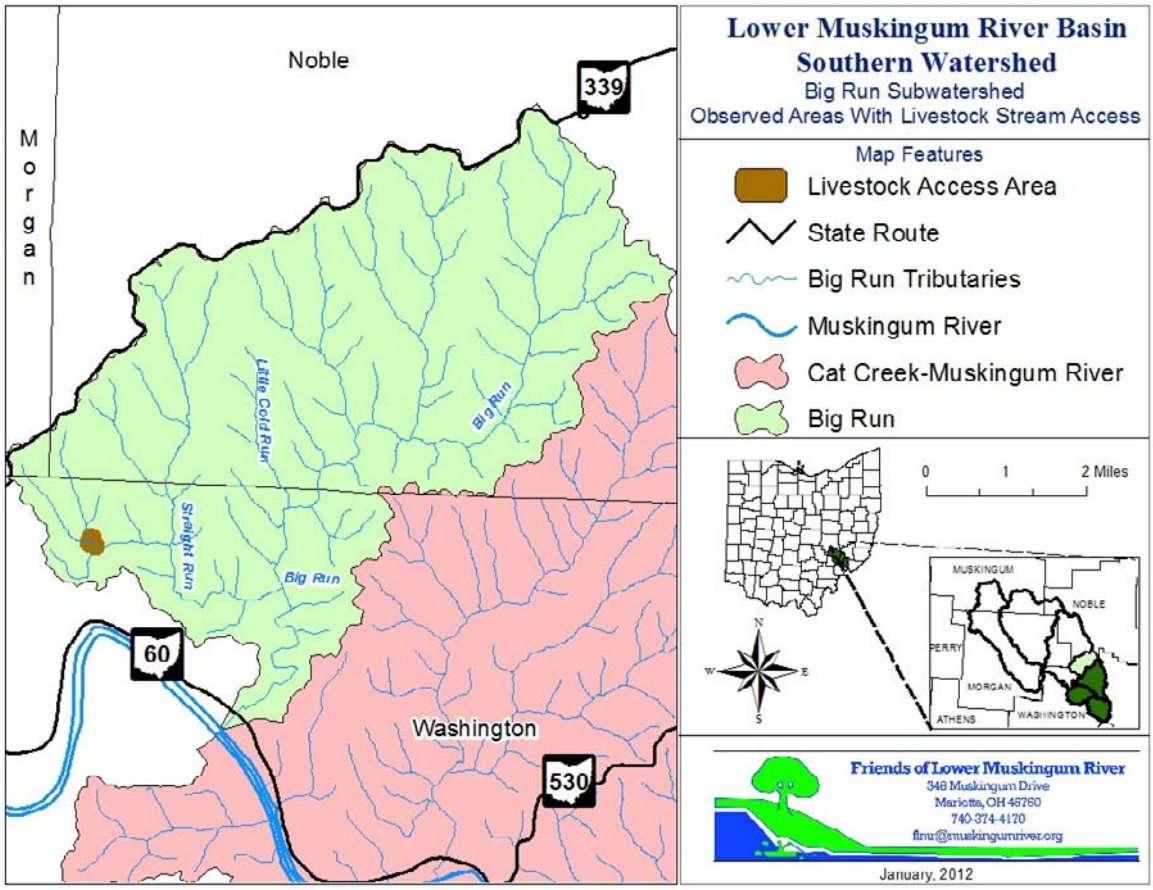
Map 2.26



Livestock Stream Access

Only one site was observed in the Big Run subwatershed that allowed livestock to have access to the stream. This site is located in the headwaters of Straight Run near the intersection of Township Roads 117 and 149. From a "car window survey", it is estimated that 5-10 horses have access to the stream at this site. Map 2.27 highlights this area.

Map 2.27



Qualitative Habitat Evaluation Index (QHEI)

In-stream habitat assessments were conducted using the QHEI during the 2012 Ohio EPA TMDL survey on three stream segments within the Big Run subwatershed. Each site assessed showed to have habitat characteristics considered to be "excellent" at supporting aquatic life. QHEI scores from this assessment can be seen in Table 2-41.

Table 2-41
QHEI Scores for Stream Segments in the Big Run Subwatershed

Subwatershed	Stream Segment	Location	River Mile	QHEI Score	QHEI Narrative Rating
Big Run	Big Run	CR 56	2.32	***72.8***	Excellent
	Big Run	TR 14	4.5	***70.0***	Excellent
	Straight Run	Straight Run Rd	0.1	***71.0***	Excellent

Biology

The Big Run subwatersheds Warmwater Habitat aquatic life use designation was investigated as part of the TMDL survey during 2012. The Ohio EPA examined the species composition, diversity and functional organization of both fish and benthic macro-invertebrates from three stream segments throughout the Big Run subwatershed. Fish communities were assessed using the Index of Biotic Integrity (IBI) and macro-invertebrates communities were given a narrative rating. From the investigation it was determined that all of the sites sampled in the Big Run subwatershed were in full attainment of their aquatic life use designation. In fact, these sites had biological and habitat scores consist with the Exceptional Warmwater Habitat (EWH) use designation so a recommendation will be made by the Ohio EPA to change the current designation of WWH to EWH. The results from the biological survey can be seen in Table 2-42.

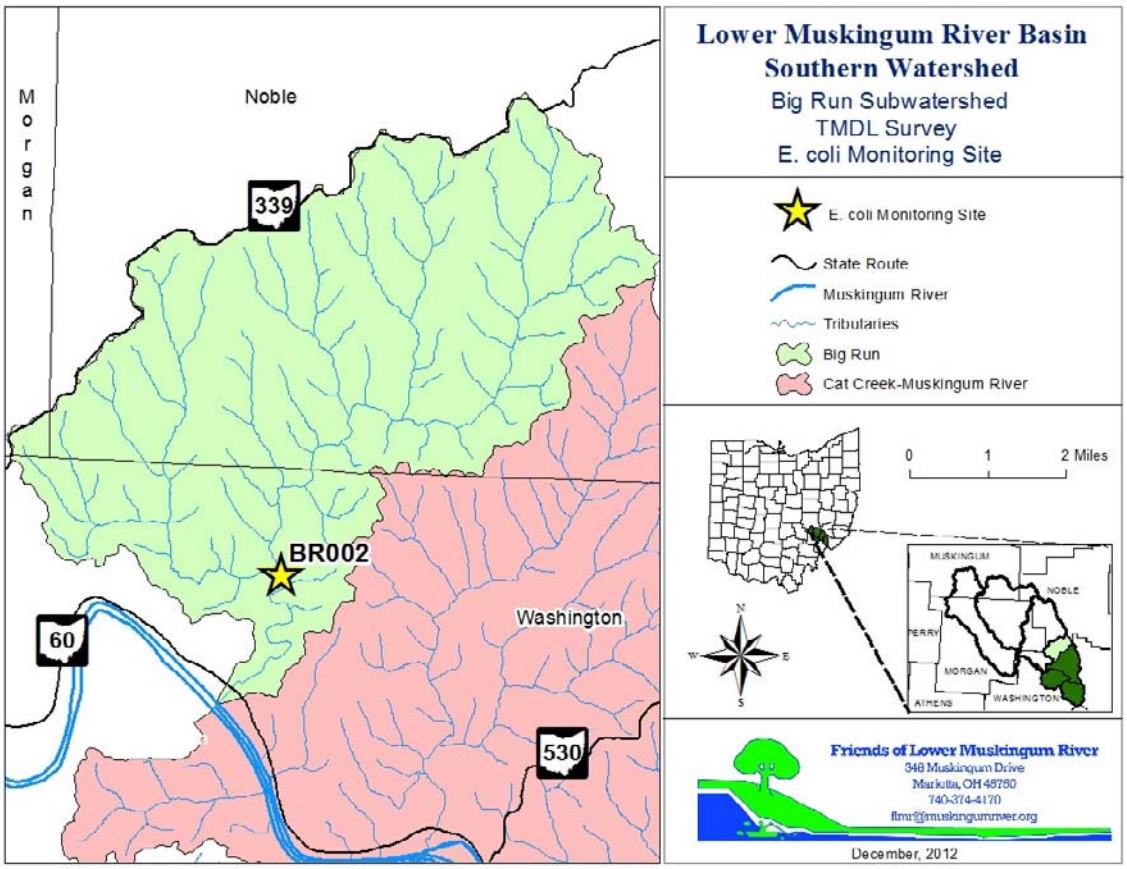
Table 2-42
Biological Use Attainment of Streams Segments in the Big Run Subwatershed

Subwatershed	Stream Segment	Location	River Mile	IBI Score	Macro-invertebrate Score	Attainment
Big Run	Big Run	CR 56	2.32	56	Exceptional	Full
	Big Run	TR 14	4.5	54	Exceptional	Full
	Straight Run	Straight Run Rd	0.1	54	Exceptional	Full

Bacteria

The Big Run Subwatershed has also been given a recreational use designation by the Ohio EPA. Currently this basin is classified as Class B, Primary Contact Recreation (PCR) which means that it can be used for occasional recreation activities (i.e. wading, fishing). To determine if the Big Run subwatershed was meeting its recreational use designation, the Ohio EPA TMDL crew analyzed bacteria samples (specifically *E. coli*) from a "sentinel" monitoring site in the basin. The "sentinel site", also referred to as site BR002 for the purposes of this plan, is located in a vicinity closest to the mouth of Big Run without the possibility of receiving backwaters from the Muskingum River (Map 2.28)

Map 2.28

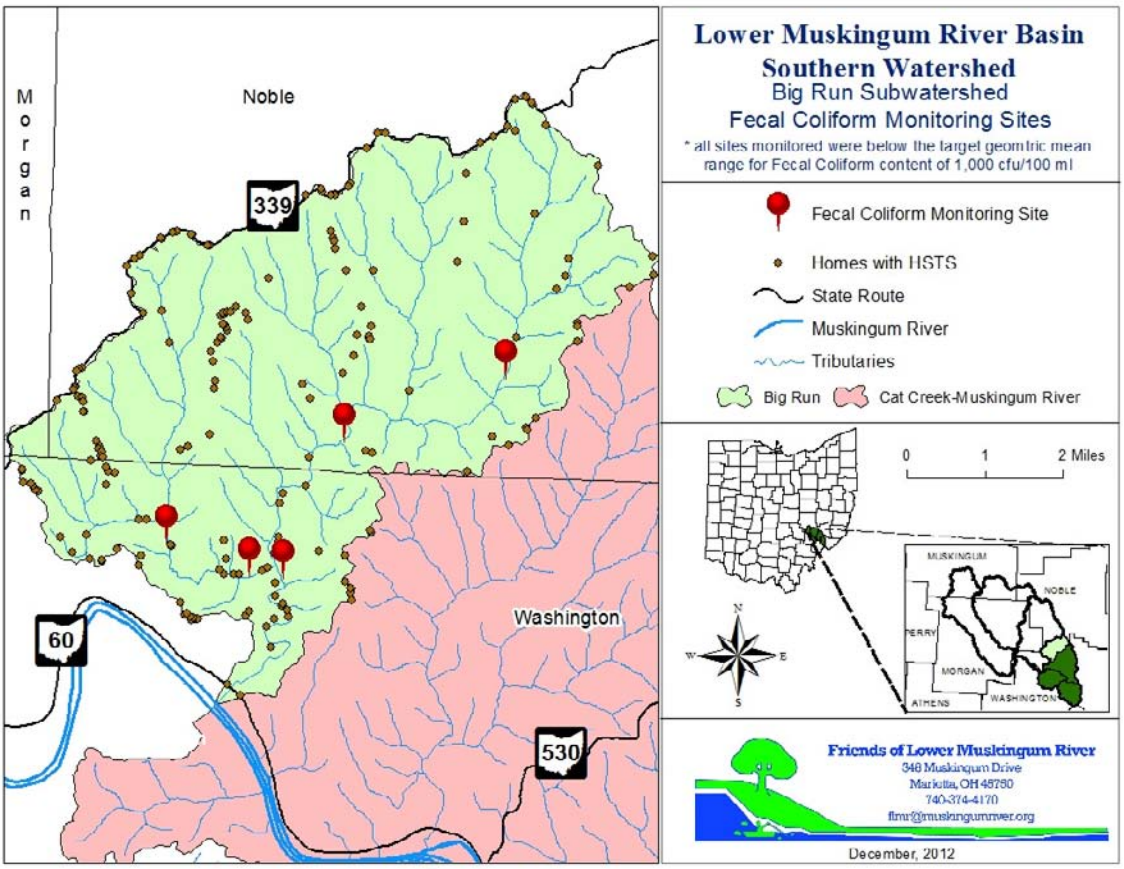


The Ohio Administrative Code (section 3745-1-07) states that a water bodies recreational use attainment is based on comparing the geometric mean of E. coli concentrations in samples taken throughout the recreation season (May 1st - October 31st) to the PCR Class B criterion of 161 cfu/100ml. Seven samples from BR002 were analyzed for E. coli concentrations throughout the recreation season. A geometric mean of 129 cfu/100ml was the result obtain. From that result it was determined that BR002 (and therefore the Big Run subwatershed) is in full attainment of its PCR Class B recreational use designation.

In an attempt to identity potential problem areas created by failing Household Sewage Treatment Systems (HSTS), Fecal Coliform bacteria samples were also gathered throughout the Big Run subwatershed. Five sites throughout the basin were sampled and assessed for Fecal Coliform concentrations throughout the recreation season. Samples were analyzed by both the Ohio EPA TMDL crew and by the City of Marietta's Waste Water Treatment Plant.

Originally, the Ohio EPA would asses bacteria levels during the TMDL process by analyzing samples for Fecal Coliform concentrations. In 1999, the state changed its standard to analyze E. coli bacteria instead because of its ability as a better indicator of contamination. For this study, the former Ohio standard of a geometric mean of 1,000 cfu/100 ml in samples gathered was used. All of the five sites assessed for Fecal Coliform content in the Big Run subwatershed were below the 1,000 cfu/100 ml target range. Map 2.29 shows the proximity of homes with HSTS to the Fecal Coliform monitoring sites. From this study it is concluded that failing HSTS are not impacting the Big Run subwatershed at this time.

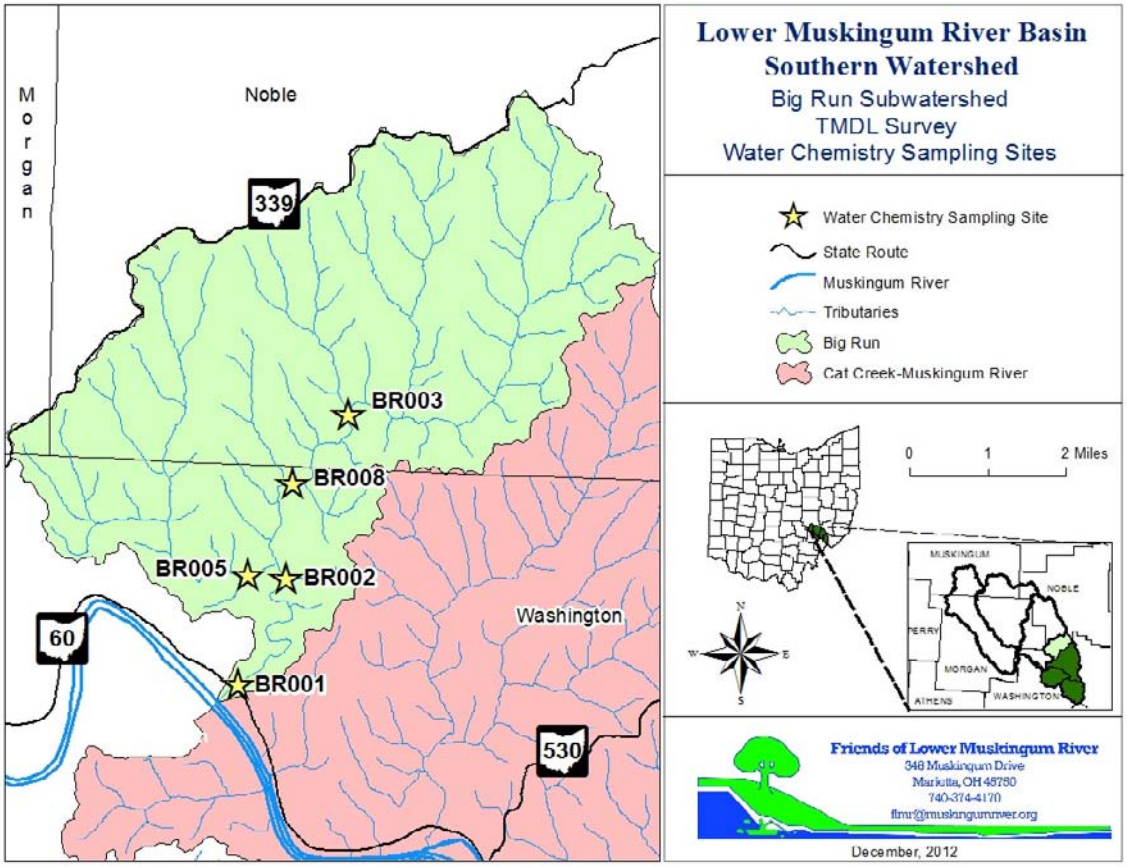
Map 2.29



Water Chemistry

A surplus of water chemistry data was gathered from five sites throughout the Big Run subwatershed during the 2012 TMDL survey Map 2.30 to help aid in identifying any impairments to the basin. One site, identified for the purposes of this plan as site number BR002, was utilized as a sentinel site in which flow measurements were also gathered to calculate loading rates from the subwatershed.

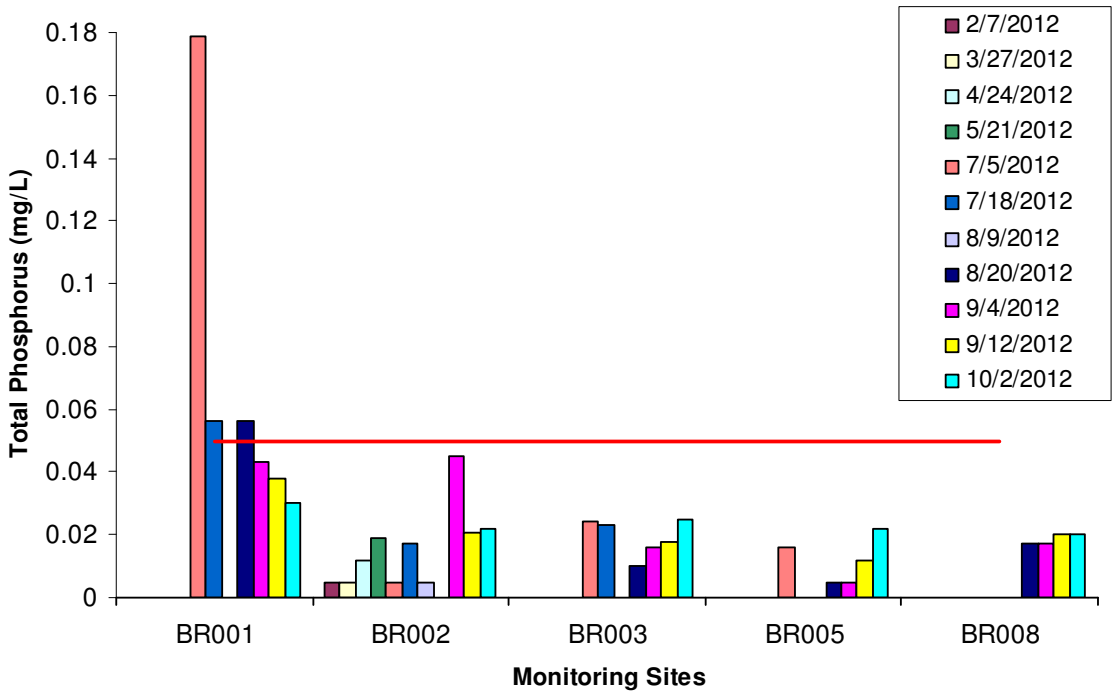
Map 2.30



Of the water chemistry parameters assessed within the Big Run subwatershed, Total Phosphorus (TP) and Nitrate+Nitrite were the only parameters that were exceeding either the statewide criteria or recommended target levels in at least one sample.

Thirty-one samples in the Big Run subwatershed were analyzed for TP concentrations. Of those 31 samples, three exceeded the recommended target range of 0.05 mg/L (OEPA, 1999). All three of the samples that were exceeding were located at site BR001 which is at the mouth of Big Run. It is likely that site BR001 is receiving backwaters from the Muskingum River and therefore contributing to the high TP levels that were found. Figure 2:10 details the TP concentrations per each site assessed within the Big Run subwatershed.

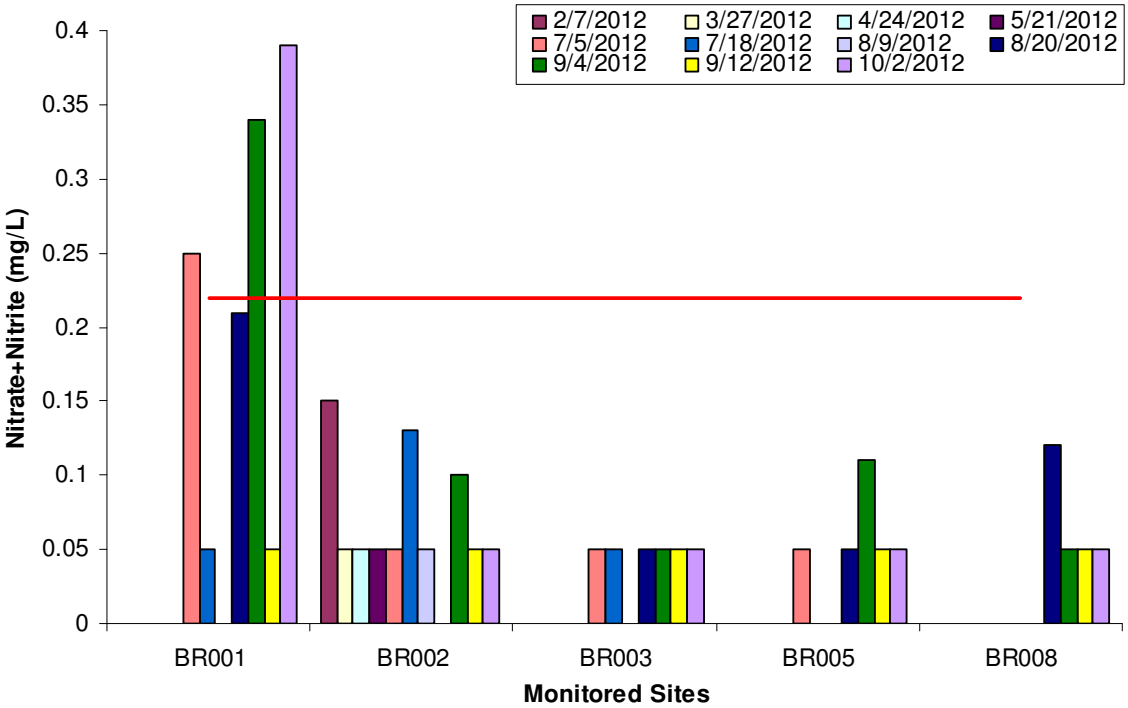
Figure 2:10
Total Phosphorus Levels from Sites Sampled in the Big Run Subwatershed During the 2012 TMDL Survey



** red line represents the recommended target range of 0.05 mg/L in samples taken from streams in the Western Alleghany Plateau with an IBI score between 40 - 60. Recommendation based on the state-wide targets found in the Association Between Nutrients, Habitat and the Aquatic Biota of Ohio Rivers and Streams (OEPA, 1999).*

Thirty-one samples in the Big Run subwatershed were also analyzed for Nitrate+Nitrite concentrations. Of those 31 samples, three exceeded the recommended target range of 0.22 mg/L (OEPA, 1999). All three of the samples that were exceeding were located at site BR001 which is at the mouth of Big Run. It is assumed that the Muskingum River backwaters at this site are contributing to the elevated Nitrate+Nitrite concentrations. Figure 2:11 details the Nitrate+Nitrite concentrations per each site assessed within the Big Run subwatershed.

Figure 2:11
Nitrate + Nitrite Levels from Sites Sampled in the Big Run Subwatershed During the 2012 TMDL Survey



** red line represents the recommended target range of 0.22 mg/L in samples taken from wadable streams in the Western Alleghany Plateau. Recommendation based on the targets found in the Association Between Nutrients, Habitat and the Aquatic Biota of Ohio Rivers and Streams (OEPA, 1999).*

PROBLEM STATEMENT #1

The Big Run subwatershed exhibits Exceptional Warmwater Habitat (EWH) features (IBI scores > 50, QHEI scores ≥ 70, & "Exceptional" macro-invertebrate narrative scores). Although no immediate impacts exist that are impairing this basin, approximately 16 miles (183 acres) of streams riparian corridors in the subwatershed are considered to be low quality (see Section II, page 73) and could create future impairments if not properly managed.

Goal #1: Preserve the exceptional biological and habitat features of the Big Run subwatershed.

O***bjective #1:*** Establish permanent protections on 10% (approx. 1,100 acres) of the basin (estimated project cost: $100 - $200)

Action #1: Host a Conservation/Agricultural Easements educational workshop for landowners in the Big Run subwatershed. Target participants by a mass mailing.

Action #2: Work with the FLMR Land Trust to pursue purchasing properties through the Clean Ohio Conservation Fund or other funding sources

Action #3: Work with the Washington & Noble County SWCDs, NRCS and Farm Bureau offices to educate landowners on programs such as the Conservation Reserve Program and the Farm & Ranch Lands Protection Program (FRPP)

O***bjective #2:*** Educate at least 15% of the residents (approx. 70 people) on the importance of maintaining an EWH watershed.
(estimated project cost: $100 - $200)

Action #1: Mail out an educational factsheet about the water quality in the Big Run subwatershed to homes within the basin.

Action #2: Work with the Washington & Noble County SWCDs to educate landowners about proper farming practices, BMP usage and agricultural incentives.

Action #3: Work with the Washington & Noble County Health Departments to educate homeowners about proper maintenance of their Household Sewage Treatment System (HSTS)

Action #4: Collaborate with health department officials to begin implementing an annual HSTS inspection program.

Goal #2: Increase the quality on 75% (137 acres) of the originally classified "low quality" riparian corridors.

Objective #1: Plant riparian buffers composed of native trees, shrubs and grasses on 398 acres of riparian corridors throughout the Big Run subwatershed. According to ODNR modeling, this practice could reduce soil sediment by 338 tons per year, 676 pounds of Phosphorus per year and 1,352 pounds of Nitrogen per year (ODNR,2013)
(estimated costs: $6,000 - $9,000 per 5 acres)

Action #1: Conduct field investigations to build relationships with landowners and to determine specific sites for buffers.

Action #2: Collaborate with the ODNR Division of Forestry, Appalachian Coal Country Team (ACCT), and/or other agencies or organizations to fund these buffer planting projects

Action #3: Recruit volunteers to conduct buffer plantings

Table 2-43
Implementation Table for the Big Run Subwatershed

Action Plan	Activity	Available Resources	Funding Source	Timeline (start-end)	Indicator
1.1.1.1	Outreach & education	FLMR & volunteers	FLMR	2014-2016	**1 -** List of workshop participants
1.1.1.2	Grant writing	FLMR Board of Directors	Clean Ohio Conservation Fund	2013-2016	**Minimum of 2 -** Clean Ohio Fund applications submitted
1.1.1.3	Outreach & education	Wash./ Noble Co. SWCD; NRCS; Farm Bureau	USDA, ODNR, NRCS	2014-2016	**1 -** List of landowners contacted
1.1.2.1	Outreach & education	FLMR & volunteers	FLMR	2013-2014	**1 -** List of landowners contacted
1.1.2.2	Outreach & education	Wash./Noble Co. SWCD	n/a	2013-2016	**1 -** List of landowners contacted & implementing BMP's
1.1.2.3	Outreach & education	Wash./Noble Co. Health Dept.	n/a	2013-2016	**1 -** List of homeowners with an up-to-date HSTS
1.1.2.4	Inspection & permitting	Wash./Noble Co. Health Dept.; Ohio EPA	n/a	2013-2016	**1-** Schedule of annual HSTS inspections
1.2.1.1	Research & investigate	FLMR; AmeriCorps VISTA	FLMR	2013-2015	**1-** List of sites for buffer improvements
1.2.1.2	Grant writing	FLMR; AmeriCorps VISTA	ODNR, ACCT, USDA	2014-2016	**Minimum of 2** Number of grant applications submitted
1.2.1.3	Recruit volunteers	FLMR; AmeriCorps VISTA	FLMR	2015-2016	**1-** List of volunteers recruited

Numbering system refers to **Problem Statement → Goal → Objective → Action*
(i.e. 1.2.1.2 = Problem Statement #1; Goal #2; Objective #1; Action #2)

Table 2-44
Big Run Subwatershed Load Reduction Goals from the Action Plan

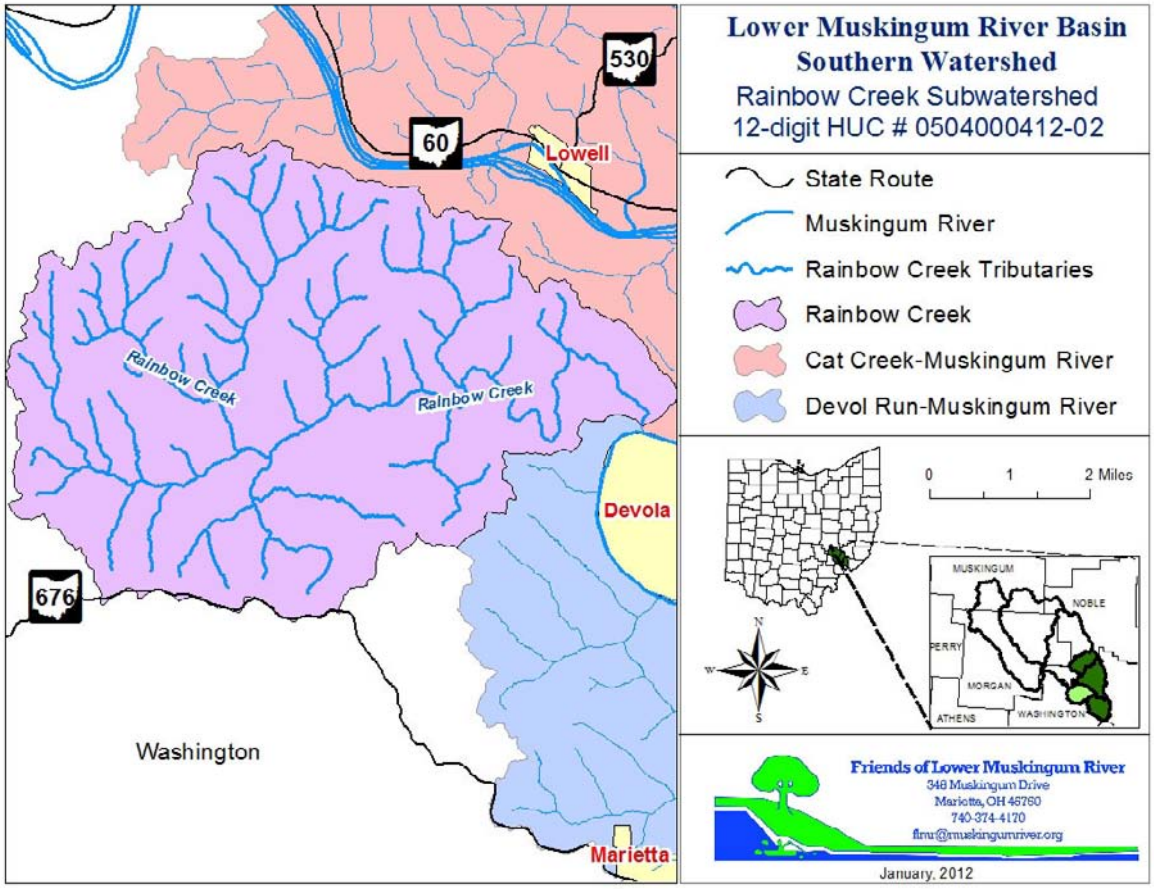
	Types of Load Reductions		
***Action Plan Item**	**Sediment/Erosion (tons/yr)**	**Phosphorus (lbs/yr)**	**Nitrogen (lbs/yr)**
1.2.1	338	676	1,352

Numbering system refers to **Problem Statement → Goal → Objective*
(i.e. 1.2.1 = Problem Statement #1; Goal #2; Objective #1)

RAINBOW CREEK SUBWATERSHED

12-digit HUC: 0504000412-02

Map 2.31



Quick Facts	
Drainage Area:	18.8 sq. mi (12,032 acres)
Approximate Population:	692
Primary Land Use:	Forest (6,435 acres)
Secondary Land Use:	Agriculture (4,727 acres)
% of subwatershed in 100 yr floodplain:	3.72% (448 acres)
% Highly Erodible Land:	95% (11,490 acres)
Aquatic Life Use Designation:	Warmwater Habitat
Aquatic Life Use Attainment Status:	**FULL**

Subwatershed Description

The Rainbow Creek subwatershed (12-digit HUC # 0504000412-02) drains into the west side of the Muskingum River across from Devola. This basin is fully contained in Washington County and lies within portions of Adams, Waterford, Watertown and Muskingum Townships. Of the four subwatersheds of the Southern Watershed, Rainbow Creek has the highest amount of land area being used for agricultural purposes. Tables 2-45 and 2-46 detail the administrative boundaries of the Rainbow Creek subwatershed.

Table 2-45
Washington County Townships in the Rainbow Creek Subwatershed

Townships	Acres of Subwatershed in Township
Watertown	6,278
Adams	4,110
Waterford	853
Muskingum	792

Table 2-46
School Districts in the Rainbow Creek Subwatershed

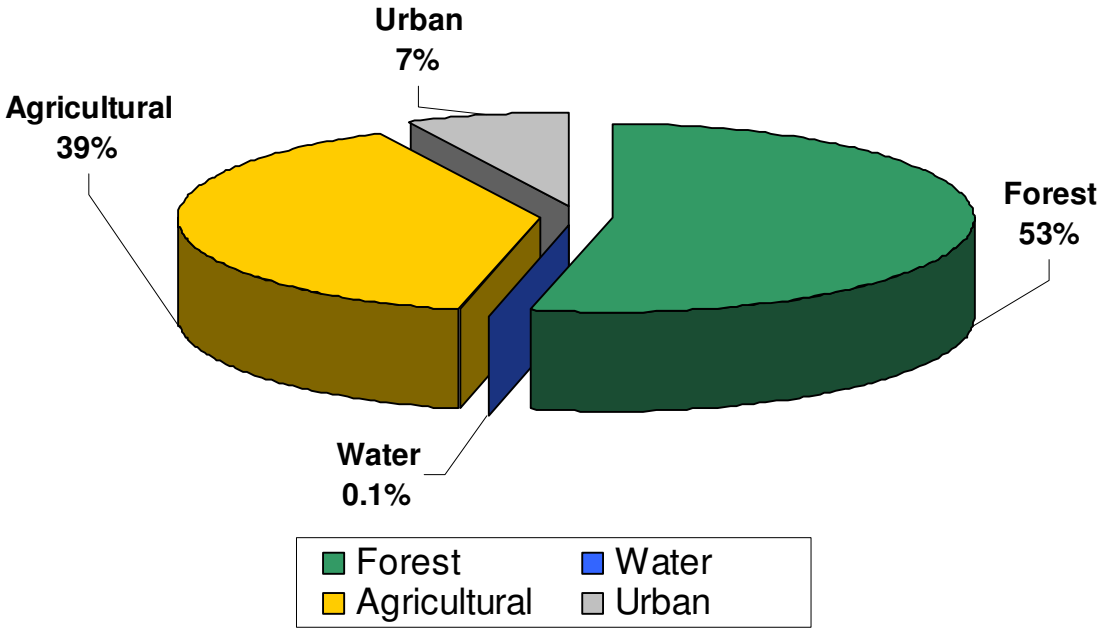
School Districts	Acres of Subwatershed in School District
Fort Frye Local	7,403
Wolf Creek Local	3,830
Marietta City	800

(ERIN, 2012)

Primarily, lands within the Rainbow Creek subwatershed are made up of deciduous hardwoods and softwood evergreen forests. Forests are the biggest use of the land in this basin, accounting for 53% or 6,377 acres of the total land area. However, agricultural lands (i.e. fields for cultivation, pasture/hay fields, etc.) also make up a large portion of the Rainbow Creek subwatershed, accounting for 39% or 4,693 acres of the total land area. A breakdown of land use practices in the Rainbow Creek subwatershed can be seen in Figure 2:12.

Figure 2:12

Land Use in the Rainbow Creek Subwatershed

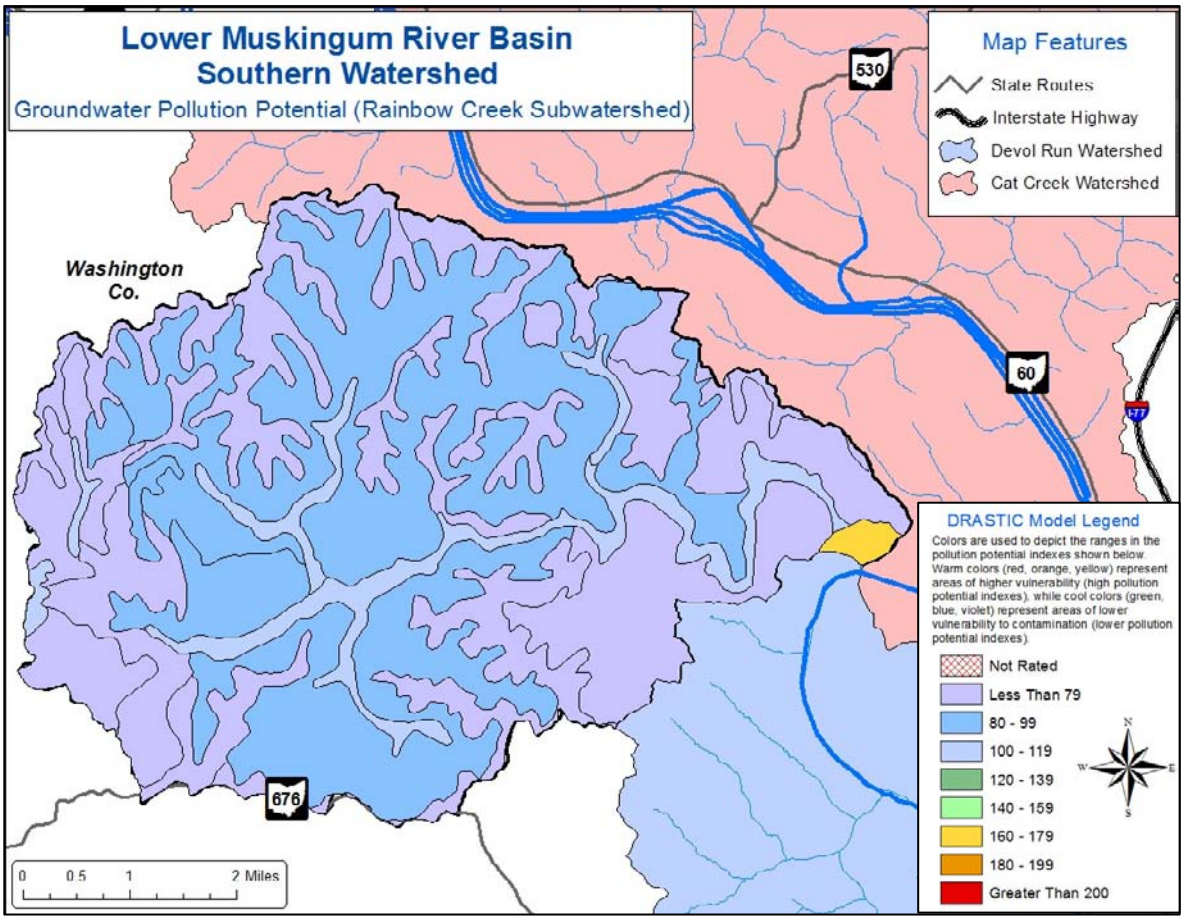


WATER QUALITY

Drinking and Ground Water

DRASTIC modeling to depict Groundwater Pollution Potential has been completed for the Rainbow Creek subwatershed by the Ohio Department of Natural Resources and can be seen in Map 2.32 (see Section II, pages 29-32). From this map it can seen that the mouth of the Rainbow Creek subwatershed has the highest potential of susceptibility to groundwater pollution and the rest of the subwatershed is classified as having a low susceptibility to pollution. While no Public Water Supply (PWS) wells exists in the Rainbow Creek subwatershed (see Map 2.12, Section II, page 32), many of the residents within this basin either receive their drinking water from the Tri-County Rural Water and Sewer District, Warren Community Water and Sewer Association or from private wells. Since the main drinking water supply for the residents in the basin are outside of the Rainbow Creek subwatershed, the overall threat to groundwater pollution is minimal.

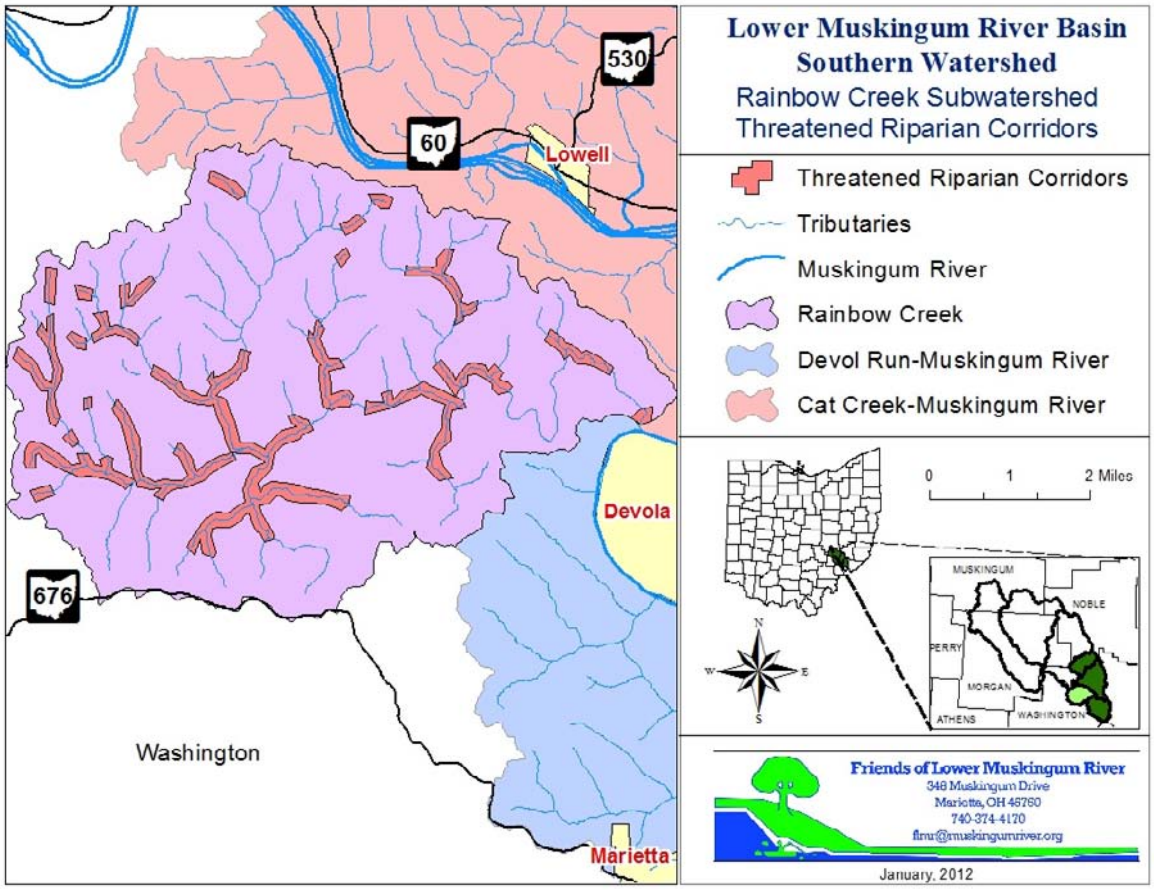
Map 2.32



Riparian Corridor

A riparian corridor assessment showed that 57% (465 acres and approx. 39 miles of stream) of the riparian corridors in the Rainbow Creek subwatershed are considered "High Quality" and 43% (358 acres and approx. 30 miles of stream) are considered "Low Quality". For this assessment, "Low Quality" riparian zones included land use practices such as developed land, barren land, shrub/scrub, grassland, herbaceous, pasture/hay fields, or cultivated crops. "High Quality" riparian zones include land use practices such as deciduous forest, evergreen forest, mixed forest and wetlands. Map 2.33 depicts the riparian corridor regions of the Rainbow Creek subwatershed that are threatened by the encroaching land uses around them.

Map 2.33

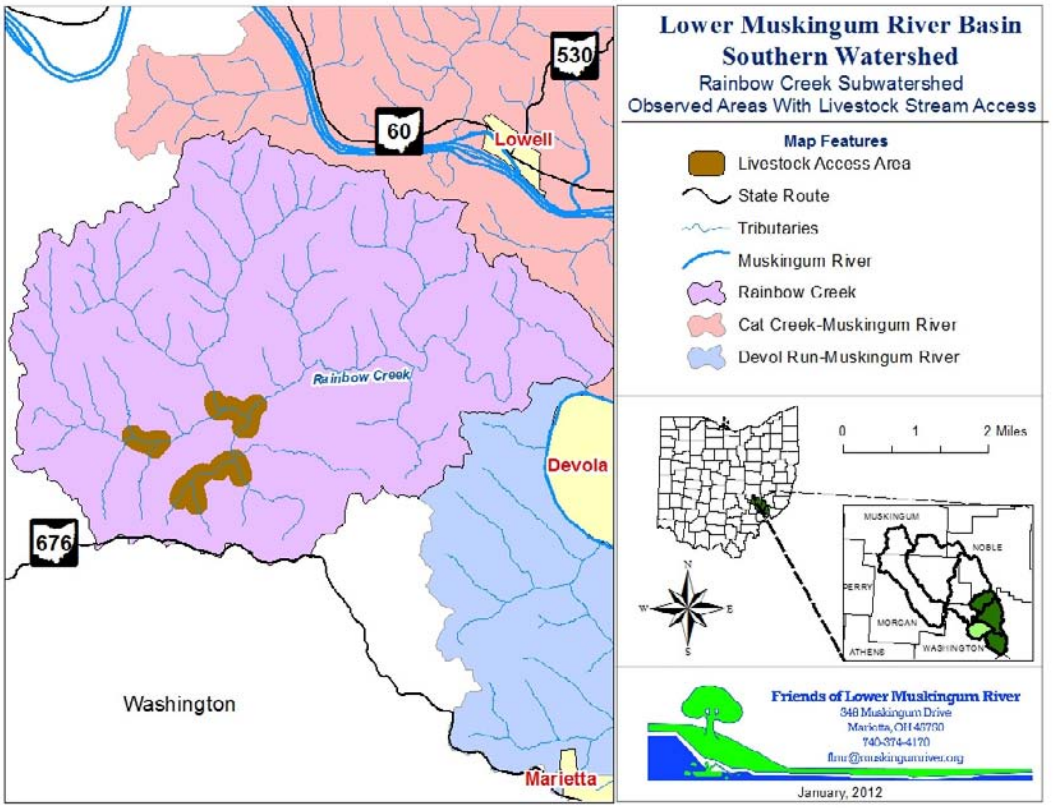


Livestock Stream Access

A field survey in the winter of 2012-2013 identified three large segments of stream, totaling approximately 14,463 linear feet of stream bank (estimated using the measure tool in ArcMap 10.1), in the Rainbow Creek subwatershed that were being used as a watering source for both cattle and horses on what seemed to be 4 different farms. From a "car window survey", it is estimated that 100-150 head of livestock have access to streams at these sites. These locations were recorded and are highlighted in Map 2.34.

Cattle access to Rainbow Creek (Rainbow Creek Subwatershed)

Map 2.34



Qualitative Habitat Evaluation Index (QHEI)

In-stream habitat assessments were conducted using the QHEI during the 2012 Ohio EPA TMDL survey on three stream segments within the Rainbow Creek subwatershed. Two of the sites (at RM 4.25 and 8.3) that were assessed showed to have habitat characteristics considered to be "excellent" and one site (at RM 0.95) had characteristics considered to be "good" at supporting aquatic life. QHEI scores from this assessment can be seen in Table 2-47.

Table 2-47
QHEI Scores for Stream Segments in the Rainbow Creek Subwatershed

Subwatershed	Stream Segment	Location	River Mile	QHEI Score	QHEI Narrative Rating
Rainbow Creek	Rainbow Creek	TR 32	0.95	***63.0***	Good
	Rainbow Creek	CR 79 Huck Rd	4.25	***71.8***	Excellent
	Rainbow Creek	CR 4	8.3	***72.0***	Excellent

Biology

The Rainbow Creek subwatersheds Warmwater Habitat aquatic life use designation was investigated as part of the TMDL survey during 2012. The Ohio EPA examined the species composition, diversity and functional organization of both fish and benthic macro-invertebrates from three stream segments (located at RM 0.95, 4.25, and 8.3) throughout the Rainbow Creek subwatershed. Fish communities were assessed using the Index of Biotic Integrity (IBI) and macro-invertebrates communities were given a narrative rating. From the investigation it was determined that all of the sites sampled in the Rainbow Creek subwatershed were in full attainment of their aquatic life use designation. The results from the biological survey can be seen in Table 2-48.

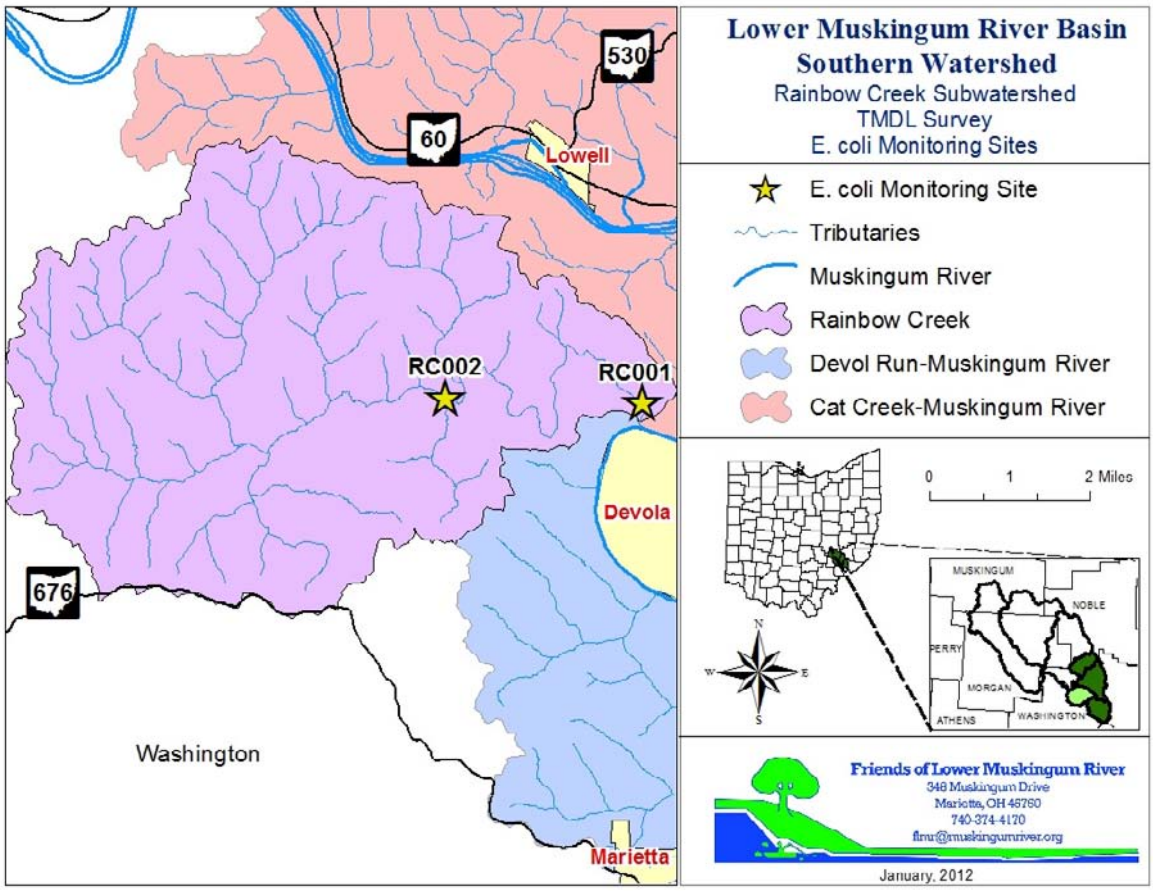
Table 2-48
Biological Use Attainment of Streams Segments in the Rainbow Creek Subwatershed

Subwatershed	Stream Segment	Location	River Mile	IBI Score	Macro-invertebrate Score	Attainment
Rainbow Creek	Rainbow Creek	TR 32	0.95	54	Good	Full
	Rainbow Creek	CR 79 Huck Rd	4.25	50	Very Good	Full
	Rainbow Creek	CR 4	8.3	52	N/A	Full

Bacteria

The Rainbow Creek Subwatershed has also been given a recreational use designation by the state of Ohio. Currently this basin is classified as Class B, Primary Contact Recreation (PCR) which means that it can be used for occasional recreation activities (i.e. wading, fishing). To determine if the Rainbow Creek subwatershed was meeting its recreational use designation, the Ohio EPA TMDL crew analyzed bacteria samples (specifically *E. coli*) from two sites in the basin. These sites, RC001 and RC002, are located in both a vicinity closest to the mouth of Rainbow Creek without the possibility of receiving backwaters from the Muskingum River and in a location that would take in the entire drainage area of the watershed (Map 2.35).

Map 2.35



The Ohio Administrative Code (section 3745-1-07) states that a water bodies recreational use attainment is based on comparing the sampling sites geometric mean of E. coli concentrations in samples taken throughout the recreation season (May 1st - October 31st) to the PCR Class B criterion of 161 cfu/100ml. Two samples from RC001 and six samples from RC002 were analyzed for E. coli concentrations throughout the recreation season. A geometric mean of 42 cfu/100ml was the result obtained from site RC001 and a geometric mean of 278 cfu/100ml was the result obtained from site RC002. From those results it was determined that site RC001 is in full attainment and RC002 is not attaining its PCR Class B recreational use designation. Site RC002 is impacted by fecal matter due to unsanitary conditions from household sewage treatment systems (HSTS) and/or agricultural activities such as pasture land runoff and manure land application (Capuzzi, 2012). It is estimated that there are approximately 260 homes within the Rainbow Creek Subwatershed that have a HSTS that has never been inspected by the Washington County Sanitarians (see Section II, page 16). Therefore, the Rainbow Creek subwatershed is in partial attainment of its recreational use designation. Table 2-49 details the results of the E. coli investigation in the Rainbow Creek subwatershed.

Table 2-49
Summary of E. coli Data Collected From Streams in the Rainbow Creek Subwatershed

Subwatershed	Site Number	Location	# of samples	Maximum Value	Geometric Mean
Rainbow Creek	RC001	TR 32	2	60	**42**
	RC002	CR 79 Huck Rd	6	2,700	**278**

* Recreation use attainment is based on comparing the geometric mean to the Primary Contact Recreation (PCR) Class B geometric mean water quality criterion of 161 cfu/100 ml (Ohio Administrative Code 3745-1-07). All values are expressed in colony forming units (cfu) per 100 ml of water. Values highlighted yellow exceed the applicable PCR Class B geometric mean criterion.

In an attempt to identity potential problem areas created by failing Household Sewage Treatment Systems (HSTS), Fecal Coliform bacteria samples were also gathered throughout the Rainbow Creek subwatershed. Five sites throughout the basin were sampled and assessed for Fecal Coliform concentrations throughout the recreation season. Samples were analyzed by both the Ohio EPA TMDL crew and by the City of Marietta's Waste Water Treatment Plant.

Originally, the Ohio EPA would assess bacteria levels during the TMDL process by analyzing samples for Fecal Coliform concentrations. In 1999, the state changed its standard to analyze E. coli bacteria instead, because of its ability as a better indicator of contamination. For

this study, the former Ohio standard of a geometric mean of 1,000 cfu/100 ml in 5 samples gathered during a 30 day period was used. Unfortunately, 5 samples were not able to be obtained from each site during a 30 day period. None-the-less, the geometric mean of all samples taken per site was still compared to the of 1,000 cfu/100ml target range to determine if Fecal Coliform was a potential contaminate.

Four of the five sites assessed for Fecal Coliform content in the Rainbow Creek subwatershed were below the 1,000 cfu/100 ml target range. One of the sites (referred to for purposes of this plan as site RC005) had a geometric mean that exceeded the desired target range. Table 2-50 details the results of the Fecal Coliform investigation in the Rainbow Creek subwatershed.

Table 2-50
Summary of Fecal Coliform Data Collected From Sites in the Rainbow Creek Subwatershed

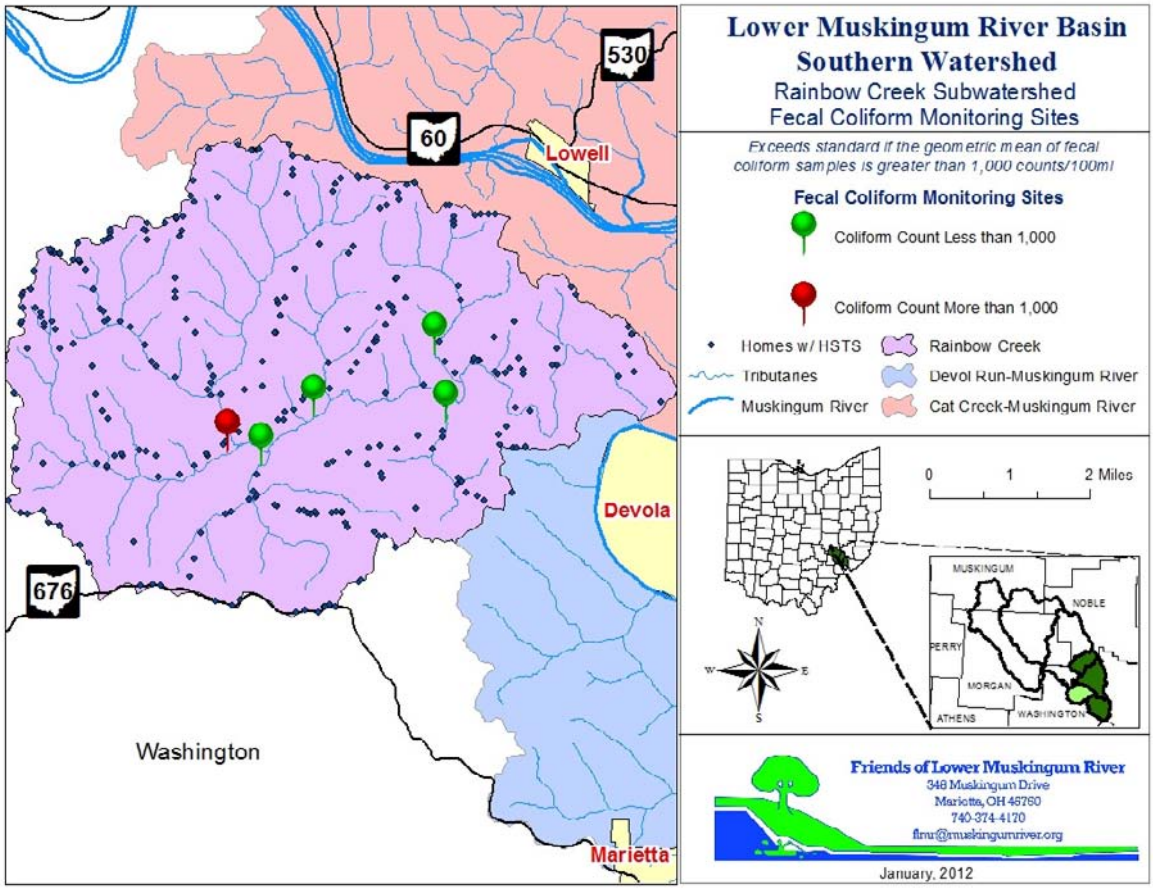
Fecal Coliform attainment is based on comparing the geometric mean to the target geometric mean range of 1,000 cfu/100 ml. All values are expressed in colony forming units (cfu) per 100 ml of water. Values highlighted yellow exceed the recommended target range.

Site Number	Month Sampled	Analyzed By	Result (cfu/100ml)	Geomean (cfu/100ml)
RC002	May 2012	WWTP	1,667	287
	May 2012	OEPA	130	
	July 2012	OEPA	130	
	July 2012	OEPA	510	
	August 2012	OEPA	260	
	August 2012	OEPA	150	
	September 2012	WWTP	2,000	
RC003	May 2012	WWTP	231	276
	August 2012	OEPA	330	
	September 2012	WWTP	11,100	
RC004	May 2012	WWTP	2,600	883
	August 2012	OEPA	300	
	September 2012	WWTP	410	
RC005	May 2012	WWTP	1,367	1,773
	August 2012	OEPA	2,300	
	September 2012	WWTP	6,400	
RC006	May 2012	WWTP	115	117
	August 2012	OEPA	120	
	September 2012	WWTP	400	

** WWTP= City of Marietta Waste Water Treatment Plant; OEPA= Ohio Environmental Protection Agency*

Map 2.36 shows the proximity of homes with HSTS to the Fecal Coliform monitoring sites. The site labeled with a red marker represents site RC005 which exceeded the target range for Fecal Coliform content. Based on this study, site RC005 is impacted by fecal matter due to unsanitary conditions from failing HSTS and/or agricultural practices.

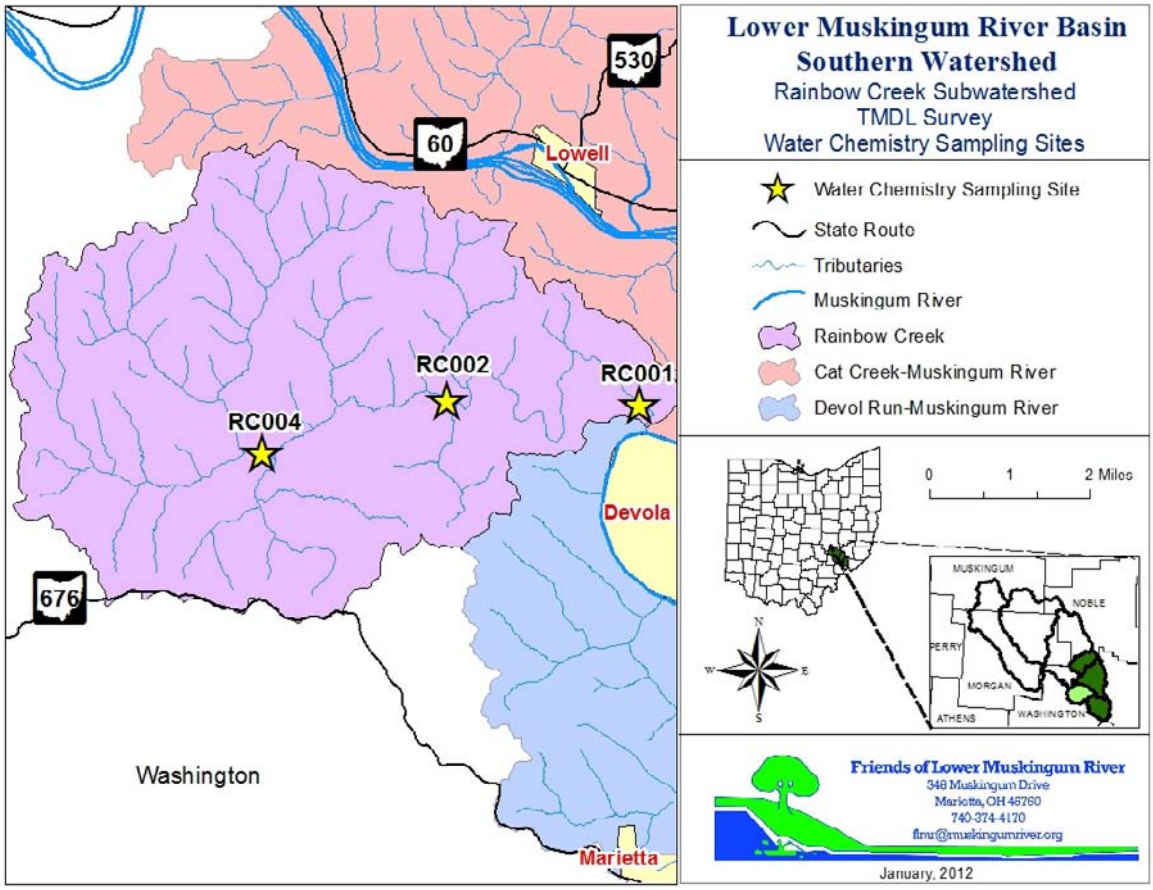
Map 2.36



Water Chemistry

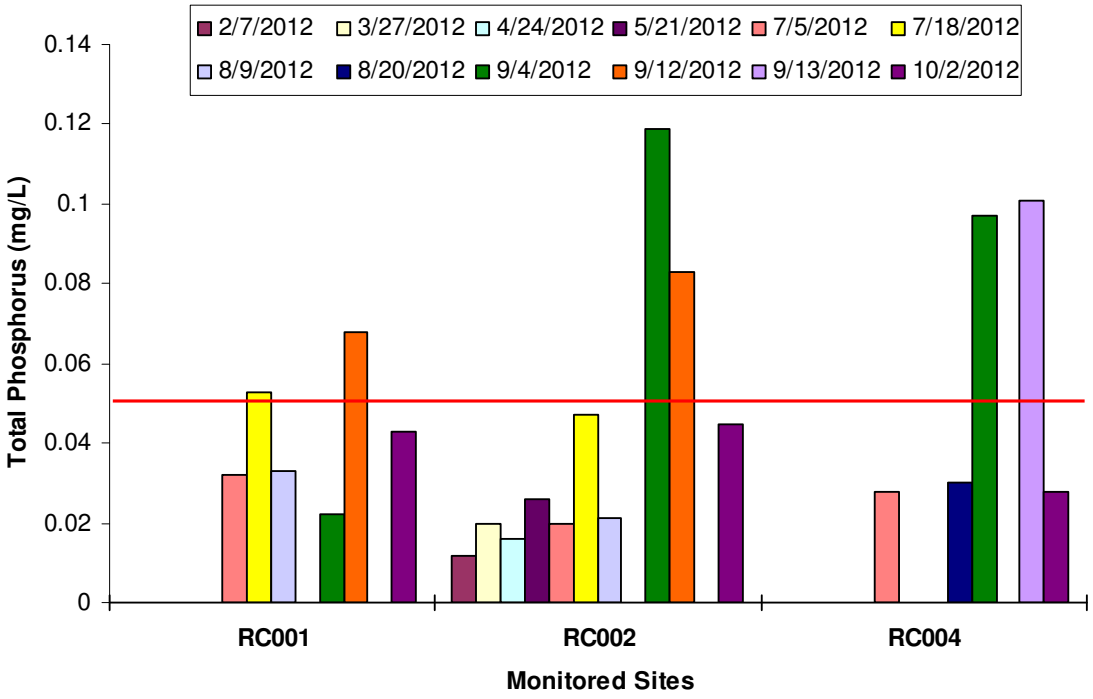
A surplus of water chemistry data was gathered from three sites throughout the Rainbow Creek subwatershed during the 2012 TMDL survey (Map 2.37) to help aid in identifying any impairments to the basin. Of the water chemistry parameters assessed within the Rainbow Creek subwatershed, Total Phosphorus (TP) and Nitrate+Nitrite were the only parameters that were exceeding either the statewide criteria or recommended target levels in at least one sample.

Map 2.37



Twenty-one samples in the Rainbow Creek subwatershed were analyzed for TP concentrations. Of those 21 samples, six exceeded the recommended target range of 0.05 mg/L (OEPA, 1999). Two of the samples that were exceeding were located at site RC001, two at RC002 and two at RC004. Figure 2:13 details the TP concentrations per each site assessed within the Rainbow Creek subwatershed. Since 39% of this basin is used for agricultural purposes, it is assumed that runoff from agricultural fields and livestock stream access are the two main sources of the encroaching nutrient enrichment occurring within the Rainbow Creek subwatershed.

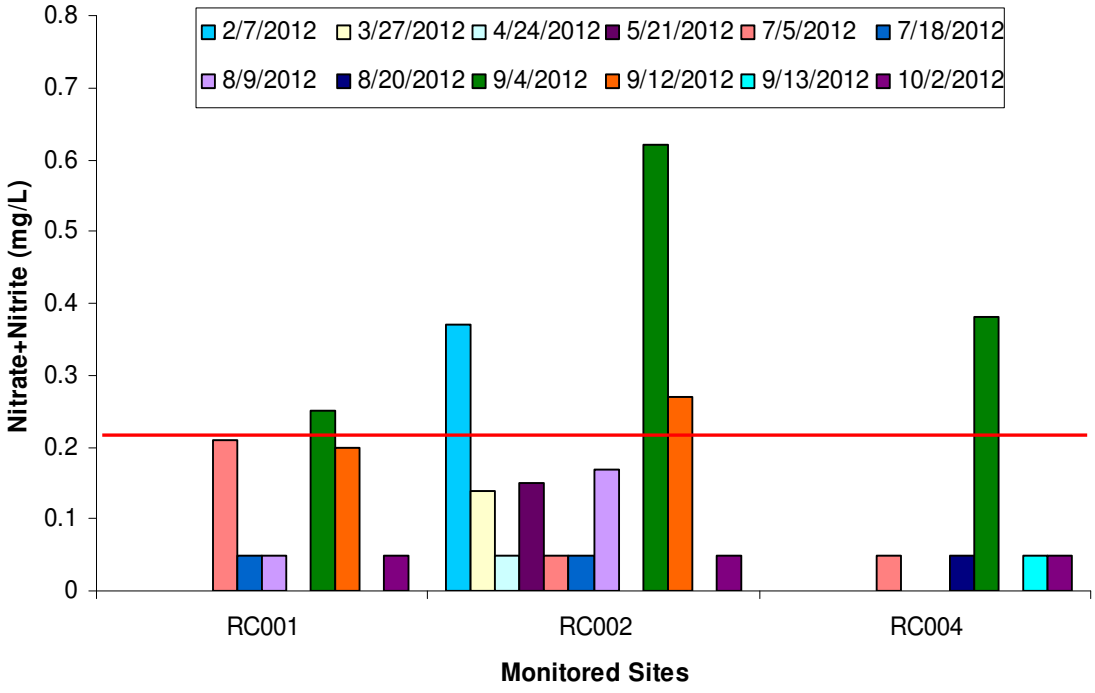
Figure 2:13
Total Phosphorus Levels from Sites Sampled in the Rainbow Creek Subwatershed During the 2012 TMDL Survey



** red line represents the recommended target range of 0.05 mg/L in samples taken from streams in the Western Alleghany Plateau with an IBI score between 40 - 60. Recommendation based on the state-wide targets found in the Association Between Nutrients, Habitat and the Aquatic Biota of Ohio Rivers and Streams (OEPA, 1999).*

Twenty-one samples in the Rainbow Creek subwatershed were also analyzed for Nitrate+Nitrite concentrations. Of those 21 samples, five exceeded the recommended target range of 0.22 mg/L (OEPA, 1999). One of the samples that was exceeding was located at site RC001, three at RC002 and one at RC004. Figure 2:14 details the Nitrate+Nitrite concentrations per each site assessed within the Rainbow Creek subwatershed. It is assumed that runoff from agricultural fields and livestock stream access are the two main sources of the nutrient enrichment occurring with the Rainbow Creek subwatershed.

Figure 2:14
Nitrate + Nitrite Levels from Sites Sampled in the Rainbow Creek Subwatershed During the 2012 TMDL Survey



** red line represents the recommended target range of 0.22 mg/L in samples taken from wadable streams in the Western Alleghany Plateau. Recommendation based on the targets found in the Association Between Nutrients, Habitat and the Aquatic Biota of Ohio Rivers and Streams (OEPA, 1999).*

PROBLEM STATEMENT #1

The Rainbow Creek subwatershed is not meeting its Class B, Primary Contact Recreation (PCR) use designation. This impairment is due to *E. coli* bacteria concentrations exceeding the State of Ohio standard at site RC002. The standard states that the geometric mean of samples taken during the recreation season (May 1st - Oct. 31st) shall not exceed 161 cfu/100ml. Samples taken from site RC002 in 2012 had a geometric mean of 278 cfu/100ml (see Section II, pg 84) **The geometric mean of samples taken from site RC002 exceeds the Ohio standard by 117 cfu/100ml.** Livestock access, failing Household Sewage Treatment Systems (HSTS) and poor quality riparian buffers along approximately 30 miles (358 acres) of streams within this subwatershed (see Section II, page 81) are the cause of this impairment.

Goal #1: Reduce the recreational season geometric mean content of *E.coli* bacteria by 117 cfu/100ml at site RC002 to achieve full attainment of the Class B, Primary Contact Recreation use designation within the Rainbow Creek subwatershed.

Objective #1: Install a minimum of approximately 14,463 linear feet of fencing and alternate watering sources on 4 farms in the Rainbow Creek subwatershed were visual inspection showed livestock stream access (see Section II, pg 90). According to the ODNR modeling, this practice could reduce soil erosion by 434 tons per year, 434 pounds of Phosphorus per year and 868 pounds of Nitrogen per year (ODNR, 2013).
(estimated project cost: $20,000 - $40,000)

Action #1: Utilize the NRCS Farm Bill programs, such as the Environmental Quality Incentives Program (EQIP) and the Conservation Reserve Program (CRP), & other programs such as the Muskingum Watershed Fencing Program to fund fencing and alternate watering sources.

Action #2: Work with the Washington County SWCD & the farm owners to install livestock exclusion fencing and alternate watering sources.

Objective #2: Upgrade 50% (130 systems) of the approximately 260 failing HSTS in the Rainbow Creek subwatershed to reduce effluent discharge by approximately 37,128 lbs/day (see Section II, pg 14).
(estimated cost per HSTS upgrade or new installation: $5,000 - $10, 000)

Action #1: Work with the Washington County Sanitarians to inspect the 260 HSTS and identify the 130 systems that would be a priority to upgrade. Priority will first be given to aerator systems that are failing and then to all other failing systems within 500 feet of any stream.

Action #2: Utilize programs such as OEPA's Water Pollution Control Loan Fund (WPCLF) to fund upgrades or new installations for failing HSTS

Action #3: Work with the Washington County Sanitarians, identified home owners & local contractors to upgrade failing HSTS or to install new systems.

Objective #3: Plant riparian buffers composed of native trees, shrubs and grasses on 358 acres of currently classified "poor quality" riparian corridors throughout the Rainbow Creek subwatershed. According to ODNR modeling, this practice could reduce soil sediment by 634 tons per year, 1,268 pounds of Phosphorus per year and 2,536 pounds of Nitrogen per year (ODNR,2013)
(estimated costs: $6,000 - $9,000 per 5 acres)

Action #1: Conduct field investigations to build relationships with landowners and to determine specific sites for buffers.

Action #2: Collaborate with the ODNR Division of Forestry, Appalachian Coal Country Team (ACCT), and/or other agencies or organizations to fund these buffer plantings

Action #3: Recruit volunteers to conduct buffer plantings.

Table 2-51
Implementation Table for the Rainbow Creek Subwatershed

*Action Plan	Activity	Available Resources	Funding Source	Timeline (start-end)	Indicator
1.1.1.1	Outreach, education, grant writing	FLMR, Wash. Co. SWCD Ohio State University Extension	NRCS, Ohio EPA, USDA	2013-2017	**Minimum of 2** Number of funding applications submitted
1.1.1.2	Implementation	FLMR, Wash. Co. SWCD	FLMR	2013-2015	**14,463 linear feet** of fencing installed
1.1.2.1	Research & investigation	FLMR, Wash. Co. Health Dept.	Washington County	2013-2015	**1-** List of systems identified
1.1.2.2	Grant writing	FLMR	Ohio EPA	2014-2015	**Minimum of 2** Number of funding applications submitted
1.1.2.3	Implementation	FLMR, Wash. Co. Health Dept.	FLMR	2015-2016	**1-** List of upgraded systems
1.1.3.1	Research & investigate	FLMR; AmeriCorps VISTA	FLMR	2013-2015	**1-** List of sites for buffer improvements
1.1.3.2	Grant writing	FLMR; AmeriCorps VISTA	ODNR, ACCT, USDA	2014-2016	**Minimum of 2** Number of grant applications submitted
1.1.3.3	Recruit volunteers	FLMR; AmeriCorps VISTA	FLMR	2015-2016	**1-** List of volunteers recruited

Numbering system refers to **Problem Statement → Goal → Objective → Action*
(i.e. 1.2.1.2 = Problem Statement #1; Goal #2; Objective #1; Action #2)

Table 2-52
Rainbow Creek Subwatershed Load Reduction Goals from the Action Plan

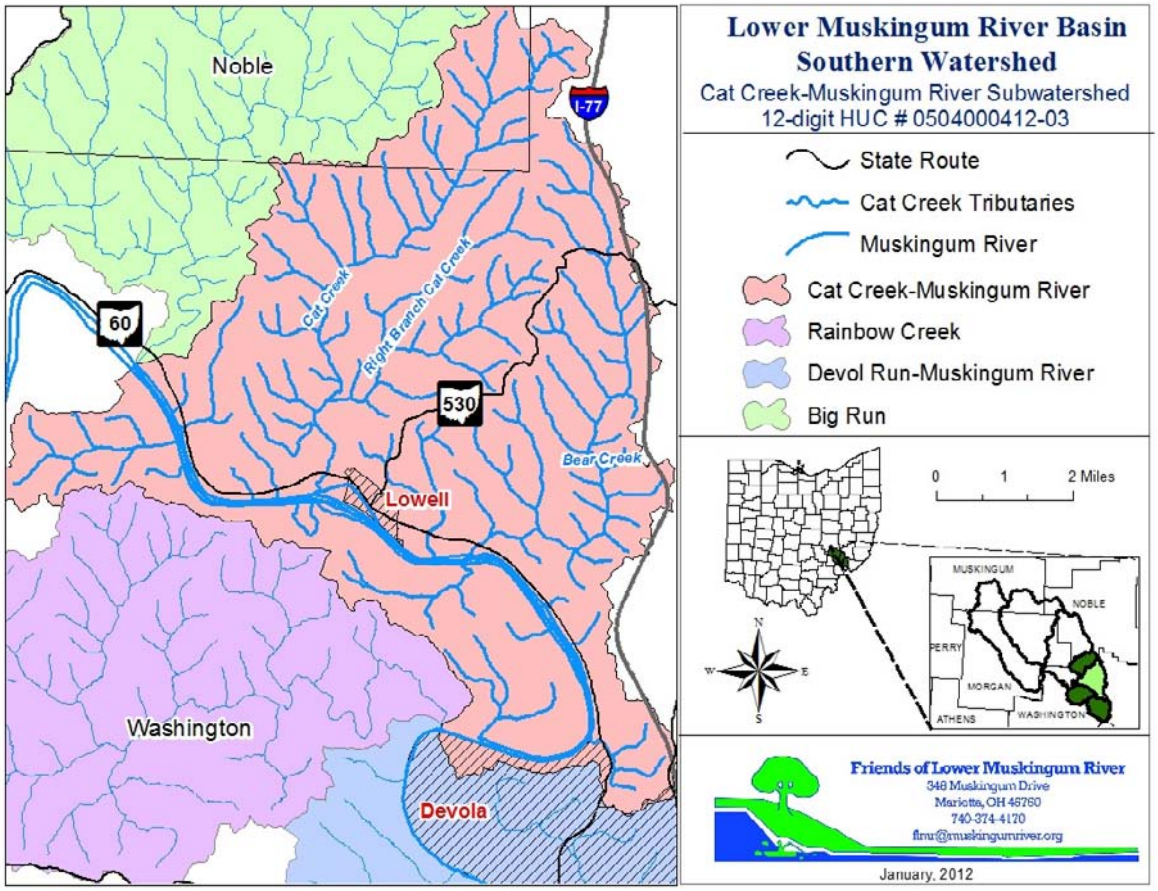
	Types of Load Reductions			
*Action Plan Item	Effluent Discharge (lbs/day)	Sediment/Erosion (tons/yr)	Phosphorus (lbs/yr)	Nitrogen (lbs/yr)
1.1.1	----	434	434	868
1.1.2	37,128	----	----	----
2.2.1	----	634	1,268	2,536

Numbering system refers to **Problem Statement → Goal → Objective*
(i.e. 1.2.1 = Problem Statement #1; Goal #2; Objective #1)

CAT CREEK - MUSKINGUM RIVER SUBWATERSHED

12-digit HUC: 0504000412-03

Map 2.38



Quick Facts	
Drainage Area:	32.5 sq. mi (20,800 acres)
Approximate Population:	2,162
Primary Land Use:	Forest (14,152 acres)
Secondary Land Use:	Agriculture (3,811 acres)
% of subwatershed in 100 yr floodplain:	9.77% (2,032 acres)
% Highly Erodible Land:	87% (18,078 acres)
Aquatic Life Use Designation:	Warmwater Habitat
Aquatic Life Use Attainment Status:	**FULL**

Subwatershed Description

The Cat Creek-Muskingum River subwatershed (12-digit HUC # 0504000412-03) is the largest subwatershed by land area in the Southern basin. It drains approximately 32.5 square miles of land throughout a small portion of Noble County and mainly within Washington county. This subwatershed contains 12.51 miles of the Muskingum River (6.4 miles of which is designated as "Superior High Quality Waters") and drains two noteworthy tributaries, Cat Creek and Bear Creek. The Village of Lowell is also located within the Cat Creek subwatershed and adds to the overall total population of approximately 2,162. Tables 2-53, 2-54 and 2-55 detail the administrative boundaries of the Cat Creek-Muskingum River subwatershed.

Table 2-53
Counties in the Cat Creek-Muskingum River Subwatershed

Counties	Acres of Subwatershed in County
Washington	19,454
Noble	1,351

(ERIN, 2012)

Table 2-54
Townships in the Cat Creek-Muskingum River Subwatershed

Townships	Acres of Subwatershed in Township
Adams (WASH)	11,826
Muskingum (WASH)	3,891
Salem (WASH)	3,079
Jackson (NOBLE)	1,350
Aurelius (WASH)	590
Waterford (WASH)	69

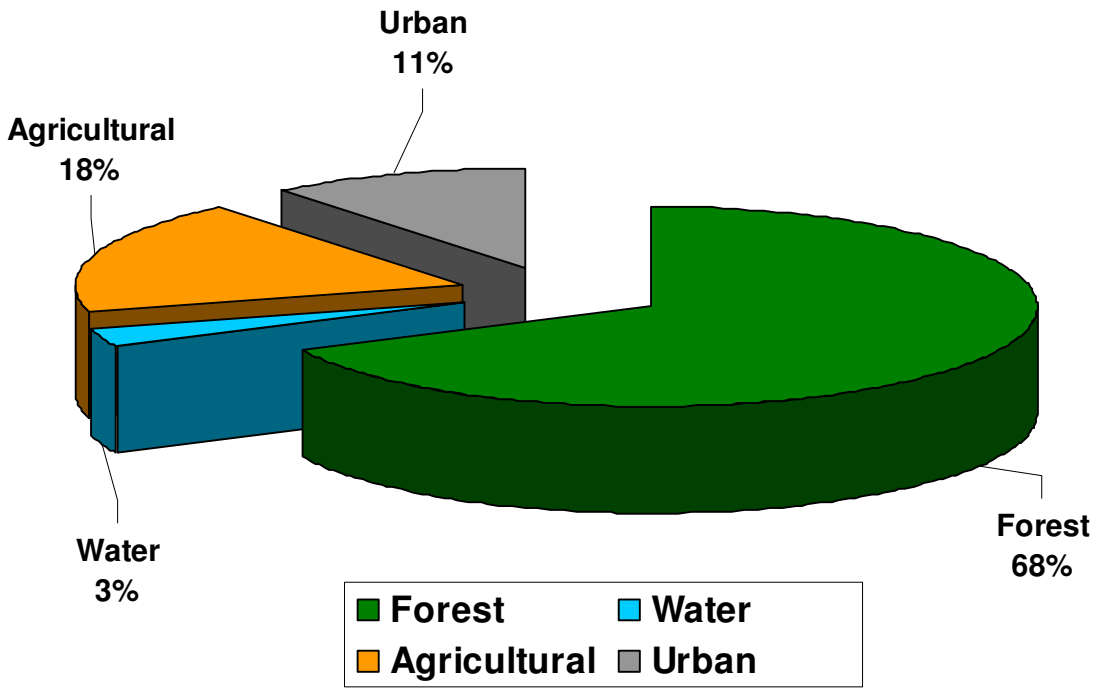
Table 2-55
School Districts in the Cat Creek-Muskingum River Subwatershed

School Districts	Acres of Subwatershed in School District
Fort Frye Local	15,081
Marietta City	3,916
Caldwell Exempted Village	1,739
Wolf Creek Local	69

(ERIN, 2012)

Primarily, lands within the Cat Creek-Muskingum River subwatershed are made up of deciduous hardwoods and softwood evergreen forests. Forests are the biggest use of the land in this basin, accounting for 68% or 14,152 acres of the total land area. Agricultural land use (i.e. fields for cultivation, pasture/hay fields, etc.) also make up a large portion of the Cat Creek subwatershed, accounting for 18% or 3,811 acres of the total land area. A breakdown of land use practices in the Cat Creek subwatershed can be seen in Figure 2:15.

Figure 2:15
Land Use in the Cat Creek-Muskingum River Subwatershed

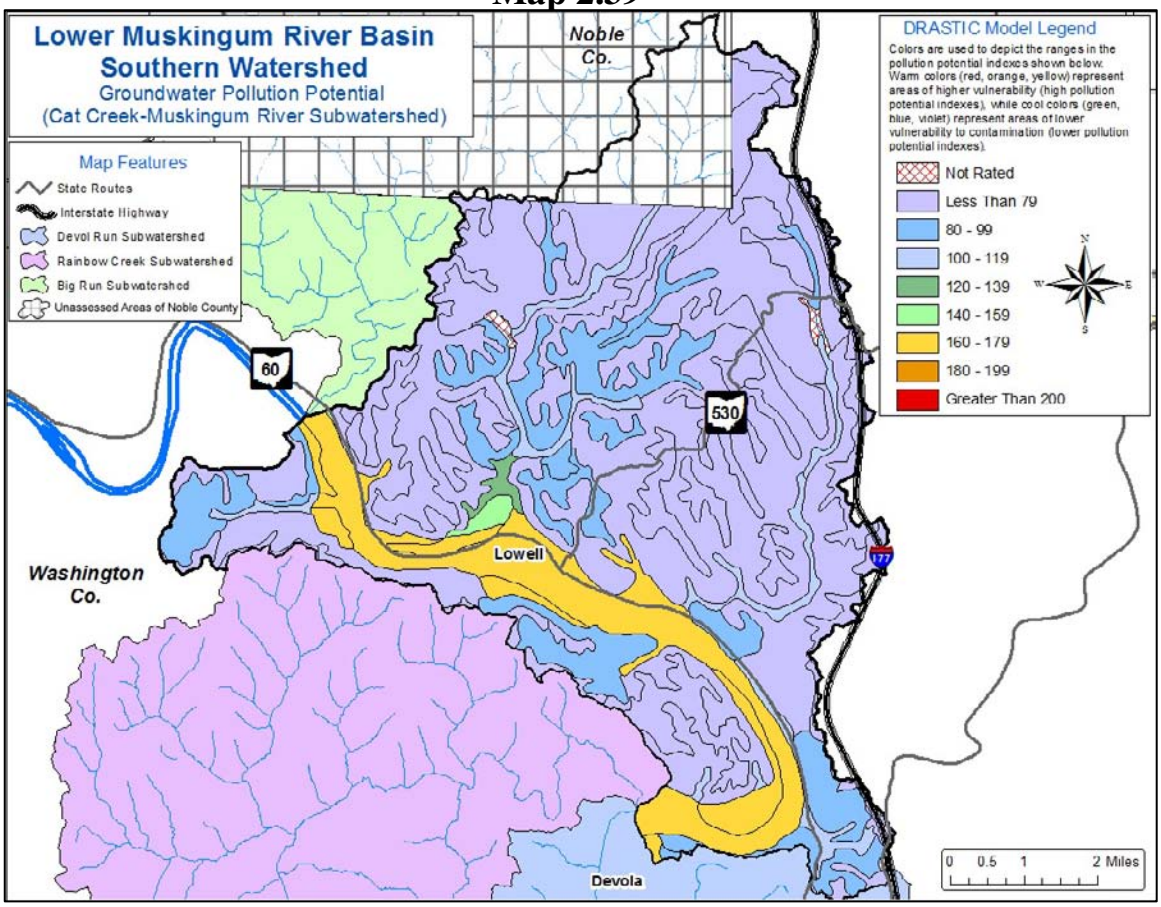


WATER QUALITY

Drinking and Ground Water

DRASTIC modeling to depict Groundwater Pollution Potential has been completed for most of the Cat Creek-Muskingum River subwatershed (other than a portion not assessed in Noble County) by the Ohio Department of Natural Resources and can be seen in Map 2.39 (see Section II, pages 29-32). From this map it can seen that the entire mainstem portion of the Muskingum River within this subwatershed is highly susceptible to groundwater pollution. Although, the headwaters within this basin have a low susceptibility to pollution.

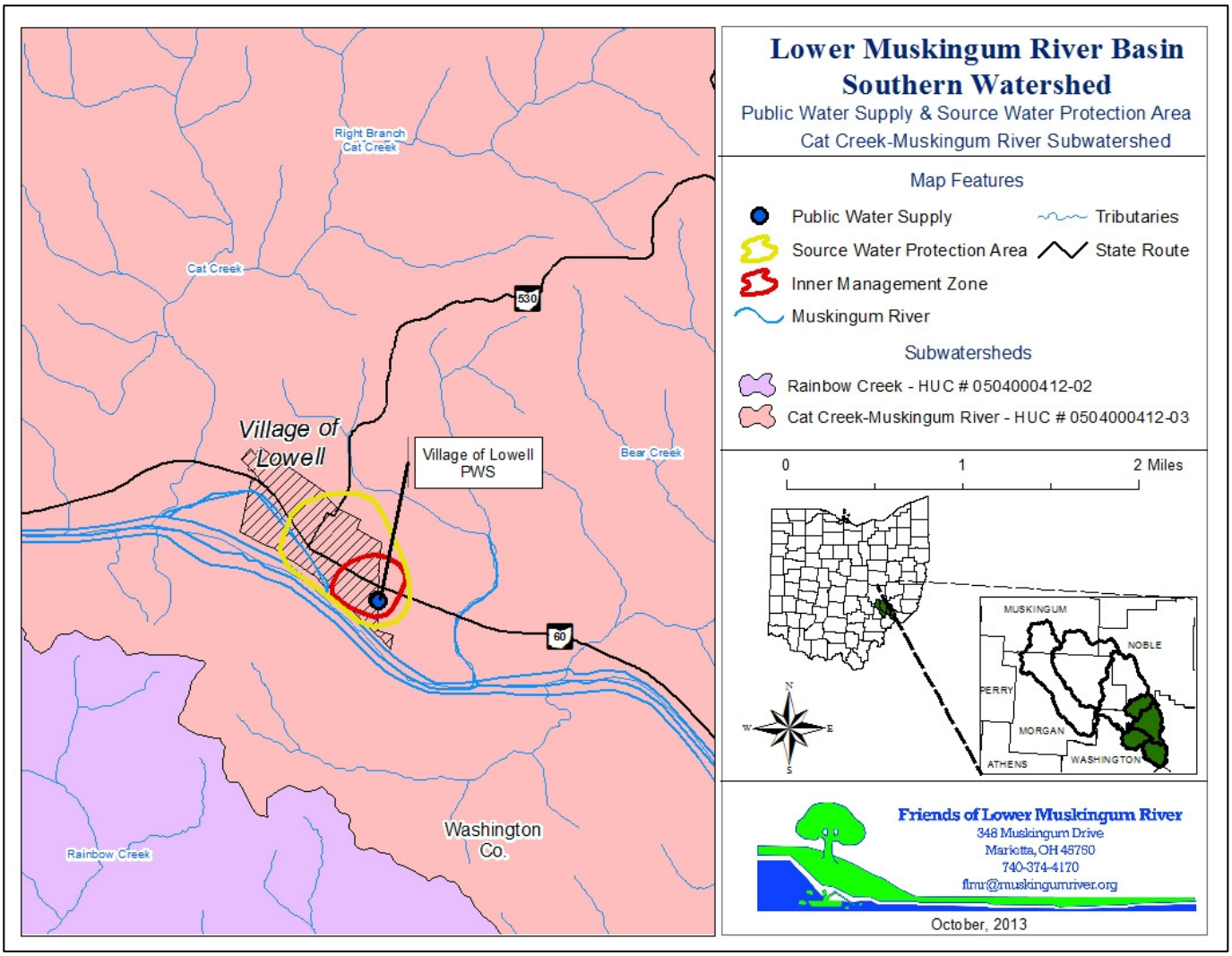
Map 2.39



One Public Water Supply (PWS), operated by the Village of Lowell, does exists in the Cat Creek-Muskingum River subwatershed and supplies water to 317 homes within approximately a 1/4 mile radius of the village. Other residents in the basin obtain their drinking

water from either Tri-County Rural Water and Sewer District, Putnam Community Water Association or from private wells. Since this PWS lies within a groundwater region with a high pollution potential index, a Source Water Protection Area has been established by Ohio EPA to protect the aquifer surrounding this well field. Map 2. 40 shows the Source Water Protection Area for this wellfield. Since the groundwater aquifers along the Muskingum River are recharged from surface water sources, it is anticipated that the actions proposed later in this section, on pages 118-121, will also benefit the drinking water resources of the Cat Creek-Muskingum River basin.

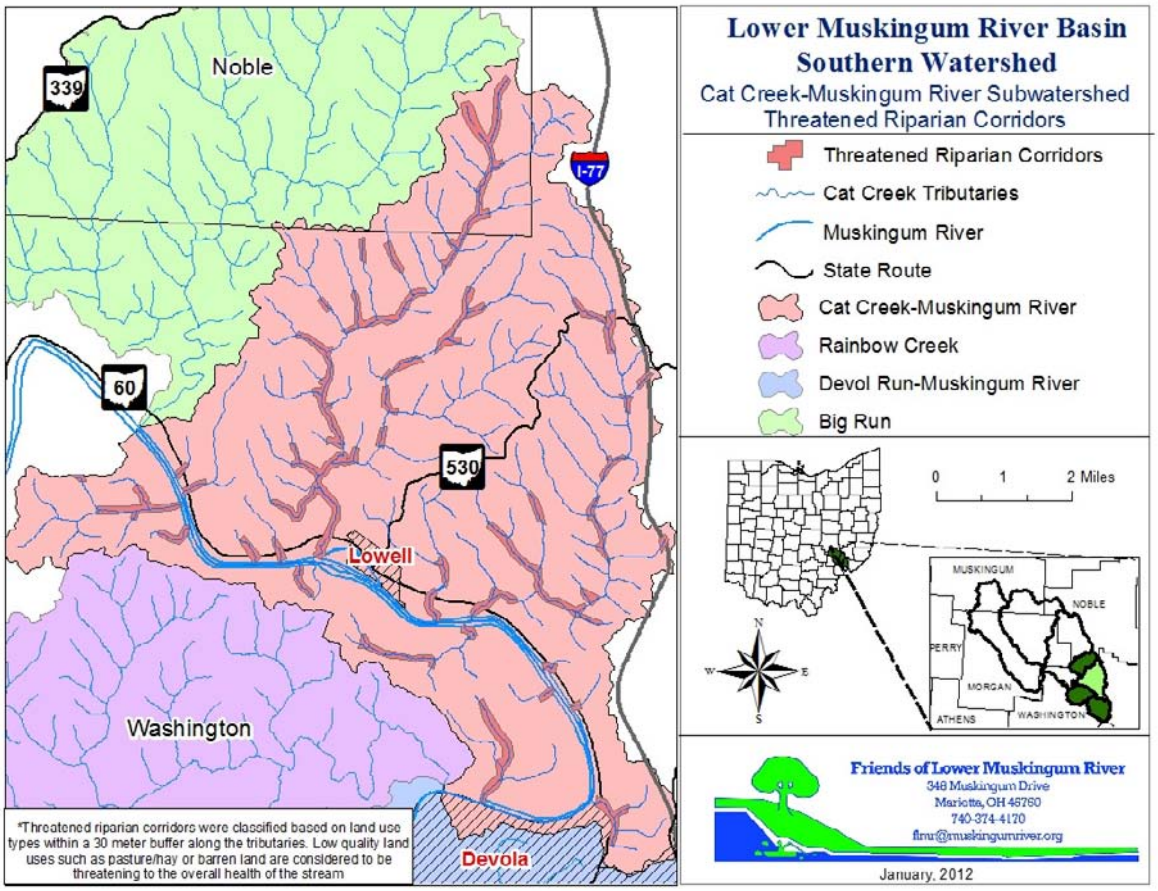
Map 2.40



Riparian Corridor

A riparian corridor assessment showed that 76% (1,241 acres and approx. 104 miles of stream) of the riparian corridors in the Cat Creek-Muskingum River subwatershed are considered "High Quality" and 24% (394 acres and approx. 33 miles of stream) are considered "Low Quality". For this assessment, "Low Quality" riparian zones included land use practices such as developed land, barren land, shrub/scrub, grassland, herbaceous, pasture/hay fields, or cultivated crops. "High Quality" riparian zones include land use practices such as deciduous forest, evergreen forest, mixed forest and wetlands. Map 2.41 depicts the riparian corridor regions of the Cat Creek subwatershed that are threatened by the encroaching land uses around them.

Map 2.41

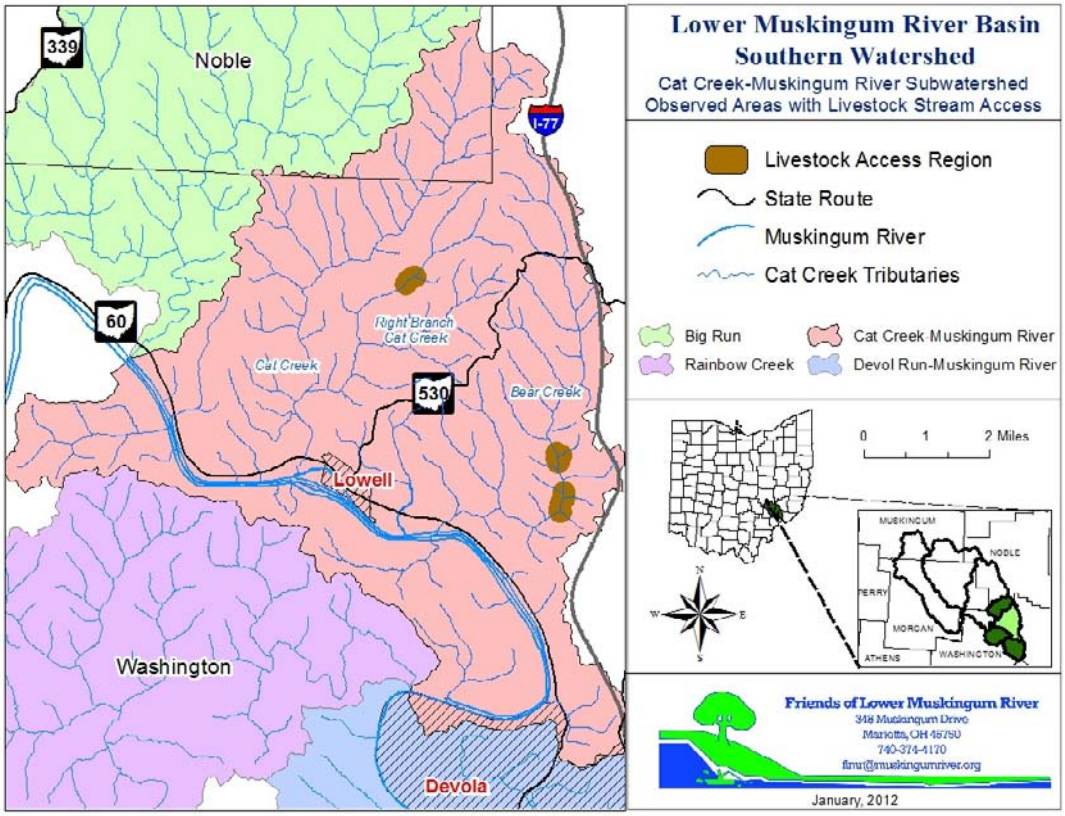


Livestock Stream Access

A field survey in the winter of 2012-2013 identified three segments of stream, totaling approximately 1,982 linear feet of stream bank (estimated using the measure tool in ArcMap 10.1), in the Cat Creek-Muskingum River subwatershed being used as a watering source for both cattle and horses on what seemed to be 3 different farms. From a "car window survey", it is estimated that 50-100 head of livestock have access to streams at these sites. These locations were recorded and are highlighted in Map 2.42.

Cattle access to Bear Creek
(Cat Creek-Muskingum River Subwatershed)

Map 2.42



Qualitative Habitat Evaluation Index (QHEI)

In-stream habitat assessments were conducted using the QHEI during the 2012 Ohio EPA TMDL survey on three stream segments within the Cat Creek-Muskingum subwatershed. Two of the sites (at RM 0.35 and 0.25) that were assessed showed to have habitat characteristics considered to be "excellent" and one site (at RM 0.11) had characteristics considered to be "good" at supporting aquatic life. QHEI scores from this assessment can be seen in Table 2-56.

Table 2-56
QHEI Scores for Stream Segments in the Cat Creek-Muskingum River Watershed

Subwatershed	Stream Segment	Location	River Mile	QHEI Score	QHEI Narrative Rating
Cat Creek - Muskingum River	Cat Creek	SR 60/Lowell Loop rd	0.35	***78.0***	Excellent
	Right Br (Cat Creek)	TR 115	0.25	***71.3***	Excellent
	Bear Creek	SR60	0.11	***63.0***	Good

Biology

The Cat Creek-Muskingum River subwatersheds Warmwater Habitat aquatic life use designation was investigated as part of the 2012 TMDL survey and also during the 2006 Ohio EPA Biological and Water Quality Study of the Muskingum River (OEPA, 2006). Both studies examined the species composition, diversity and functional organization of both fish and benthic macro-invertebrates throughout the basin. During the TMDL survey, fish communities and macro-invertebrate communities were assessed at three stream segments within the basin. One of the sites was located in Cat Creek (RM 0.35), one in the Right Branch of Cat Creek (RM 0.25) and one in Bear Creek (RM 0.11). Fish communities were assessed using the Index of Biotic Integrity (IBI) and macro-invertebrates communities were given a narrative rating. From the TMDL investigation it was determined that all of the sites sampled in the Cat Creek-Muskingum River subwatershed were in full attainment of their aquatic life use designation. The results from the TMDL biological survey can be seen in Table 2-57. According to Kelly Capuzzi with the Ohio EPA TMDL crew, the "Right Branch of Cat Creek has biological and habitat scores consistent with the Exceptional Warmwater Habitat (EWH) use designation, so a recommendation will be made to change the current use designation of WWH to EWH".

Table 2-57
Biological Use Attainment of Streams Segments in the Cat Creek-Muskingum River Subwatershed From the 2012 TMDL Survey

Subwatershed	Stream Segment	Location	River Mile	IBI Score	Macro-invertebrate Score	Attainment
Cat Creek - Muskingum River	Cat Creek	SR 60/Lowell Loop rd	0.35	50	Very Good	Full
	Right Br (Cat Creek)	TR 115	0.25	56	Exceptional	Full
	Bear Creek	SR60	0.11	44	Exceptional	Full

During the 2006 Ohio EPA study, the biological attainment of the mainstem portion of the Muskingum River was assessed using the Index of Biotic Integrity (IBI), Modified Index of Well-being (MIwb), Invertebrate Community Index (ICI) and the Qualitative Habitat Evaluation Index (QHEI). Two segments of the Muskingum River were surveyed during this study. One location was the "Lowell dam pool" (RM 20.9) and the other location was the "Lowell dam tailwaters" (RM 13.9). From this study it was determined that these two segments of the Muskingum River were in full attainment of their warmwater habitat aquatic life use designation. Table 2-58 summarizes the results of this study.

Table 2-58
Biological Use Attainment of the Muskingum River Segment in the Cat Creek-Muskingum River Subwatershed From the 2006 Ohio EPA Study (OEPA, 2006)

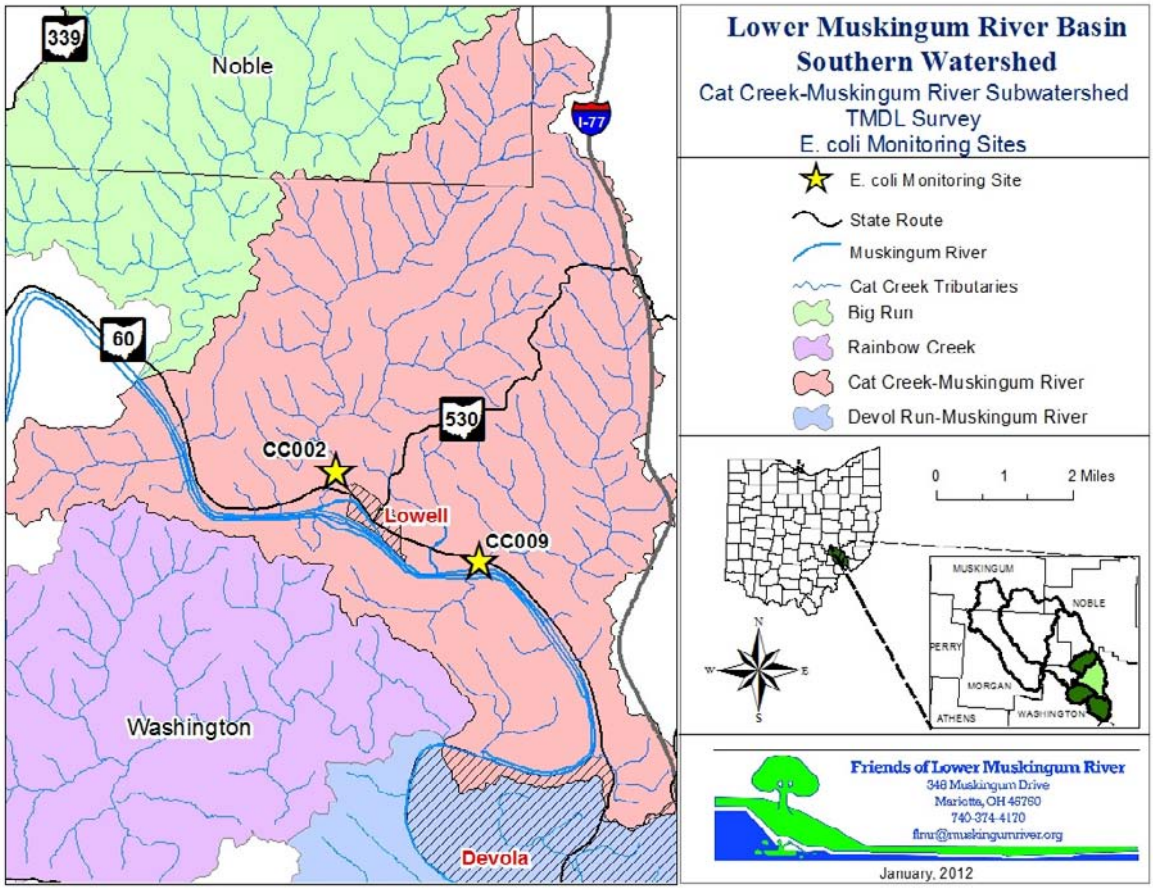
Sample Site River Mile	IBI	MIwb	ICIa	QHEI	Location	Attainment Status
20.9	40	9.1	50	62.0	Lowell dam pool	FULL
13.9	42	10.3	42	86.0	Lowell dam tailwaters	FULL

Bacteria

The Cat Creek-Muskingum River Subwatershed has also been given a recreational use designation by the state of Ohio. Currently this basin is classified as Class B, Primary Contact Recreation (PCR) which means that it can be used for occasional recreation activities (i.e. wading, fishing). To determine if the Cat Creek-Muskingum River subwatershed was meeting its recreational use designation, the Ohio EPA TMDL crew analyzed bacteria samples (specifically *E. coli*) from two sites in the basin. One site, referred to as CC002 for the purposes of this plan, is

located near the mouth of Cat Creek and the other site, CC009, is located near the mouth of Bear Creek. These sites are in locations that account for the entire drainage area of each of those creeks (Map 2.43).

Map 2.43



The Ohio Administrative Code (section 3745-1-07) states that a water bodies recreational use attainment is based on comparing the sampling sites geometric mean of E. coli concentrations in samples taken throughout the recreation season (May 1st - October 31st) to the PCR Class B criterion of 161 cfu/100ml. Seven samples from CC002 and three samples from CC009 were analyzed for E. coli concentrations throughout the recreation season. A geometric mean of 204 cfu/100ml was the result obtained from site CC002 and a geometric mean of 748 cfu/100ml was the result obtained from site CC009. From those results it was determined that both sites CC002 and CC009, and therefore the Cat Creek-Muskingum River subwatershed, are not attaining their PCR Class B recreational use designation. Cat Creek and Bear Creek are impacted by fecal matter

due to unsanitary conditions from household sewage treatment systems (HSTS) and/or agricultural activities such as pasture land runoff and manure land application (Capuzzi, 2012). Table 2-59 details the results of the E. coli investigation in the Cat Creek-Muskingum River subwatershed.

Table 2-59
Summary of E. coli Data Collected From Streams in the Cat Creek-Muskingum River Subwatershed

Subwatershed	Site Number	Location	# of samples	Maximum Value	Geometric Mean
Cat Creek - Muskingum River	CC002	SR 60/Lowell Loop rd	7	1,200	**204**
	CC009	SR60	3	2,700	**748**

* Recreation use attainment is based on comparing the geometric mean to the Primary Contact Recreation (PCR) Class B geometric mean water quality criterion of 161 cfu/100 ml (Ohio Administrative Code 3745-1-07). All values are expressed in colony forming units (cfu) per 100 ml of water. Values highlighted yellow exceed the applicable PCR Class B geometric mean criterion.

In an attempt to identity potential problem areas created by failing Household Sewage Treatment Systems (HSTS), Fecal Coliform bacteria samples were also gathered throughout the Cat Creek-Muskingum River subwatershed. Five sites throughout the basin were sampled and assessed for Fecal Coliform concentrations throughout the recreation season. Samples were analyzed by both the Ohio EPA TMDL crew and by the City of Marietta's Waste Water Treatment Plant.

Originally, the Ohio EPA would assess bacteria levels during the TMDL process by analyzing samples for Fecal Coliform concentrations. In 1999, the state changed its standard to analyze E. coli bacteria instead, because of its ability as a better indicator of contamination. For this study, the former Ohio standard of a geometric mean of 1,000 cfu/100 ml in 5 samples gathered during a 30 day period was used. Unfortunately, 5 samples were not able to be obtained from each site during a 30 day period. None-the-less, the geometric mean of all samples taken per site was still compared to the of 1,000 cfu/100ml target range to determine if Fecal Coliform was a potential contaminate. All of the five sites assessed for Fecal Coliform content in the Cat Creek subwatershed were below the 1,000 cfu/100 ml target range. Table 2-60 details the results of the Fecal Coliform investigation and Map 2.44 shows the proximity of homes with HSTS to the Fecal Coliform monitoring sites.

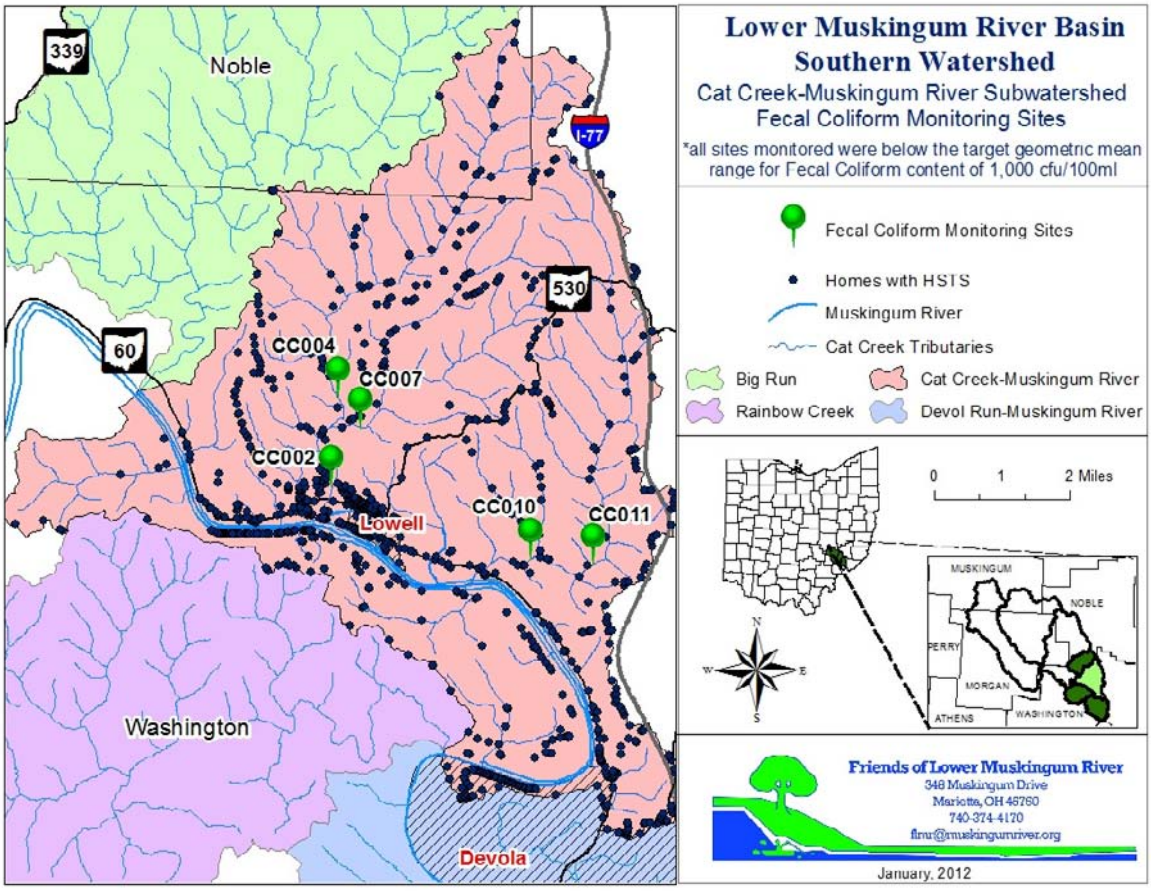
Table 2-60
Summary of Fecal Coliform Data Collected From Sites in the Cat Creek-Muskingum River Subwatershed

Fecal Coliform attainment is based on comparing the geometric mean to the target geometric mean range of 1,000 cfu/100 ml. All values are expressed in colony forming units (cfu) per 100 ml of water. Values highlighted yellow exceed the recommended target range.

Site Number	Month Sampled	Analyzed By	Result (cfu/100ml)	Geomean (cfu/100ml)
CC002	May 2012	WWTP	2,533	478
	May 2012	OEPA	120	
	July 2012	OEPA	870	
	July 2012	OEPA	200	
	August 2012	OEPA	430	
	August 2012	OEPA	180	
	September 2012	WWTP	1,400	
CC004	May 2012	WWTP	100	130
	August 2012	OEPA	170	
	September 2012	WWTP	136	
CC007	May 2012	WWTP	440	94
	August 2012	OEPA	20	
	September 2012	WWTP	1,867	
CC010	May 2012	WWTP	330	357
	July 2012	OEPA	770	
	August 2012	OEPA	1,600	
	August 2012	OEPA	40	
	September 2012	WWTP	4,600	
CC011	May 2012	WWTP	733	148
	August 2012	OEPA	30	
	September 2012	WWTP	1,233	

** WWTP= City of Marietta Waste Water Treatment Plant; OEPA= Ohio Environmental Protection Agency*

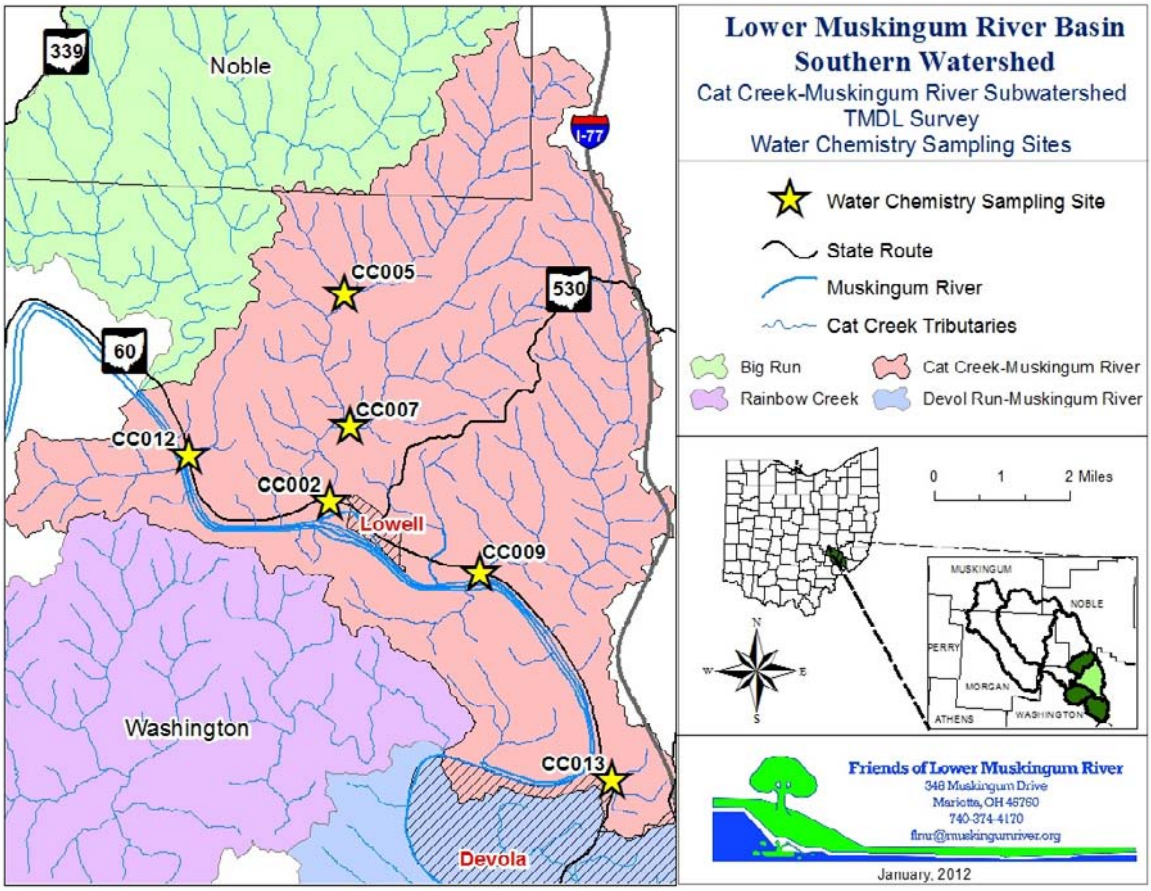
Map 2.44



Water Chemistry

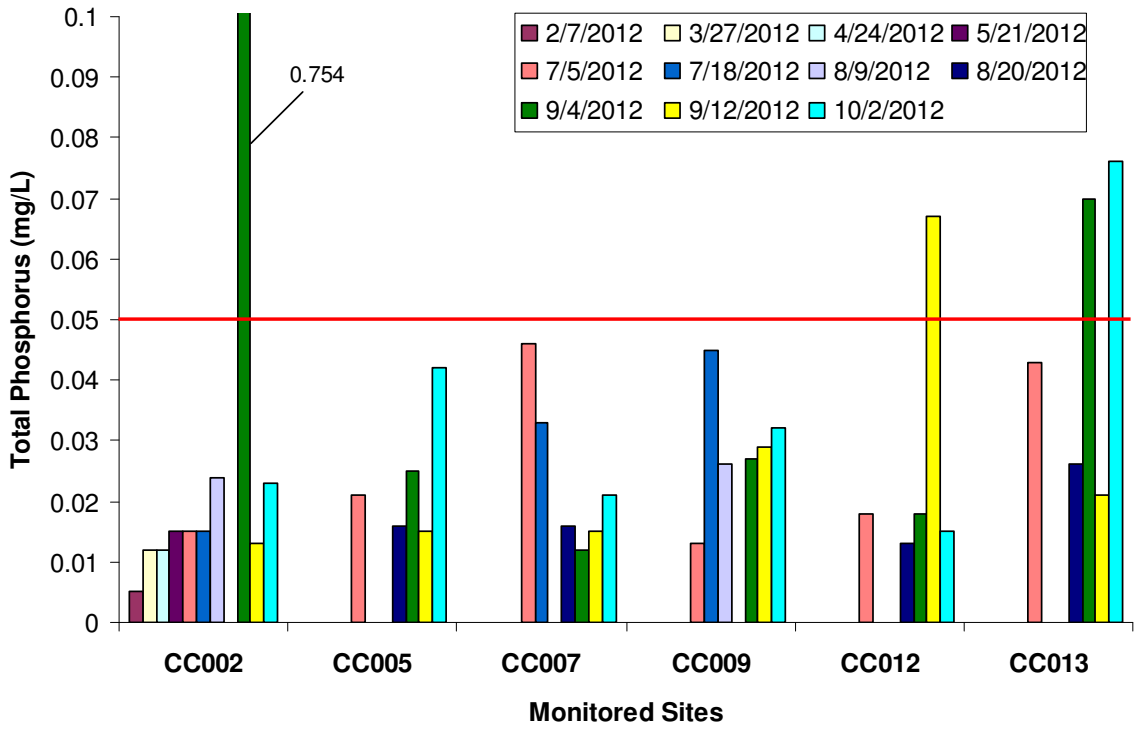
A surplus of water chemistry data was gathered from six sites throughout the Cat Creek-Muskingum River subwatershed during the 2012 TMDL survey to help aid in identifying any impairments to the basin (Map 2.45). Of the water chemistry parameters assessed within the Cat Creek-Muskingum River subwatershed, Total Phosphorus (TP) and Nitrate+Nitrite were the only parameters that were exceeding either the statewide criteria or recommended target levels in at least one sample.

Map 2.45



Thirty-seven samples in the Cat Creek-Muskingum River subwatershed were analyzed for TP concentrations. Of those 37 samples, 4 exceeded the recommended target range of 0.05 mg/L (OEPA, 1999). One of the samples that was exceeding is located at site CC002, one at CC012 and two at CC013. Figure 2:16 details the TP concentrations per each site assessed within the Cat Creek-Muskingum River subwatershed.

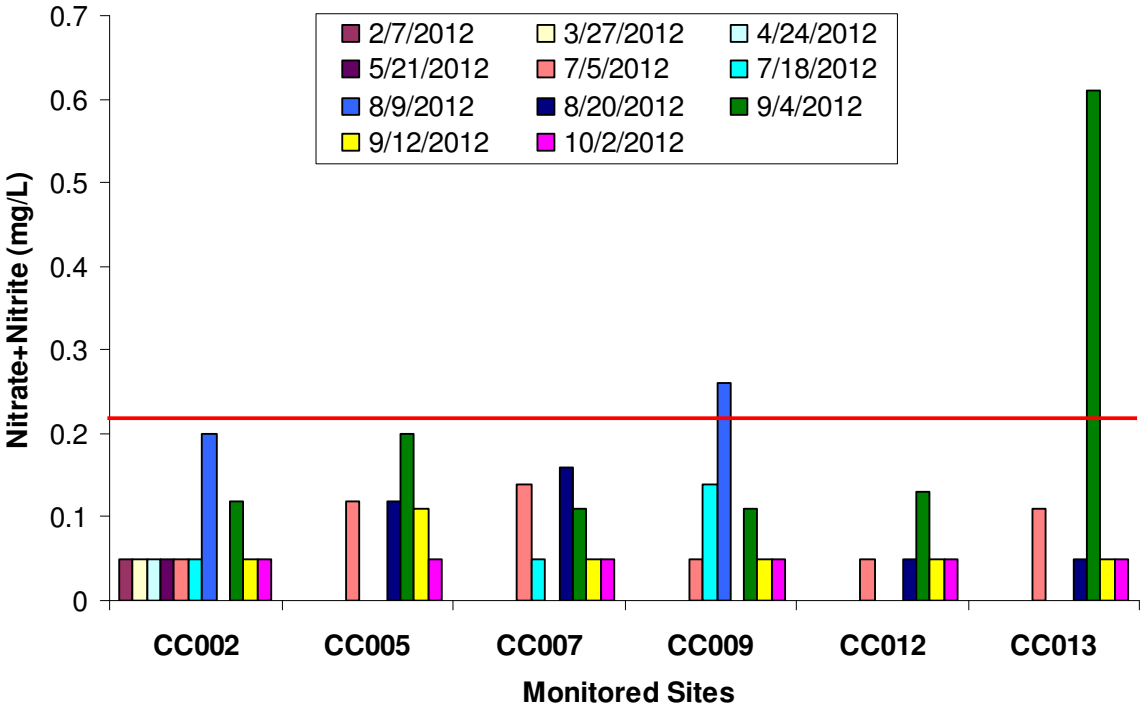
Figure 2:16
Total Phosphorus Levels from Sites Sampled in the Cat Creek-Muskingum River Subwatershed During the 2012 TMDL Survey



** red line represents the recommended target range of 0.05 mg/L in samples taken from streams in the Western Alleghany Plateau with an IBI score between 40 - 60. Recommendation based on the state-wide targets found in the Association Between Nutrients, Habitat and the Aquatic Biota of Ohio Rivers and Streams (OEPA, 1999).*

Thirty-seven samples in the Cat Creek-Muskingum River subwatershed were also analyzed for Nitrate+Nitrite concentrations. Of those 37 samples, two exceeded the recommended target range of 0.22 mg/L (OEPA, 1999). One of the samples that was exceeding was located at site CC009 and the other at CC013. Figure 2:17 details the Nitrate+Nitrite concentrations per each site assessed within the Cat Creek-Muskingum River subwatershed.

Figure 2:17
Nitrate + Nitrite Levels from Sites Sampled in the Cat Creek-Muskingum River Subwatershed During the 2012 TMDL Survey



** red line represents the recommended target range of 0.22 mg/L in samples taken from wadable streams in the Western Alleghany Plateau. Recommendation based on the targets found in the Association Between Nutrients, Habitat and the Aquatic Biota of Ohio Rivers and Streams (OEPA, 1999).*

PROBLEM STATEMENT #1

The Cat Creek-Muskingum River subwatershed is not meeting its Class B, Primary Contact Recreation (PCR) use designation. This impairment is due to *E. coli* bacteria concentrations exceeding the State of Ohio standard at sites CC002 and CC009. The standard states that the geometric mean of samples taken during the recreation season (May 1st - Oct. 31st) shall not exceed 161 cfu/100ml. In 2012, samples taken from site CC002 had a geometric mean of 204 cfu/100ml and site CC009 had a geometric mean of 748 cfu/100ml (see Section II, pg 100). **The geometric mean of samples taken from site CC002 exceeds the Ohio standard by 43 cfu/100ml and exceeds the standard at site CC009 by 587 cfu/100ml.** Livestock access to Cats Creek & failing Household Sewage Treatment Systems (HSTS) are the probable cause of this impairment.

Goal #1: Reduce the recreational season geometric mean content of *E.coli* bacteria by 43 cfu/100ml at site CC002 and by 587 cfu/100 ml at site CC009 to achieve full attainment of the Class B, Primary Contact Recreation use designation within the Cat Creek-Muskingum River subwatershed.

Objective #1: Install a minimum of approximately 1,982 linear feet of fencing and alternate watering sources on 3 farms in the Cat Creek-Muskingum River subwatershed were visual inspection showed livestock stream access (see Section II, pg 108). According to ODNR modeling, this practice could reduce soil erosion by 60 tons per year, 60 pounds of Phosphorus per year and 119 pounds of Nitrogen per year (ODNR,2013) (estimated project cost: $2,000 - $5,000)

Action #1: Utilize the NRCS Farm Bill programs, such as the Environmental Quality Incentives Program (EQIP) and the Conservation Reserve Program (CRP), & other programs such as the Muskingum Watershed Fencing Program to fund fencing and alternate watering sources.

Action #2: Work with the Washington and Noble Counties SWCD's & the farm owners to install livestock exclusion fencing and alternate watering sources.

Objective #2: Upgrade 50% (495 systems) of the approximately 990 failing HSTS in the Cat Creek-Muskingum River subwatershed to reduce effluent discharge by approximately 141,372 lbs/day. (see Section II, pg 16).
(estimated cost per HSTS upgrade or new installation: $5,000 - $10, 000)

Action #1: Work with stakeholders from the Village of Lowell and the Washington County Commissioners to apply for funding through Ohio EPA programs such as the Water Resource Restoration Sponsor Program (WRSSP) to upgrade the Villages WWTP and to connect all of the 289 homes within the Village limits to the new sanitary sewer system.

Action #2: Work with the Washington & Noble County Sanitarians to inspect the 990 HSTS and identify the 495 systems that would be a priority to upgrade. Priority will first be given to aerator systems that are failing and then to all other failing systems within 500 feet of any stream.

Action #3: Utilize Ohio EPA's Water Pollution Control Loan Fund (WPCLF) to fund upgrades or new installations for failing HSTS impacting the Cat Creek-Muskingum River subwatershed

Action #4: Work with the Washington & Noble County Sanitarians, the identified home owners and local contractors to upgrade failing HSTS or to install new systems.

PROBLEM STATEMENT #2

Streams within the Cat Creek-Muskingum River subwatershed exhibit both Exceptional Warmwater Habitat and Warmwater Habitat features. Overall, the entire subwatershed is currently in full attainment of its aquatic life use designation. Although, the Ohio EPA plans to recommend that the Right Branch of Cat Creek be upgraded to an Exceptional Warmwater Habitat use designation. No immediate impacts exist that are impairing this basin, approximately 24% (394 acres) of riparian corridors in the subwatershed are considered to be low quality (see Section II, pg 107) and could create future impairments if not properly managed.

Goal #1: Preserve the exceptional biological and habitat features of the Cat Creek-Muskingum River subwatershed

Objective #1: Establish permanent protections on 10% (approx. 2,081 acres) of the basin (estimated project cost: $100 - $200)

Action #1: Host a Conservation/Agricultural Easements educational workshop for landowners in the Cat Creek-Muskingum River subwatershed. Target participants by a mass mailing.

Action #2: Work with the FLMR Land Trust to pursue purchasing properties through the Clean Ohio Conservation Fund.

Action #3: Work with the Washington & Noble County SWCDs, NRCS and Farm Bureau offices to educate landowners on programs such as the Conservation Reserve Program and the Farm & Ranch Lands Protection Program (FRPP)

Goal #2: Increase the quality of land uses on 394 acres of the currently classified "low quality" riparian corridors.

Objective #1: Plant riparian buffers composed of native trees, shrubs and grasses on 394 acres of riparian corridors throughout the Cat Creek-Muskingum River subwatershed. According to ODNR modeling, this practice could reduce soil sediment by 697 tons per year, 1,394 pounds of Phosphorus per year and 2,788 pounds of Nitrogen per year (ODNR, 2013) (estimated costs: $6,000 - $9,000 per 5 acres)

Action #1: Conduct field investigations to build relationships with landowners and to determine specific sites for buffers.

Action #2: Collaborate with the ODNR Division of Forestry, Appalachian Coal Country Team (ACCT), and/or other agencies or organizations to fund these buffer planting projects

Action #3: Recruit volunteers to conduct buffer plantings.

Table 2-61
Cat Creek-Muskingum River Subwatershed
Load Reduction Goals from the Action Plan

	Types of Load Reductions			
***Action Plan Item**	**Effluent Discharge (lbs/day)**	**Sediment/Erosion (tons/yr)**	**Phosphorus (lbs/yr)**	**Nitrogen (lbs/yr)**
1.1.1	----	60	60	119
1.1.2	141,372	----	----	----
2.2.1	----	697	1,394	2,788

Numbering system refers to **Problem Statement → Goal → Objective*
(i.e. 1.2.1 = Problem Statement #1; Goal #2; Objective #1)

Table 2-62
Implementation Table for the Cat Creek-Muskingum River Subwatershed

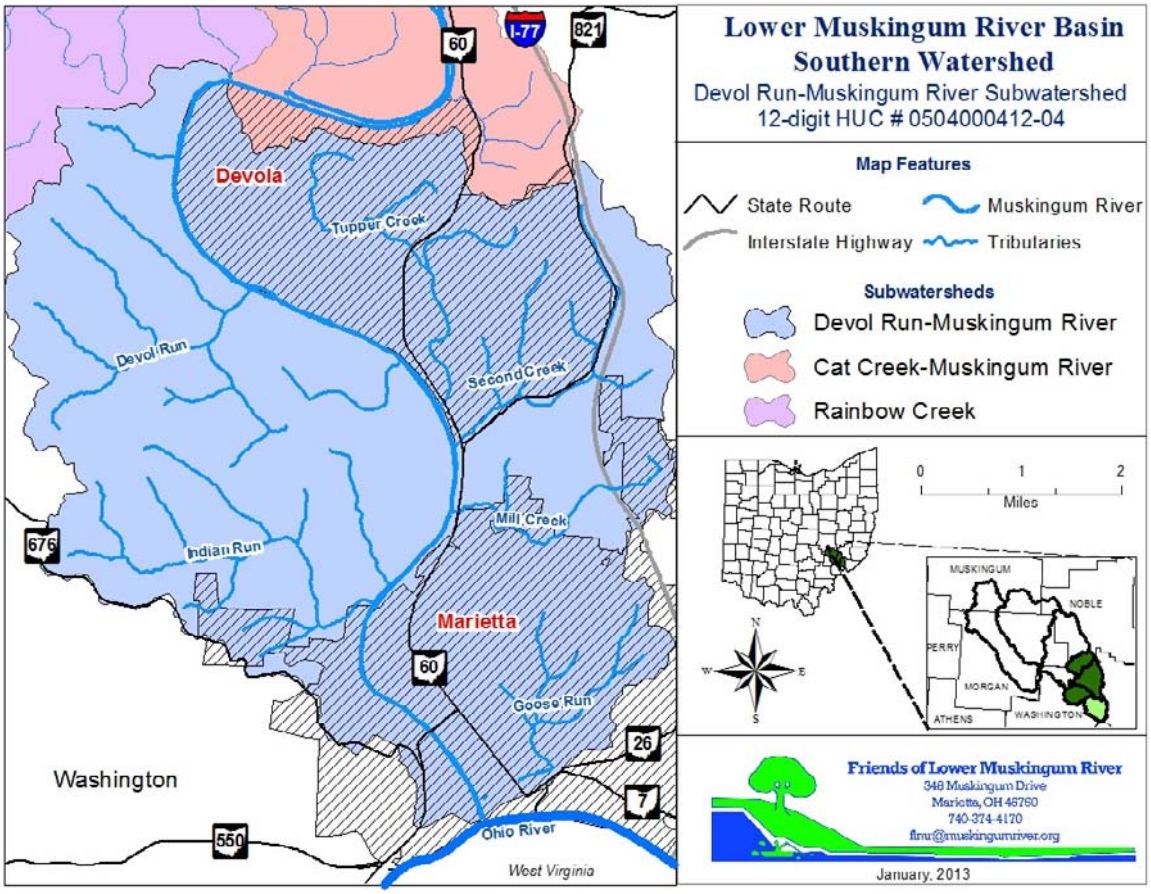
*Action Plan	Activity	Available Resources	Funding Source	Timeline (start-end)	Indicator
1.1.1.1	Outreach, education, grant writing	FLMR, Wash. & Noble Co. SWCD, Ohio State University Extension	NRCS, Ohio EPA, USDA, MWCD	2013-2017	**Minimum of 2** Number of funding applications submitted
1.1.1.2	Implementation	FLMR, Wash. & Noble Co. SWCD	FLMR	2013-2015	**1,982 linear feet** of fencing installed
1.1.2.1	Grant writing & Implementation	FLMR, Village of Lowell, Wash. Co. Commissioners	Village of Lowell	2014 - 2018	**1-** List of new homes connected
1.1.2.2	Research & investigation	FLMR, Wash. & Noble Co. Health Dept.	Wash. & Noble Counties	2013-2015	**1 -** List of systems identified
1.1.2.3	Grant writing	FLMR	Ohio EPA	2014-2015	**Minimum of 2** Number of funding applications submitted
1.1.2.4	Implementation	FLMR, Wash. & Noble Co. Health Dept.	FLMR	2015-2016	**1** - List of upgraded systems
2.1.1.1	Outreach & education	FLMR & volunteers	FLMR	2014-2016	**1 -** List of workshop participants
2.1.1.2	Grant writing	FLMR Board of Directors	Clean Ohio Conservation Fund	2013-2016	**Minimum of 2** Clean Ohio Fund applications submitted
2.1.1.3	Outreach & education	Wash./ Noble Co. SWCD; NRCS; Farm Bureau	USDA, ODNR, NRCS	2014-2016	**1 -** List of landowners contacted
2.2.1.1	Research & investigate	FLMR; AmeriCorps VISTA	FLMR	2013-2015	**1 -** List of sites for buffer improvements
2.2.1.2	Grant writing	FLMR; AmeriCorps VISTA	ODNR, ACCT, USDA	2014-2016	**Minimum of 2** Number of grant applications submitted
2.2.1.3	Recruit volunteers	FLMR; AmeriCorps VISTA	FLMR	2015-2016	**1-** List of volunteers recruited

Numbering system refers to **Problem Statement → Goal → Objective → Action*
(i.e. 1.2.1.2 = Problem Statement #1; Goal #2; Objective #1; Action #2)

DEVOL RUN - MUSKINGUM RIVER SUBWATERSHED

12-digit HUC: 0504000412-04

Map 2.46



Quick Facts	
Drainage Area:	20.7 sq. mi (13,248 acres)
Approximate Population:	15,347
Primary Land Use:	Forest (7,059 acres)
Secondary Land Use:	Urban (4,346 acres)
% of subwatershed in 100 yr floodplain:	13.43% (1,778 acres)
% Highly Erodible Land:	81.6% (10,803 acres)
Aquatic Life Use Designation:	Warmwater Habitat
Aquatic Life Use Attainment Status:	**PARTIAL**

Subwatershed Description

The Devol Run-Muskingum River subwatershed (12-digit HUC # 0504000412-04) is the final drainage basin of the Muskingum River before it dumps into the Ohio River. It spans 20.7 square miles throughout Washington County and contains the county seat, the City of Marietta. This subwatershed is the most urban basin of all of the subwatersheds and is home to approximately 15,347 residents. The Devol Run-Muskingum River subwatershed contains 9.91 miles of the Muskingum River (5.8 miles of which is designated as "Superior High Quality Waters") and drains six noteworthy tributaries, Devol Run, Indian Run, Tupper Creek, Second Creek, Mill Creek and Goose Run (all of which have drainage areas of less than 6 square miles). Tables 2-63, 2-64 and 2-65 detail the administrative boundaries of the Devol Run -Muskingum River subwatershed.

Table 2-63
Counties in the Devol Run-Muskingum River Subwatershed

Counties	Acres of Subwatershed in County
Washington	13,241

(ERIN, 2012)

Table 2-64
Townships in the Devol Run-Muskingum River Subwatershed

Townships	Acres of Subwatershed in Township
Muskingum	8,316
Marietta	2,417
Warren	1,422
Fearing	708
Watertown	360
Adams	18

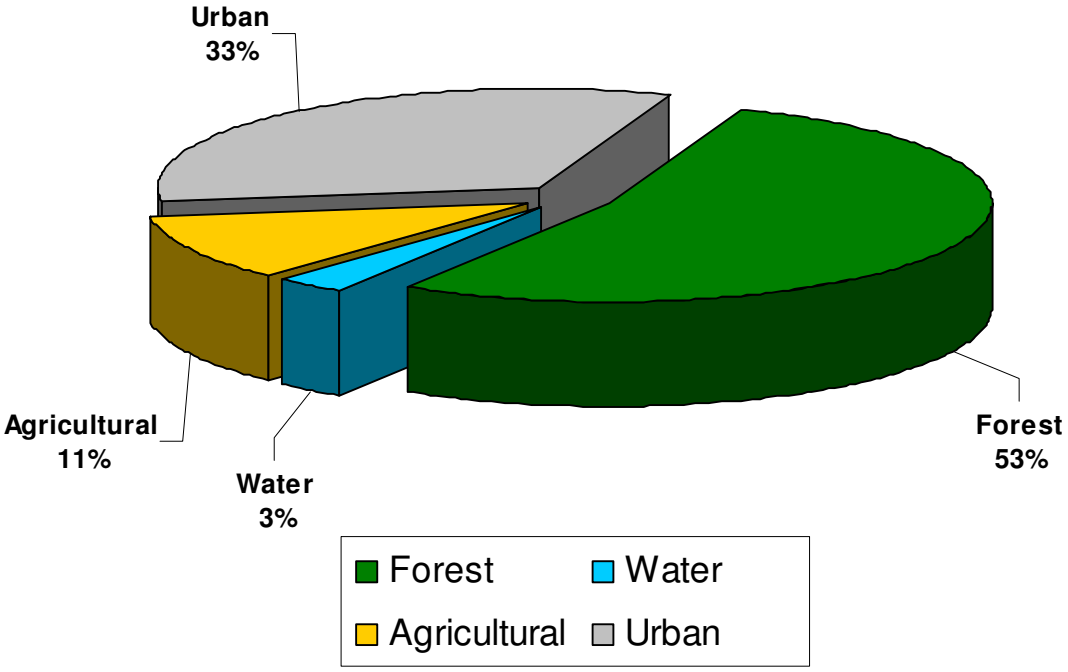
Table 2-65
School Districts in the Devol Run-Muskingum River Subwatershed

School Districts	Acres of Subwatershed in School District
Marietta City	11,672
Warren Local	1,200
Fort Frye Local	369

(ERIN, 2012)

Primarily, lands within the Devol Run-Muskingum River subwatershed are made up of deciduous hardwoods and softwood evergreen forests. Forests are the biggest use of the land in this basin, accounting for 53% or 7,059 acres of the total land area. Although, unlike the other subwatersheds in the Southern basin, the Devol Run-Muskingum River subwatershed is also largely made up or urban areas (i.e. developed lands, impervious surfaces). Urban areas account for 33% of the basin or 4,346 acres. A breakdown of land use practices in the Devol Run-Muskingum River subwatershed can be seen in Figure 2:18

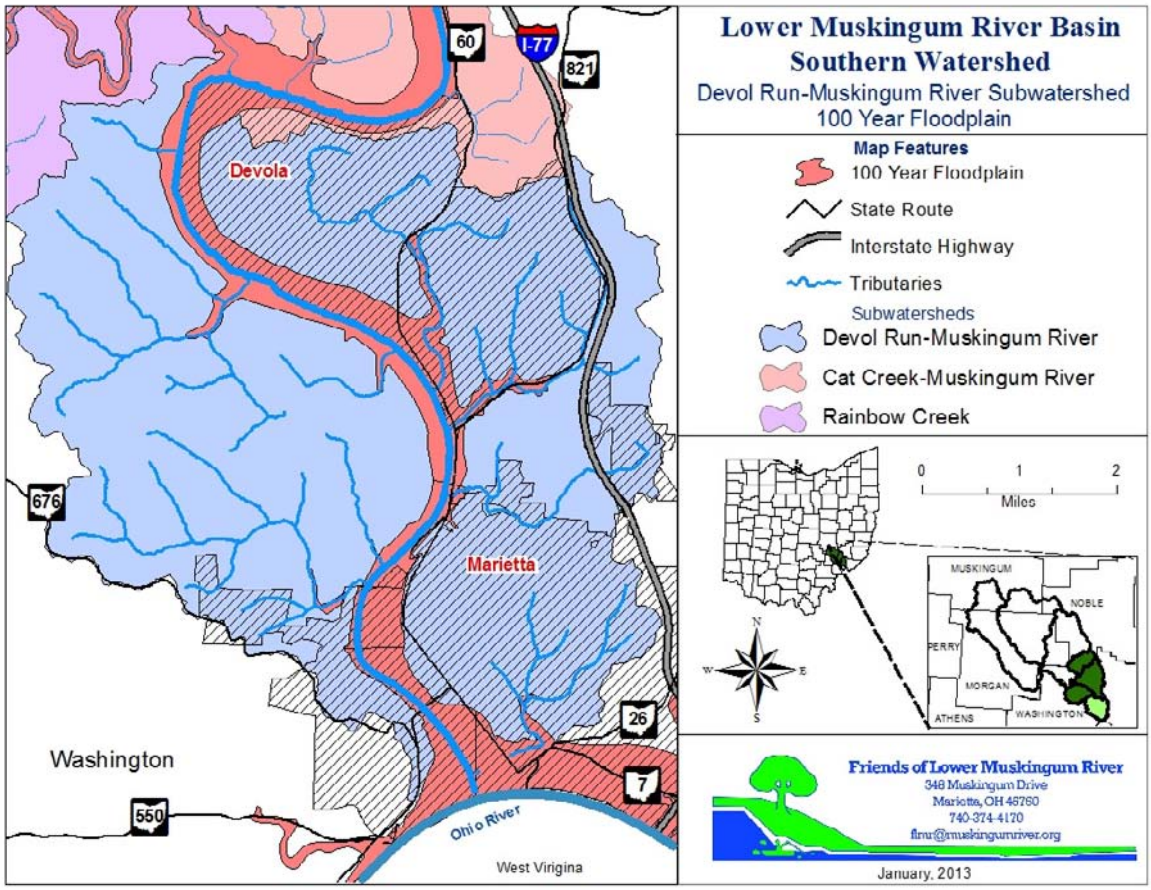
Figure 2:18
Land Use in the Devol Run-Muskingum River Subwatershed



WATER QUANTITY

Out of 115 surveys given out during the development of this action plan, 14% of the respondents expressed that flooding was the top issue of concern in the Southern Watershed (see Section II, pg 6). The Devol Run-Muskingum River subwatershed is drastically different from the other subwatersheds in the basin in many ways, but most of the difference can be seen in the frequency and severity of flooding events. As can bee seen in Map 2.47, 13.43% (1,778 acres) of this subwatershed lies within the 100 year floodplain. Many of the severe floods in this basin begin at the convergence of the Muskingum and Ohio Rivers.

Map 2.47



The most devastating flood to the City of Marietta was in 1913 when the converging rivers crested the banks at 58.30 ft. This flood came before any flood control techniques were utilized, but in the present day floods are better managed in the headwaters of the Muskingum River through a series of reservoirs built and maintained by the Muskingum Watershed Conservancy District. None-the-less, large floods still occur in this basin and in an attempt to better warn the citizens living here the United States Geological Survey, the National Weather Service, the Army Corps of Engineers and a host of other entities have partnered to install a state of the art early flood warning system. This system is scheduled to be complete and open to the public by the end of 2014.

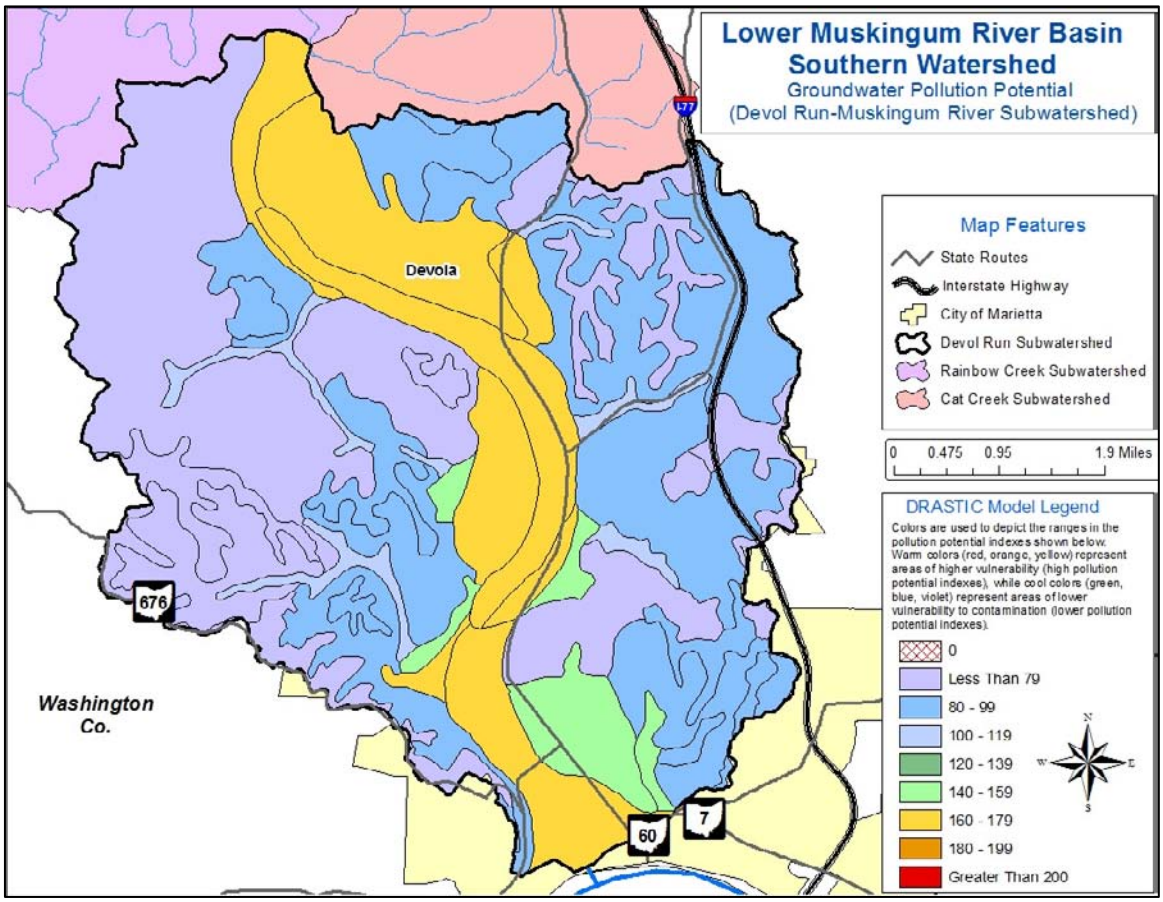
Large flooding events of the Muskingum River are not practical to manage at a subwatershed level. To effectively reduce the frequency and severity of the Muskingum River floods in the Devol Run-Muskingum River Subwatershed, the headwaters of the Muskingum would need to be better managed (i.e. reduced surface runoff and increased groundwater recharge). The biggest threat that can be managed locally at a subwatershed level is flash flooding. Streams like Goose Run, Mill Creek and Indian Run are notorious for flash flooding during sudden large rainfalls. Some of the flash flooding in these streams is attributed to backwaters of the Muskingum River, but more importantly, this issue occurs because of major stormwater inputs from impervious surfaces. To reduce flash flooding impacts in the Devol Run-Muskingum River subwatershed a larger quantity of stormwater Best Management Practices (BMP) needs to be utilized throughout the basin.

WATER QUALITY

Drinking and Ground Water

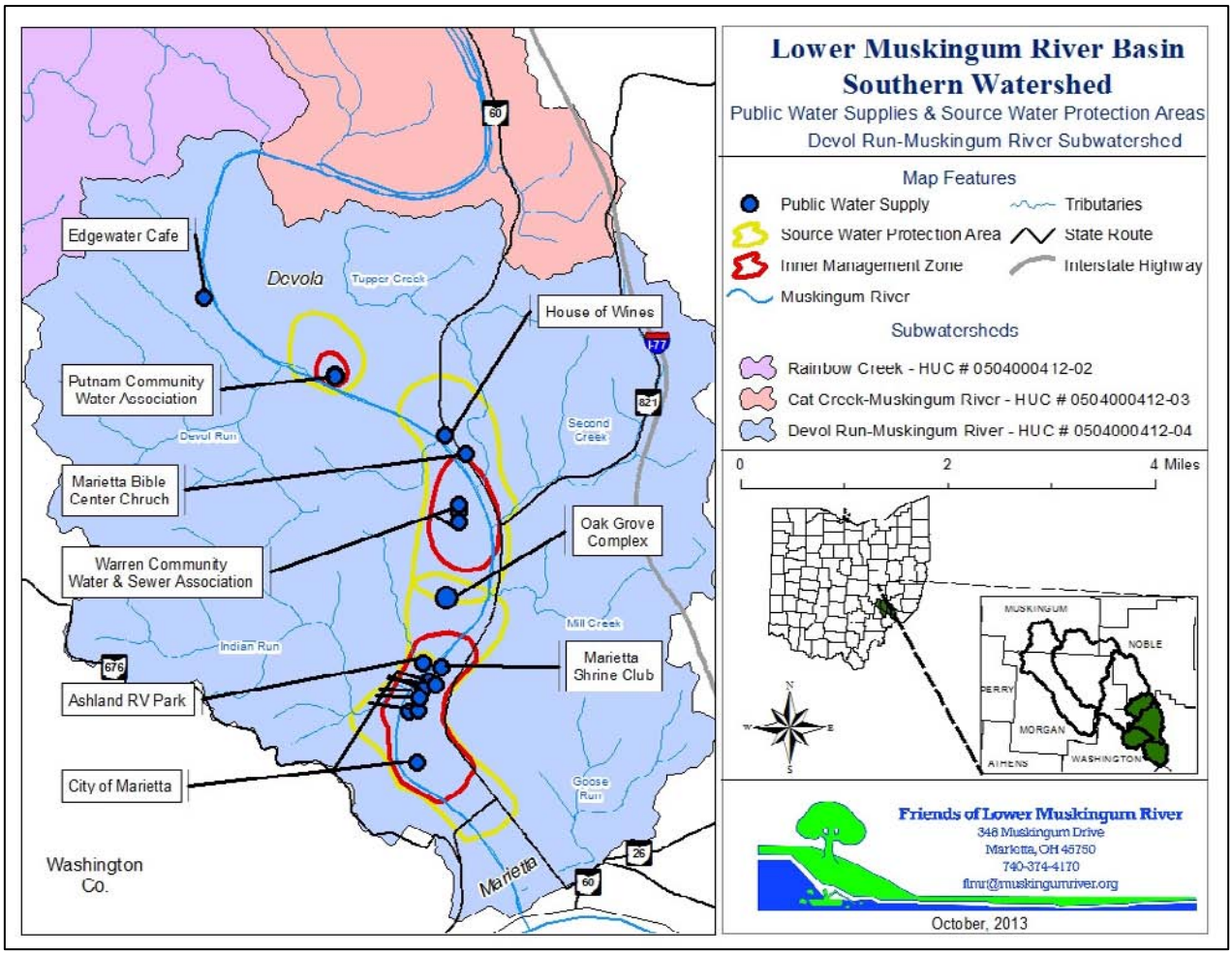
DRASTIC modeling to depict Groundwater Pollution Potential has been completed for the Devol Run-Muskingum River subwatershed by the Ohio Department of Natural Resources and can be seen in Map 2.48 (see Section II, pages 29-32). From this map it can seen that the entire mainstem portion of the Muskingum River within this subwatershed is highly susceptible to groundwater pollution. Although, the headwaters within this basin have a low susceptibility to pollution.

Map 2.48



This subwatershed is home to 20 groundwater wells, operated by nine separate Public Water Supplies (PWS) (see Section II, page 32). Every resident within the Devol Run-Muskingum River subwatershed gets its drinking water from either the City of Marietta, Putnam Community Water Association, Warren Community Water & Sewer Association or one of the 6 "Transient Non-Community" PWS's (see Section II, page 20). Since these PWS lie within a groundwater region with a high pollution potential index, a Source Water Protection Area has been established by Ohio EPA to protect the aquifers surrounding these well fields. Map 2.49 shows the Source Water Protection Area for these well fields. Since the groundwater aquifers along the Muskingum River are recharged from surface water sources, it is anticipated that the actions proposed later in this section, on pages 138-141, will also benefit the drinking water resources of the Devol Run-Muskingum River basin.

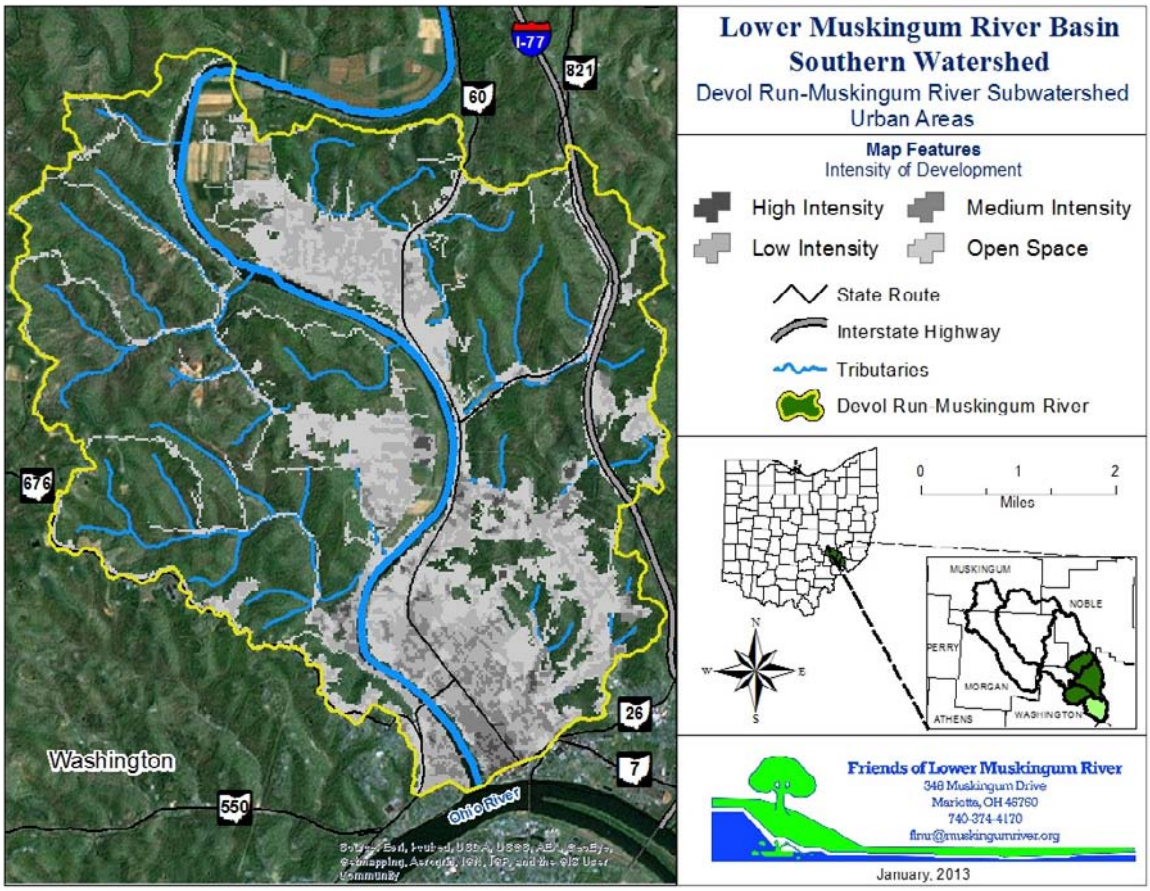
Map 2.49



Impervious Surfaces

Using land use data in the ArcGIS program, the amount of impervious surfaces (i.e. roads, rooftops, parking lots, etc.) for each subwatershed of the Southern basin was estimated (see Section II, pg 12). From this study it was determined that approximately 21.3% (2,820 acres) of the Devol Run-Muskingum River subwatershed is comprised of impervious surfaces. Map 2.50 depicts the intensity of development lands (therefore, impervious surfaces) within the urban areas of the Devol Run-Muskingum River subwatershed.

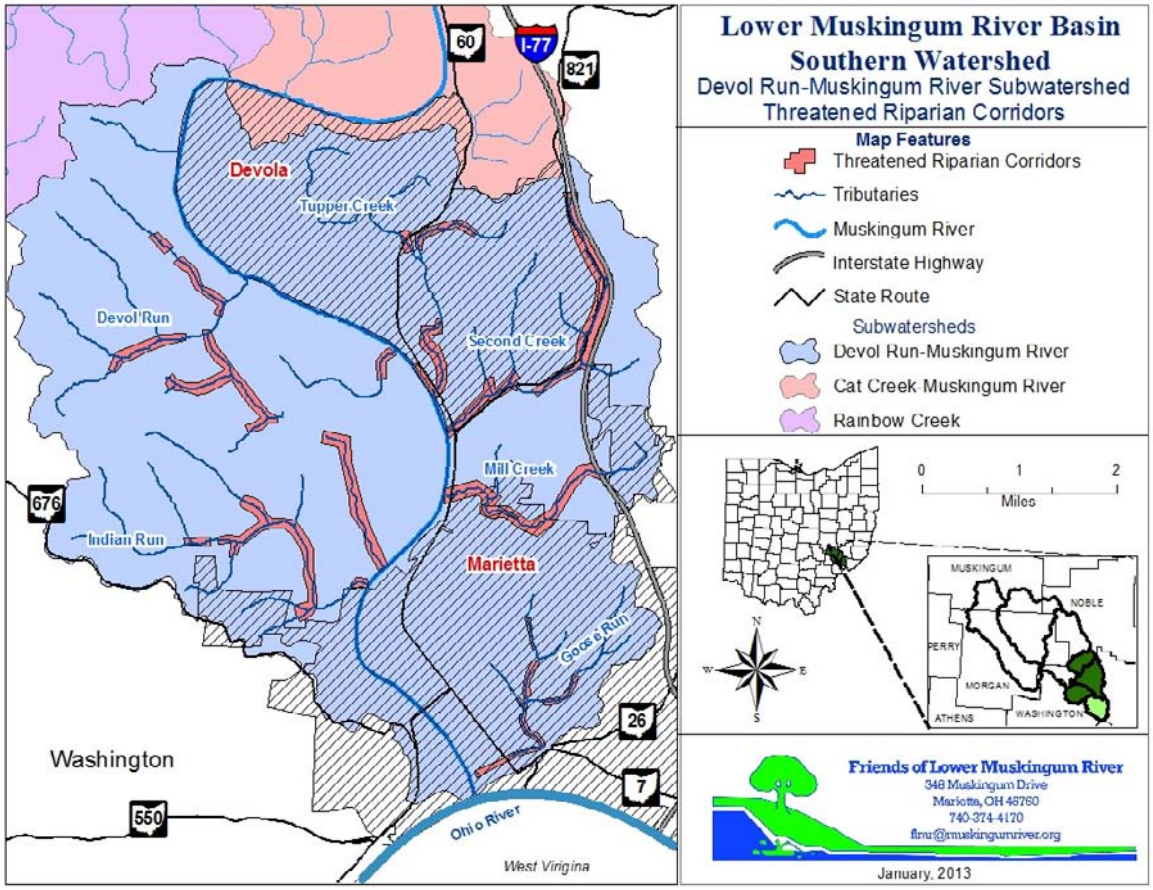
Map 2.50



Riparian Corridor

A riparian corridor assessment (see Section II, pg 31) showed that 67% (477 acres and approx. 40 miles of stream) of the riparian corridors in the Devol Run-Muskingum River subwatershed are considered "High Quality" and 33% (227 acres and approx. 19 miles of stream) are considered "Low Quality". For this assessment, "Low Quality" riparian zones included land use practices such as developed land, barren land, shrub/scrub, grassland, herbaceous, pasture/hay fields, or cultivated crops. "High Quality" riparian zones include land use practices such as deciduous forest, evergreen forest, mixed forest and wetlands. Map 2.51 depicts the riparian corridor regions of the Devol Run-Muskingum River that are threatened by the encroaching land uses around them.

Map 2.51



Qualitative Habitat Evaluation Index (QHEI)

In-stream habitat assessments were conducted using the QHEI during the 2012 Ohio EPA TMDL survey on two stream segments within the Devol Run-Muskingum subwatershed. Both of the sites assessed (at RM 0.48 and 0.7) had habitat characteristics considered to be "good" at supporting aquatic life. QHEI scores from sites in the Devol Run-Muskingum subwatershed can be seen in Table 2-66.

Table 2-66
QHEI Scores for Streams in the Devol Run-Muskingum River Subwatershed

Subwatershed	Stream Segment	Location	River Mile	QHEI Score	QHEI Narrative Rating
Devol Run - Muskingum River	Devol Run	CR 4	0.48	***65.5***	Good
	Indian Run	T 50 or CR 4	0.7	***57.5***	Good

Biology

The Devol Run-Muskingum River subwatersheds Warmwater Habitat aquatic life use designation was investigated as part of the 2012 TMDL survey and also during the 2006 Ohio EPA Biological and Water Quality Study of the Muskingum River (OEPA, 2006). Both studies examined the species composition, diversity and functional organization of both fish and benthic macro-invertebrates throughout the basin. During the TMDL survey, fish communities and macro-invertebrate communities were assessed at sites on two stream segments within the basin. One of the sites was located on Devol Run (RM 0.48) and the other was located on Indian Run (RM 0.7). Fish communities were assessed using the Index of Biotic Integrity (IBI) and macro-invertebrates communities were given a narrative rating. From the TMDL investigation it was determined that the Devol Run site was in full attainment of its aquatic life use designation and the Indian Run site was not attaining its Warmwater habitat designation. According to Kelly Capuzzi with the Ohio EPA TMDL crew, "Indian Run has a small drainage area (2.8 sq mi) and the sample from Indian Run was collected during low flow drought conditions, so it is recommended that the site be reevaluated during normal flow conditions to see if the impairment was due to the drought." The results from the TMDL biological survey in the Devol Run-Muskingum River subwatershed can be seen in Table 2-67

Table 2-67
Biological Use Attainment of Streams Segments in the Devol Run-Muskingum River Subwatershed From the 2012 TMDL Survey

Subwatershed	Stream Segment	Location	River Mile	IBI Score	Macro-invertebrate Score	Attainment
Devol Run - Muskingum River	Devol Run	CR 4	0.48	50	Good	Full
	Indian Run	T 50 or CR 4	0.7	38	NA	Non

During the 2006 Ohio EPA study, the biological attainment of the mainstem portion of the Muskingum River was assessed using the Index of Biotic Integrity (IBI), Modified Index of Well-being (MIwb), Invertebrate Community Index (ICI) and the Qualitative Habitat Evaluation Index (QHEI). Two segments of the Muskingum River within the Devol Run-Muskingum River subwatershed were surveyed during this study. One location was the "Devola dam pool" (RM 9.4) and the other location was the "Devola dam tailwaters" (RM 5.6). From this study it was determined that these two segments of the Muskingum River were in full attainment of their Warmwater habitat aquatic life use designation. Table 2-68 summarizes the results of this study.

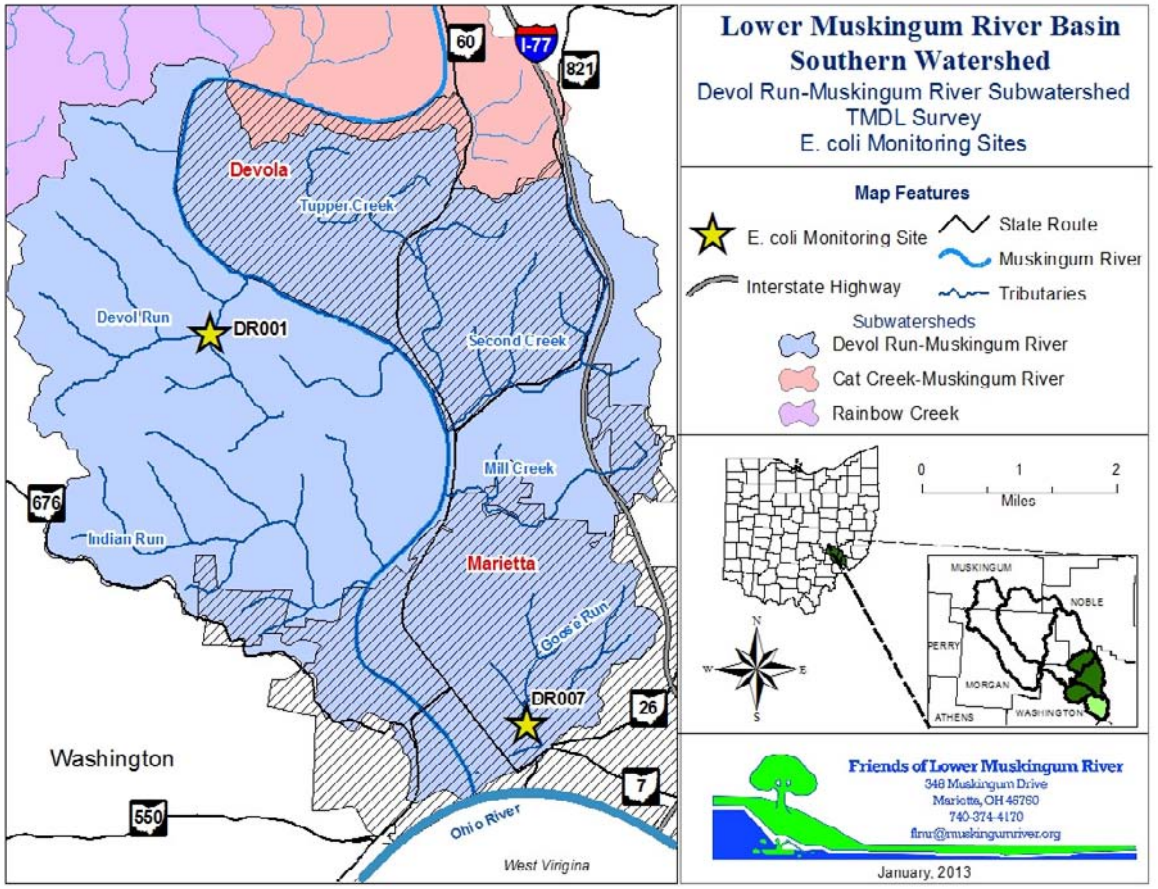
Table 2-68
Biological Use Attainment of the Muskingum River Segment in the Devol Run-Muskingum River Subwatershed From the 2006 Ohio EPA Study (OEPA, 2006)

Sample Site River Mile	IBI	MIwb	ICIa	QHEI	Location	Attainment Status
9.4	44	9.6	36	60.0	Devola dam pool	FULL
5.6	38ns	9.7	50	86.0	Devola dam tailwaters	FULL

Bacteria

The Devol Run-Muskingum River subwatershed has also been given a recreational use designation by the state of Ohio. Currently this basin is classified as Class B, Primary Contact Recreation (PCR) which means that it can be used for occasional recreation activities (i.e. wading, fishing). To determine if the Devol Run-Muskingum River subwatershed was meeting its recreational use designation, the Ohio EPA TMDL crew analyzed bacteria samples (specifically *E. coli*) from two sites in the basin. One site, referred to as DR001 for the purposes of this plan, is located in Devol Run and the other site, DR007, is located in Goose Run which flows through the City of Marietta. These sites are in locations that account for the majority of the drainage area of each of those creeks (Map 2.52).

Map 2.52



The Ohio Administrative Code (section 3745-1-07) states that a water bodies recreational use attainment is based on comparing the sampling sites geometric mean of E. coli concentrations in samples taken throughout the recreation season (May 1st - October 31st) to the PCR Class B criterion of 161 cfu/100ml. Six samples from DR001 and six samples from DR007 were analyzed for E. coli concentrations throughout the recreation season. A geometric mean of 102 cfu/100ml was the result obtained from site DR001 and a geometric mean of 7,718 cfu/100ml was the result obtained from site DR007. From those results it was determined that site DR001 is attaining its PCR Class B recreational use designation and site DR007 is not attaining that designation. Goose Run is impacted by fecal matter due to unsanitary conditions from household sewage treatment systems (HSTS) and/or faulty sanitary sewer lines. Table 2-69 details the results of the E. coli investigation in the Devol Run-Muskingum River subwatershed.

Table 2-69
Summary of E. coli Data Collected From Streams in the Devol Run-Muskingum River Subwatershed

Subwatershed	Site Number	Location	# of samples	Maximum Value	Geometric Mean
Devol Run - Muskingum River	DR001	CR 4	6	510	**102**
	DR007	In Marietta at Butler/4th St.	6	55,000	**7,718**

* Recreation use attainment is based on comparing the geometric mean to the Primary Contact Recreation (PCR) Class B geometric mean water quality criterion of 161 cfu/100 ml (Ohio Administrative Code 3745-1-07). All values are expressed in colony forming units (cfu) per 100 ml of water. Values highlighted yellow exceed the applicable PCR Class B geometric mean criterion.

In an attempt to identity potential problem areas created by failing Household Sewage Treatment Systems (HSTS), Fecal Coliform bacteria samples were also gathered throughout the Devol Run-Muskingum River subwatershed. Five sites throughout the basin were sampled and assessed for Fecal Coliform concentrations throughout the recreation season. Samples were analyzed by both the Ohio EPA TMDL crew and by the City of Marietta's Waste Water Treatment Plant.

Originally, the Ohio EPA would assess bacteria levels during the TMDL process by analyzing samples for Fecal Coliform concentrations. In 1999, the state changed its standard to analyze E. coli bacteria instead, because of its ability as a better indicator of contamination. For this study, the former Ohio standard of a geometric mean of 1,000 cfu/100 ml in 5 samples gathered during a 30 day period was used. Unfortunately, 5 samples were not able to be obtained from each site during a 30 day period. None-the-less, the geometric mean of all samples taken per site was still compared to the of 1,000 cfu/100ml target range to determine if Fecal Coliform was a potential contaminate.

Four of the five sites assessed for Fecal Coliform content in the Devol Run-Muskingum River subwatershed were below the 1,000 cfu/100 ml target range. One site, (DR007) located on Goose Run, exceeded the target range with a geometric mean from five samples of 6,885 cfu/100ml. This is the same site that exceeded in E. coli concentrations during the TMDL survey. Table 2-70 details the results of the Fecal Coliform investigation within the Devol Run-Muskingum River subwatershed.

Table 2-70
Summary of Fecal Coliform Data Collected From Sites in the Devol Run-Muskingum River Subwatershed

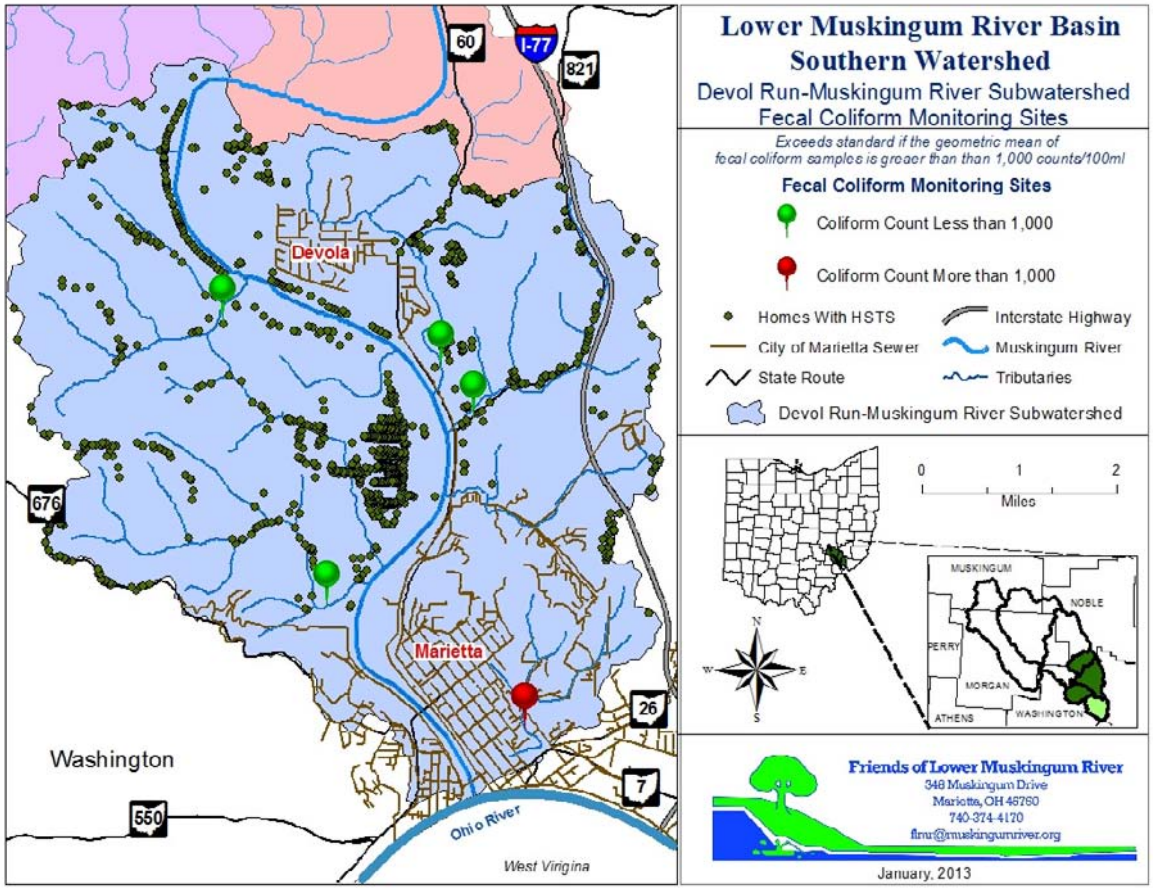
Fecal Coliform attainment is based on comparing the geometric mean to the target geometric mean range of 1,000 cfu/100 ml. All values are expressed in colony forming units (cfu) per 100 ml of water. Values highlighted yellow exceed the recommended target range.

Site Number	Month Sampled	Analyzed By	Result (cfu/100ml)	Geomean (cfu/100ml)
DR001	May 2012	WWTP	340	**126**
	July 2012	OEPA	40	
	July 2012	OEPA	430	
	August 2012	OEPA	90	
	August 2012	OEPA	60	
	September 2012	WWTP	1,100	
DR005	May 2012	WWTP	330	**162**
	August 2012	OEPA	80	
	September 2012	WWTP	23	
DR007	July 2012	OEPA	2,100	**6,885**
	July 2012	OEPA	58,000	
	August 2012	OEPA	4,500	
	August 2012	OEPA	4,100	
	September 2012	WWTP	1,367	
DR009	May 2012	WWTP	967	**260**
	August 2012	OEPA	70	
	September 2012	WWTP	69	
DR010	May 2012	WWTP	833	**447**
	August 2012	OEPA	240	

** WWTP= City of Marietta Waste Water Treatment Plant; OEPA= Ohio Environmental Protection Agency*

Map 2.53 shows the proximity of homes with HSTS to the Fecal Coliform monitoring sites. The site labeled with a red marker represents site DR007 which exceeded the target range for Fecal Coliform content. Based on this study, site DR007 is impacted by fecal matter due to unsanitary conditions from failing HSTS and/or stormwater runoff.

Map 2.53



Household Sewage Treatment Systems (HSTS) in the City of Marietta

According to Kathy Davis, Storm Water Specialist with the Washington County Soil and Water Conservation District, there are approximately 126 homes within Marietta's city limits that are not currently connected to the sanitary sewer system, but rather are utilizing a Household Sewage Treatment System (HSTS) to manage their waste on-site. Using the ArcGIS software it was determined that of those 126 homes, 84 are within the Devol Run-Muskingum River subwatershed and approximately 38 homes lie within the smaller Goose Run drainage basin. Currently these homes are discharging approximately 10,852.8 lbs/day of effluent to the watershed (see Section II, pg 14). These homes were not originally connected to the sanitary sewer system due to the steep topography and rock formations in that region.

PROBLEM STATEMENT #1

The Devol Run-Muskingum River subwatershed is in partial attainment of its Class B, Primary Contact Recreation (PCR) use designation. This impairment is due to *E. coli* bacteria concentrations exceeding the Ohio EPA standard at site DR007 in the tributary known as Goose Run. The standard states that the geometric mean of samples taken during the recreation season (May 1st - Oct. 31st) shall not exceed 161 cfu/100ml. Samples taken from site DR007 in 2012 throughout the recreation season had a geometric mean of 7,718 cfu/100ml (see Section II, pg 119). **The geometric mean of samples taken from site DR007 in Goose Run exceeds the Ohio EPA's standard by 7,557 cfu/100ml.** Potentially failing Household Sewage Treatment Systems (approximately 38 in the Goose Run drainage basin (see Section II, pg 137)) and/or faulty sanitary sewer infrastructure is the probable source of this impairment.

Goal #1: Reduce the recreational season geometric mean content of *E.coli* bacteria by 7,557 cfu/100ml at site DR007 to achieve the full attainment of the Class B, Primary Contact Recreation use designation within the Devol Run-Muskingum River subwatershed.

Objective #1: Conduct additional E. coli monitoring at 3 sites on Goose Run located upstream of site DR007 to identify the specific source of bacterial contamination.

(estimated project cost: special funds not required for this objective)

Action #1: Work with the Ohio EPA TMDL crew to monitor the 3 identified sites for E. coli content throughout the recreational season.

Action #2: Analyze and compare pre-monitoring data (gathered from site DR007 in the 2012 TMDL survey) with current season monitoring data gathered by the Ohio EPA to better determine the source of bacterial contamination.

Objective #2: Identify specific sections of the sanitary sewer infrastructure that may be impaired and potentially contributing E. coli bacteria to Goose Run and then work with the City of Marietta to fix any identified leaks in the infrastructure.
(estimated project cost: special funds not required for this objective)

Action #1: Request that the City of Marietta conduct a Sanitary Sewer Investigation within geographic regions of Goose Run that have been identified (in objective #1) as contributing high bacterial loads.

Action #2: Work with the City of Marietta to fix any leaks that exist in either the main sanitary sewer or lateral lines.

Objective #3: Connect the 38 homes within the Goose Run drainage basin that currently have a HSTS (see Section II, page 137) to the City of Marietta's WWTP in order to reduce effluent discharge by approximately 10,852.8 lbs/day.
(estimated cost per HSTS upgrade or new installation: $5,000 - $10, 000)

Action #1: Assist the City of Marietta in acquiring funding and or resources necessary to pay for the expansion of the sanitary sewer system to these homes.

Action #2: If "Action #1" is not feasible, then work with the City of Marietta to begin an annual inspection and maintenance program of HSTS within the portion of the Devol Run-Muskingum River subwatershed that resides within the city limits.

PROBLEM STATEMENT #2

Currently the Devol Run-Muskingum River subwatershed is only partially meeting its Warmwater Habitat aquatic life use designation. According to the Ohio EPA this partial attainment is due to the presence of drought like, low flow conditions in Indian Run (site DR005) during the biological survey. The Ohio EPA will be assessing Indian Run's attainment status further in the summer of 2013.

Although no immediate impacts exist that are impairing the aquatic life use designation of this basin (other than this current source of non-attainment) the impacts of stormwater runoff from the approximately 2,820 acres of impervious surfaces do threaten this subwatershed (see Section II, pg 129. Streams like Goose Run and Mill Creek often experience increased peak flows during even minimal rain events due to stormwater runoff. This not only creates a flash flooding threat, but also has greatly entrenched most of the open air portions of these streams. The large amounts of impervious surfaces and the poor quality riparian buffers along approximately 19 miles (227 acres) of streams within this subwatershed (see Section II, page 130) are the cause of this threatening impairment.

Goal #1: Offset stormwater runoff impacts from the approximately 2,820 acres of impervious surfaces in the subwatershed by educating home owners, business owners, contractors and developers on the installation of stormwater Best Management Practices (BMP) that utilize pollutant removal components that would not adversely impact sensitive groundwater supplies (Kallipolitis, 2013).

Objective #1: Conduct 10 stormwater BMP construction workshops throughout the subwatershed that are focused on training homeowners, business owners, contractors and developers on not only the need for BMP's in the watershed, but also how to properly site and install BMP's that provide a pollutant removal component such as rain gardens, bioretention facilities, vegetated swales and other practices defined in Ohio DNR's "Rainwater and Land Development" guide.
(http://www.dnr.state.oh.us/tabid/9186/default.aspx)
(estimated project cost: $10,000 - $20,000)

Action #1: Work with stakeholders (e.g. Washington County Soil & Water Conservation District, the City of Marietta, etc.) to identify 10 locations to conduct these construction workshops.

Action #2: Apply for funding that would pay for educational materials, construction materials and administrative costs from organizations and/or agencies such as the Rain Bird Corporation, the Ohio EPA, Muskingum Watershed Conservancy District, etc. to conduct these workshops.

Action #3: Also, work with the City of Marietta and partnering organizations to install the BMP demonstration project on the Parking Partners Parking Lot as an educational tool for residents in the basin (project designs available from the City of Marietta engineering department).

Goal #2: Increase the quality of land uses on the 227 acres of the currently classified "low quality" riparian corridors.

Objective #1: Plant riparian buffers composed of native trees, shrubs and grasses on 227 acres of riparian corridors throughout the Devol Run-Muskingum River subwatershed. According to ODNR modeling, this practice could reduce soil sediment by 402 tons per year, 804 pounds of Phosphorus per year and 1,608 pounds of Nitrogen per year (ODNR, 2013) (estimated costs: $6,000 - $9,000 per 5 acres)

Action #1: Conduct field investigations to build relationships with landowners and to determine specific sites for buffers.

Action #2: Collaborate with the ODNR Division of Forestry, Appalachian Coal Country Team (ACCT), and/or other agencies or organizations to fund these buffer planting projects

Action #3: Recruit volunteers to conduct buffer plantings.

Table 2-71

Implementation Table for the Devol Run-Muskingum River Subwatershed

*Action Plan Item	Activity	Available Resources	Funding Source	Timeline (start-end)	Indicator
1.1.1.1	Research & investigation	FLMR, Ohio EPA	FLMR	2013-2014	**1 -** List of sites to be monitored
1.1.1.2	Research & investigation	FLMR, Ohio EPA	Ohio EPA	2013-2014	**1 -** Official results of Monitoring
1.1.2.1	Outreach	FLMR, City of Marietta	City of Marietta	2014-2015	**1 -** Formal request made
1.1.2.2	Implementation	FLMR, City of Marietta	City of Marietta	2014-2016	**1 -** List of leaks fixed
1.1.3.1	Research & investigation	FLMR, City of Marietta	City of Marietta, FLMR	2014-2015	**1 -** List of identified homes
2.1.1.1	Research & investigation	FLMR, Wash. Co. SWCD, City of Marietta	N/A	2014-2015	**1 -** List of sites identified
2.1.1.2	Grant writing	FLMR	Rain Bird, Ohio EPA, MWCD	2014-2015	**Minimum of 2** Number of funding applications submitted
2.1.1.3	Implementation	FLMR, City of Marietta	City of Marietta	2014-2015	**1-** Parking Partners BMP demonstration project completed
2.2.1.1	Research & investigate	FLMR; AmeriCorps VISTA	FLMR	2013-2016	**1-** List of sites for buffer improvements
2.2.1.2	Grant writing	FLMR; AmeriCorps VISTA	ODNR, ACCT, USDA	2014-2016	**Minimum of 2** Number of funding applications submitted
2.2.1.3	Recruit volunteers	FLMR; AmeriCorps VISTA	FLMR	2015-2016	**1-** List of volunteers recruited

Numbering system refers to **Problem Statement → Goal → Objective → Action*
(i.e. 1.2.1.2 = Problem Statement #1; Goal #2; Objective #1; Action #2)

Table 2-72
Devol Run-Muskingum River Subwatershed
Load Reduction Goals from the Action Plan

	Types of Load Reductions			
*Action Plan Item	Effluent Discharge (lbs/day)	Sediment/Erosion (tons/yr)	Phosphorus (lbs/yr)	Nitrogen (lbs/yr)
1.1.3	10,852.8	----	----	----
2.2.1	----	402	804	1,608

Numbering system refers to **Problem Statement → Goal → Objective*
(i.e. 1.2.1 = Problem Statement #1; Goal #2; Objective #1)

EVALUATION

Data Collection

Long-term monitoring in the Southern Watershed will be coordinated by the Friends of Lower Muskingum River (FLMR). The FLMR will rely on the "Stream Team Volunteer Monitoring Program" to further collect water samples throughout the four subwatersheds of the Southern Watershed. Twenty sites have been established as long-term monitoring stations throughout this basin. Four of these sites are designated as sentinel sites for each subwatershed. These sites are located in an area that will capture at least 95% of the headwater drainage of that sub-basin. Stations will be monitored indefinitely by the FLMR "Stream Team Volunteers" and the data will be submitted to a statewide audience through www.watersheddata.com.

"Stream Team" members will annually conduct QHEI assessments and Macro-invertebrate assessments from the sentinel sites while field water chemistry data will be taken on a bi-monthly basis using a Hanna ph/conductivity combo meter. If major water quality changes become evident in any sampling events, FLMR will request that the Ohio EPA further investigate those changes.

Furthermore, particularly in areas where the ground water is characterized as having either a medium or high sensitivity to contamination, ground water quality data will also be collected as this plan is implemented. Upon endorsement of this plan, monthly available groundwater data will be collected indefinitely by FLMR from private well data from the Ohio Department of Health, public water system well data from Ohio EPA, Ohio EPA's Ambient Ground Water Monitoring Network, USGS National Water Quality Assessment Programs and other available sources. As the actions in this plan are addressed, it is anticipated that both ground water and surface water quality will increase simultaneously due to their strong interactions in this basin.

Data Assessment

The goal of these data collection efforts is to assess if the estimated loading reductions are being achieved. Tables 2-44 (pg 83), 2-52 (pg 101), 2-61 (pg 121), and 2-72 (pg 142) should be used to determine if the proposed Actions of this WAP are effective at reducing loadings to the Southern Watershed. A subwatersheds Problem Statement(s) will be considered adequately addressed if the data collection efforts reflect these load reduction goals as the plan is being implemented. In addition, the evaluation of the goals and objectives described in the management plan will be performed by the FLMR. Implementation tables displayed in the "Problem

Statement" sections for each subwatershed will be used to track progress towards meeting the goals and objectives. Progress will be measured by tracking the indicators listed in the implementation tables.

PLAN UPDATE AND DISTRIBUTION

The "Southern Watershed Action Plan" will be administered and updated by the Friends of Lower Muskingum River (FLMR). Notice regarding the completed final draft of the management plan will be available on the FLMR web site at www.muskingumriver.org.

FLMR will also distribute electronic .pdf copies of this plan to every member of the Stakeholder Advisory Committee (SAC) during an official SAC meeting. The plan will also be made available to representatives of the Marietta City Schools, Fort Frye Local School District, Waterford School District, Washington State Community College and Marietta College. In addition, FLMR will announce the completion of the Action Plan at our monthly public meetings to encourage new stakeholder involvement. FLMR will use our web site, Facebook and public announcements to inform, educate, and involve the public in on-going outreach in regards to this plan.

This plan needs to be re-evaluated every 3 years from the date of endorsement to assess the success of action items that have been implemented. Success will be determined for each Problem Statement if it meets the criteria laid out in the Evaluation section above. For this 3 year evaluation, a detailed report should be submitted to the Stakeholder Advisory Committee that explains all implementation efforts that have been completed and an evaluation of their success.

Updates and revisions will need to be made to this WAP when any of the following have occurred:

1) All action items in any "Problem Statement" of a specific subwatershed have been sufficiently addressed and long-term evaluation shows clear evidence of success.
2) Data gathered from the evaluation process have identified an issue that was not originally addressed in this WAP.
3) New land use practices are being utilized within the Southern Watershed that potentially threaten water quality.

CONTACTS

Contact information for the FLMR office is:

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348 Muskingum Drive

Marietta, OH 45750

flmr@muskingumriver.org

740-374-4170

President: Marilyn Ortt

Vice President: Dr. Katy Lustofin

Watershed Coordinator: Jesse Daubert

FLMR will keep all records and documents involved in plan for future reference.

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APPENDICES

SECTION I: LOWER MUSKINGUM RIVER WATERSHED

Appendix I.A. Friends of Lower Muskingum River, Inc. (FLMR) Code of Regulations

Appendix I.B. ORSANCO Continuous Sampling Data, 2000 - 2011

Appendix I.C. Rare, Threatened, and Endangered Species List, ODNR-DNAP

Appendix I.D. Lower Muskingum River 10-digit HUC Topographic Maps

SECTION II: SOUTHERN WATERSHED ACTION PLAN

Appendix II.A. Stakeholder Advisory Committee Contact List

Appendix II.B. 2012 Ohio EPA TMDL Water Chemistry Data

Appendix II.C. Dam Inventory Sheets

APPENDIX I.A.
FLMR Code of Regulations

Approved December 5, 2002

CODE OF REGULATIONS

OF

FRIENDS OF LOWER MUSKINGUM RIVER

ARTICLE I

The Corporation

Section 1.01. Name and Organizational Structure. Friends of Lower Muskingum River (herein after the "Corporation") is a nonprofit corporation organized and existing under the Ohio Nonprofit Corporation Law.

Section 1.02. Location. The place in Ohio where the principal office of the Corporation is to be located is City of Marietta, Washington County, Ohio.

Section 1.03. Purposes. The purposes for which the Corporation is formed are exclusively for charitable, educational or scientific purposes, including, for such purposes, the making of distributions to organizations that qualify as exempt organizations under Section 501 (c) 3 of the Internal Revenue Code of 1986, as amended (or corresponding provisions of any future United States internal revenue law) (the "Code").

The purpose of the corporation is to improve the water quality and natural habitat of the Lower Muskingum River watershed and promote appropriate, improved recreational and economic development within it.

To accomplish this purpose, the Corporation, among other things, will:

1. educate the public concerning the need for and methods of improving water quality, pollution and stream bank stabilization.
2. monitor water quality, develop a land use inventory, identify contaminant sources, and take steps to improve water quality.

3. acquire or hold land as a land trust and otherwise assist in the conservation or preservation of natural or open areas, and, in addition, encourage developers to include areas of greenspace in their developed areas
4. educate the public concerning the conservation and preservation of natural areas and open spaces, and the best management practices for agriculture, commercial, industrial, residential and recreational uses of watershed properties
5. establish cooperative relationships with other organizations and agencies sharing common goals.

ARTICLE II

Membership

Section 2.01. Membership in the Corporation shall be open to all individuals, organizations, and corporations in sympathy with the purposes of Friends of the Lower Muskingum River.

Individuals can become members upon payment of annual dues, which shall be $10.00 initially, and thereafter the annual dues shall be determined and adjusted by the Board. Upon payment of the minimum annual dues, an individual shall be entitled to membership in the Corporation and shall be entitled to one and only one vote, regardless of the amount of money contributed by such individual to the Corporation in excess of the minimum dues.

Organizations or corporations can become members upon payment of a minimum of $100.00 initially, and thereafter the annual dues for non-individual members may be determined by and adjusted by the Board. Upon payment of the minimum annual dues, an organization or corporation shall be entitled to membership in the corporation and shall be entitled to one and only one vote, regardless of any contribution of payments to the Corporation in excess of the minimum dues.

Section 2.02 Government. The government of the Corporation shall be vested in a Board of Directors, which such Board is to have any and all powers conferred upon it by Chapter 1702 of the Ohio Revised Code.

Section 2.03. Annual Meeting. This Corporation shall hold its annual membership meeting in October to elect officers and Directors, to receive various reports, and to transact such other and further business as may come before the membership.

In general, the membership will meet monthly at a time and place designated by the President.

Section 2.04. Quorum The voting members present at any meeting of the general membership shall constitute a quorum for such meeting, provided that no action required by law to be authorized or taken by a specified proportion or number of the voting members may be authorized or taken by a lesser proportion or number. The affirmative vote of a majority of the voting members present at which a quorum is present shall be necessary for the authorization or taking of any action voted upon by the members.

For extraordinary corporate transactions (such as sales of substantially all of the assets, merger, amendment to the Articles, dissolution, etc.) or for the adoption or amendment of a Code of Regulations, an affirmative vote in favor of the proposal by a majority of the members present and voting is required.

Section 2.05. Notice of Meeting of Membership. Notice of the place, date and time of each meeting of the Membership shall be given to each member not more than thirty-one (31) days nor fewer than two (2) days before the date of the meeting. The date of notification and the day of the meeting shall not count as a day for the purpose of notification. Any notice referred to in this Section 2.05 may be given by any reasonable means and need not specify the purpose of the meeting, except that if an amendment to the Articles of Incorporation or these Regulations is proposed a copy of such proposed amendment shall accompany said notice, and except with respect to a proposed action to elect or remove a Director or officer.

The giving of notice shall be deemed to be waived by any Member who shall attend and participate in such meeting, other than to protest the lack of proper notice at or prior to such meeting, and may be waived, in writing by any Member either before, at or after such meeting. Such writing shall be filed with or entered upon the records of the meeting.

ARTICLE III

Directors

Section 3.01. Power and Authority of Directors. Except as otherwise provided by law, the Articles of Incorporation or these Regulations, all of the authority of the Corporation shall be exercised by the board of Directors. The Directors serving hereunder shall have the power, authority and responsibilities of and shall perform the functions provided for Directors under the Ohio Non-profit corporation law. The Directors shall be, for purposes of any statute or rule of law relating to corporations, members of the Corporation and shall have all rights and privileges of members.

Section 3.02. Provisions Relating to Directors.

A. Number. The initial Board of Directors shall be composed of five members. The number of Directors may be established by the Board of Directors from time to time, but shall never be less than three (3) nor greater than fifteen (15).

B. Term and Election. Each director designated in the Articles of Incorporation shall be deemed to be elected as such as of the time of filing the Articles of Incorporation to serve until his or her replacement is elected at the first annual meeting of the Membership. At the first election, Directors shall be elected into three (3) classes: Class I Directors, Class II Directors and Class III Directors. The initial Class I Directors shall serve for a one (1) year term, the initial Class II Directors shall serve for a two (2) year term and the initial Class III Directors shall serve for a three (3) year term. Thereafter, all Directors shall serve for terms of three (3) years each or until his or her successor is duly elected and qualified. Directors may be reelected.

The election of Directors shall be made at the annual meeting of the Membership, or if action is not then taken, or if there is a vacancy, the election may be made at any regular or special meeting of the Membership for which notice is given as provided in Section 3.04.

Vacancies arising on the Board of Directors or in any office of the Corporation shall be filled by appointment made by the remaining members of the Board.

C. Resignations and Removal. Any Director, by notice in writing to the Board of Directors, may resign at any time. Except as otherwise provided in these Regulations, any Director may be removed from office with or without cause by a majority vote of the whole number of Directors.

Section 3.03. Quorum and Voting.

A. Quorum. Except as otherwise provided in these Regulations, a majority of the Directors then in office shall constitute a quorum for the transactions of business at any meeting of the Directors.

B. Voting. Except as otherwise provided in these Regulations, each Director then in office shall have one (1) vote, and the vote of a majority of the Directors present at a meeting at which a quorum is present shall constitute the action of the Board of Directors.

Section 3.04. Notice of Meeting of Board of Directors. Notice of the place, date and time of each meeting of the Board of Directors shall be given to each Director not more than thirty-one (31) days nor fewer than two (2) days before the date of the meeting. The date of notification and the day of the meeting shall not count as a day for the purpose of notification. Any notice referred to in this Section 3.04 may be given by any reasonable means and need not specify the purpose of the meeting, except that if an amendment to the Articles of Incorporation or these Regulations is proposed a copy of such proposed amendment shall accompany said notice, and except with respect to a proposed action to elect or remove a Director or Officer. The giving of notice shall be deemed to be waived by any Director who shall attend and participate in such meeting, other than to protest the lack of proper notice at or prior to such meeting, and may be waived, in writing, by any Director either before, at or after such meeting. Such writing shall be filed with or entered upon the records of the meeting.

Section 3.05. Meeting of Directors.

A. Regular Meetings. Regular meetings of the Directors, including the annual meeting, shall be at such place (within or without the State of Ohio), date and time as may

be fixed by the Board of Directors or by the President as authorized by the Board.

B. Special Meetings. Special meetings of the Board of Directors may be called by the President or by two (2) Directors who deliver a written request to the Secretary for the calling of a meeting at least five (5) business days prior to the minimum notice period (as provided in Section 3.04) for the meeting to be called.

Section 3.06 Action Without Meeting. Any action which might be taken at any meeting of the Board of Directors may be taken without such meeting by a writing or writings signed by all of the members of the Board. The writing or writings evidencing such action taken without a meeting shall be filed with the Secretary of the Corporation and inserted by him or her in the permanent records relating to meetings of the Board of Directors.

ARTICLE IV

Committees

Section 4.01. Committees. The Board of Directors may from time to time create committees consisting of one (1) or more Directors and appoint the members thereof. The Board of Directors may prescribe or limit the powers and duties of any committee.

Section 4.02. Committee Limitations. Each committee shall serve at the pleasure of the Board of Directors, shall act only in the intervals between meetings of the Board or in making reports to the Board and shall be subject to the control and direction of the Board. Except as otherwise provided by law, or these Regulations, each committee shall act by a majority vote of the whole number of its members.

Section 4.03. Action Without Meeting. Any action which might be taken at any meeting of any committee may be taken without such meeting by a writing or writings signed by all of the members of such committee. The writing or writings evidencing such action taken without a meeting shall be filed with the Chair of such committee and inserted by him or her in the permanent records relating to meetings of the committee.

ARTICLE V

Officers

Section 5.01. Election. The Officers of the Corporation shall consist of a President, a Vice-President, a Secretary, a Treasurer and such other Officers as the Directors may from time to time designate. Election of Officers shall take place at each annual meeting of the Board of Directors or, if action is not taken then or if there is a vacancy, at any regular meeting or special meeting for which notice is given as provided in Section 3.04. The same individual may be elected to more than one (1) office. All Officers shall be elected by the Board of Directors by a majority vote for a one (1) year term.

Section 5.02. President. The President shall preside at all meetings of the Board of Directors and Membership. The President shall, subject to the direction of the Board of Directors, have general supervision, direction and control of the business and Officers of the Corporation. The President shall be an ex officio member of all committees. The President shall have the general powers and duties usually vested in the chief executive officer of a nonprofit corporation under the laws of the State of Ohio and shall have such other powers and duties as may be prescribed by the Board of Directors.

Section 5.03. Vice-President. The Vice-President shall in the absence or disability of the President, perform all duties of the President, and, when so acting, shall have the powers and be subject to the restrictions on the President. The Vice-President shall have such other powers and shall perform such other duties as from time to time may be prescribed by the Board of Directors.

Section 5.04. Secretary. The Secretary shall keep the minutes of the proceedings of the Board of Directors, shall be the custodian of all books, records, papers and property of the Corporation and shall perform such other administrative duties as shall be necessary or desirable to carry out the purposes of the Corporation. He or she shall have such other duties as may be established by the President with the consent of the Board of Directors.

Section 5.05. Treasurer. The Treasurer shall be the chief financial officer of the Corporation and shall perform such other administrative duties as shall be necessary or desirable to carry out the purposes of the Corporation. He or she shall have such other duties as may be established by the President with the consent of the Board of Directors.

ARTICLE VI

Indemnification and Insurance

Section 6.01. Mandatory Indemnification. The Corporation shall indemnify any Officer or Director of the Corporation who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (including, without limitation, any action threatened or instituted by or in the right of the Corporation), by reason of the fact that he or she is or was a Director, Officer, employee, agent or volunteer of the Corporation, or is or was serving at the request of the Corporation as a director, trustee, officer, employee, agent or volunteer of another corporation (domestic or foreign, nonprofit or for profit), partnership, joint venture, trust or other enterprise, against expenses (including, without limitation, attorney's fees, filing fees, court reporters' fees and transcript costs), judgments, fines and amounts paid in settlement actually and reasonably incurred by him or her in connection with such action, suit or proceeding if he or she acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the best interests of the Corporation, and with respect to any criminal action or proceeding, he or she had no reasonable cause to believe his or her conduct was unlawful. A person claiming indemnification under this Section 6.01 shall be presumed, in respect of any act or omission giving rise to such claim for indemnification, to have acted in good faith and in a manner he she reasonably believed to be in or not opposed to the best interests of the Corporation, and with respect to any criminal matter, to have had no reasonable cause to believe his or her conduct was unlawful, and the termination of any action, suit or proceeding by judgment, order, settlement or conviction, or upon a plea of nolo contendere or its equivalent shall not, of itself, rebut such presumption.

Section 6.02 Court-Approved Indemnification. Anything contained in these Regulations or elsewhere to the contrary notwithstanding:

A. the Corporation shall not indemnify any Officer or Director of the Corporation who was a party to any completed action or suit instituted by or in the right of the Corporation to procure a judgment in its favor by reason of the fact he or she is or was a Director, Officer, employee, agent or volunteer of the Corporation, or is or was serving at the request of the Corporation as a director, trustee, officer, employee, agent or volunteer of another corporation (domestic or foreign, nonprofit or for profit), partnership, joint venture, trust or other enterprise, in respect of any claim, issue or matter asserted in such action or suit as to which he or she shall have been adjudged to be liable for acting with reckless disregard for the best interests of the Corporation or misconduct (other than negligence) in the performance of his or her duties to the

Corporation unless and only to the extent that the Court of Common Pleas of Washington County, Ohio, or the court in which such action or suit was brought shall determine upon application that, despite such adjudication of liability, and in view of all the circumstances of the case, he or she is fairly and reasonably entitled to such indemnity as such Court of Common Pleas or such other court shall deem proper; and

B. the Corporation shall promptly make any such unpaid indemnification as is determined by a court to be proper as contemplated by this Section 6.02.

Section 6.03. Indemnification for Expenses. Anything contained in these Regulations or elsewhere to the contrary notwithstanding, to the extent that an Officer or Director of the Corporation has been successful on the merits or otherwise in defense of any action, suit or proceeding referred to in Section 6.01, or in defense of any claim, issue or matter therein, he or she shall be promptly indemnified by the Corporation against expenses (including, without limitation, attorneys' fees, filing fees, court reporters' fees and transcript costs) actually and reasonably incurred by him or her in connection therewith.

Section 6.04 Determination Required. Any indemnification required under Section 6.01 and not precluded under Section 6.02 shall be made by the Corporation only upon a determination that such indemnification of the Officer or Director is proper under the circumstances because he or she has met the applicable standard of conduct set forth in Section 6.01. Such determination may be made only:

A. by a majority vote of a quorum of Directors of the Corporation who were not or are not parties to, or threatened with, any such action, suit or proceeding;

B. if such a quorum is not obtainable or if a majority of a quorum of disinterested Directors so directs, in a written opinion by independent legal counsel other than an attorney retained previously by the Corporation, or a firm having associated with it an attorney, who has been retained by or who has performed services for the Corporation, or any person to be indemnified, within the past five (5) years; or

C. by the Court of Common Pleas of Washington County, Ohio or (if the Corporation is a party thereto) the court in which such action, suit or proceeding was brought, if any.

Any such determination may be made by a court under division (c) of this Section 6.04 at any time (including, without limitation, any time before, during or after the time when any such determination may be requested of be under consideration by or have been denied or disregarded by the disinterested Directors under division (A) or by independent legal counsel under division (B) of this Section 6.04) No decision for any reason to deny any such

determination, by the disinterested Directors under division (A) or by independent legal counsel under division (B) of this Section 6.04 shall be evidence in rebuttal of the presumption recited in Section 6.01. Any determination made by the disinterested Directors under division (A) or by independent legal counsel under division (b) of this Section 6.04 to make indemnification in respect of any claim, issue or matter asserted in an action or suit threatened or brought by or in the right of the Corporation shall be promptly communicated to the person who threatened or brought such action or suit, and within ten (10) days after receipt of such notification such person shall have the right to petition the Court of Common Pleas of Washington county, Ohio, or the court in which such action or suit was brought, if any, to review the reasonableness of such determination.

Section 6.05. Advances for Expenses. Expenses (including, without limitation, attorneys' fees, filing fees, court reporters' fees and transcript costs) incurred in defending any action, suit or proceeding referred to in Section 6.01 shall be paid by the Corporation in advance of the final disposition of such action, suit or proceeding to or on behalf of the Officer or Director promptly as such expenses are incurred by him or her, but only if such Officer or Director shall first agree, in writing, to repay all amounts so paid in respect of any claim, issue or other matter asserted in such action, suit or proceeding in defense of which he or she shall not have been successful on the merits or otherwise:

A. if it shall ultimately be determined a provided in Section 6.04 that he or she is not entitled to be indemnified by the Corporation as provided under Section 6.01; or

B. if, in respect of any claim, issue or other matter asserted by or in the right of the Corporation in such action or suit, he or she shall have been adjudged to be liable for acting with reckless disregard for the best interests of the Corporation or misconduct (other than negligence) in the performance of his or her duties to the Corporation, unless and only to the extent that the Court of Common Pleas of Washington county, Ohio, or the court in which such action or suit was brought, shall determine upon application that, despite such adjudication of liability, and in view of all the circumstances, he or she fairly and reasonably entitled to all or part of such indemnification.

Section 6.06. Insurance. The Corporation may purchase and maintain insurance or furnish similar protection, including but not limited to trust funds, letters of credit or self-insurance, on behalf of any person who is or was a Director, Officer, employee, agent or volunteer of the Corporation, or is or was serving at the request of the Corporation as a director, trustee, officer, employee, agent or volunteer of another corporation (domestic or foreign, nonprofit or for profit), partnership, joint venture, trust or other enterprise, against any liability

asserted against him or her and incurred by him or her in any such capacity, or arising out of his or her status as such, whether or not the Corporation would have the obligation or the power to indemnify him or her against such liability under the provisions of the ARTICLE VI. Insurance may be purchased from or maintained with a person in whom the Corporation has a financial interest.

APPENDIX I.B.
ORSANCO Continuous Sampling Data, 2000 - 2011

Bimonthly Site Name	River	Confluence Mile Point	Latitude	Longitude	Date	Flow (kcfs)	Parameter	Censored Result	Units	Method #	Sample Type
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2000	2.2	Cl-	42	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2000	2.2	TSS	10	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2000	2.2	Al	150	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2000	2.2	DO	14.4	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2000	2.2	SpCond	750	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2000	2.2	Temp	5	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2000	2.2	pH	8	s.u.		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2000	2.2	Zn	<20	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2000	2.2	Mn	118	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2000	2.2	Pb	<1	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2000	2.2	TP	<0.05	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2000	2.2	TOC	7	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2000	2.2	Hardness	269	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2000	2.2	Fe	370	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2000	2.2	NH3-N	0.08	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2000	2.2	NO2-NO3-N	1.79	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2000	2.2	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2000	2.2	Mg	22.5	mg/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2000	2.2	Cd	<0.5	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2000	2.2	Cu	<5	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2000	2.2	SO4	136	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/13/2000	4.4	Pb	<1	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/13/2000	4.4	TP	0.08	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/13/2000	4.4	Al	330	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/13/2000	4.4	DO	11.6	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/13/2000	4.4	Temp	10	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/13/2000	4.4	TOC	4	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/13/2000	4.4	pH	8.4	s.u.		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/13/2000	4.4	Cl-	41	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/13/2000	4.4	Zn	<20	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/13/2000	4.4	Mn	108	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/13/2000	4.4	SO4	86	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/13/2000	4.4	NO2-NO3-N	2.24	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/13/2000	4.4	TSS	13	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/13/2000	4.4	Fe	530	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/13/2000	4.4	Hardness	234	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/13/2000	4.4	NH3-N	<0.02	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/13/2000	4.4	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/13/2000	4.4	Mg	18	mg/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/13/2000	4.4	Cd	<0.5	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/13/2000	4.4	Cu	<5	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/8/2000	6.4	Fe	710	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/8/2000	6.4	SpCond	525	umhos/cm		Grab Sample

Bimonthly Site Name	River	Confluence Mile Point	Latitude	Longitude	Date	Flow (kcfs)	Parameter	Censored Result	Units	Method #	Sample Type
Marietta	Muskingum	172.2	39.47028	81.49111	5/8/2000	6.4	Temp	18.5	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/8/2000	6.4	TOC	8	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/8/2000	6.4	pH	8.5	s.u.		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/8/2000	6.4	Cl-	35	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/8/2000	6.4	Zn	<20	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/8/2000	6.4	Mn	110	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/8/2000	6.4	Pb	<1	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/8/2000	6.4	DO	10	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/8/2000	6.4	Hardness	219	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/8/2000	6.4	Cu	<5	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/8/2000	6.4	TSS	24	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/8/2000	6.4	Al	450	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/8/2000	6.4	TP	0.09	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/8/2000	6.4	NH3-N	<0.03	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/8/2000	6.4	NO2-NO3-N	0.76	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/8/2000	6.4	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/8/2000	6.4	Mg	17.8	mg/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/8/2000	6.4	Cd	<0.5	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/8/2000	6.4	SO4	99	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/20/2000	6.3	Se	<4	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/20/2000	6.3	As	<4	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/20/2000	6.3	Cl-	54	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/20/2000	6.3	Ba	65	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/20/2000	6.3	Cr	<5	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/20/2000	6.3	Ni	6.8	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/20/2000	6.3	Ag	<0.5	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/20/2000	6.3	pH	7.81	s.u.		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/20/2000	6.3	Zn	<20	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/20/2000	6.3	DO	7.4	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/20/2000	6.3	TOC	4	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/20/2000	6.3	Al	920	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/20/2000	6.3	Temp	25.4	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/20/2000	6.3	Hardness	268	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/20/2000	6.3	Hg	<0.2	ug/L	245.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/20/2000	6.3	SpCond	652	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/20/2000	6.3	SO4	90	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/20/2000	6.3	TP	0.32	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/20/2000	6.3	NH3-N	0.08	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/20/2000	6.3	NO2-NO3-N	1.44	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/20/2000	6.3	Mg	19.8	mg/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/20/2000	6.3	Cd	<0.5	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/20/2000	6.3	Cu	<5	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/20/2000	6.3	Fe	1290	ug/L	200.7	Grab Sample

Bimonthly Site Name	River	Confluence Mile Point	Latitude	Longitude	Date	Flow (kcfs)	Parameter	Censored Result	Units	Method #	Sample Type
Marietta	Muskingum	172.2	39.47028	81.49111	7/20/2000	6.3	Pb	1.8	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/20/2000	6.3	Mn	155	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/20/2000	6.3	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/20/2000	6.3	TSS	42	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/6/2000	1.9	SpCond	640	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/6/2000	1.9	Pb	1.2	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/6/2000	1.9	Mn	128	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/6/2000	1.9	Zn	<20	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/6/2000	1.9	Cl-	54	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/6/2000	1.9	pH	7.9	s.u.		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/6/2000	1.9	Temp	27	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/6/2000	1.9	Al	670	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/6/2000	1.9	Mg	18.7	mg/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/6/2000	1.9	TOC	4	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/6/2000	1.9	Cd	<0.5	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/6/2000	1.9	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/6/2000	1.9	NO2-NO3-N	1.1	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/6/2000	1.9	NH3-N	0.07	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/6/2000	1.9	TP	0.25	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/6/2000	1.9	Hardness	234	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/6/2000	1.9	SO4	95	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/6/2000	1.9	TSS	20	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/6/2000	1.9	Fe	800	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/6/2000	1.9	Cu	<5	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/28/2000	3.5	Pb	<1	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/28/2000	3.5	Mn	104	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/28/2000	3.5	Zn	<20	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/28/2000	3.5	Cl-	56	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/28/2000	3.5	pH	7.82	s.u.		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/28/2000	3.5	TOC	4	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/28/2000	3.5	Temp	6.27	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/28/2000	3.5	SpCond	731	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/28/2000	3.5	DO	12.4	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/28/2000	3.5	Cd	<0.5	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/28/2000	3.5	Al	250	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/28/2000	3.5	SO4	141	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/28/2000	3.5	Fe	410	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/28/2000	3.5	Hardness	290	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/28/2000	3.5	TP	0.19	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/28/2000	3.5	NH3-N	<0.03	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/28/2000	3.5	NO2-NO3-N	1.32	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/28/2000	3.5	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/28/2000	3.5	Mg	27.5	mg/L	200.7	Grab Sample

Bimonthly Site Name	River	Confluence Mile Point	Latitude	Longitude	Date	Flow (kcfs)	Parameter	Censored Result	Units	Method #	Sample Type
Marietta	Muskingum	172.2	39.47028	81.49111	11/28/2000	3.5	TSS	8	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/28/2000	3.5	Cu	<5	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/10/2001	3.6	Fe	490	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/10/2001	3.6	Pb	<1	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/10/2001	3.6	DO	14.37	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/10/2001	3.6	SpCond	649	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/10/2001	3.6	Temp	1.13	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/10/2001	3.6	TOC	5	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/10/2001	3.6	pH	7.65	s.u.		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/10/2001	3.6	Cl-	52	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/10/2001	3.6	Zn	<20	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/10/2001	3.6	Al	200	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/10/2001	3.6	SO4	94	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/10/2001	3.6	Mn	164	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/10/2001	3.6	TSS	6	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/10/2001	3.6	Hardness	260	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/10/2001	3.6	TP	0.19	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/10/2001	3.6	NH3-N	0.28	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/10/2001	3.6	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/10/2001	3.6	Mg	22	mg/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/10/2001	3.6	Cd	<0.5	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/10/2001	3.6	Cu	<5	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/10/2001	3.6	NO2-NO3-N	2.18	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2001	9.5	DO	13.4	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2001	9.5	Mn	173	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2001	9.5	Zn	30	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2001	9.5	Cl-	40	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2001	9.5	pH	8.4	s.u.		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2001	9.5	TOC	2	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2001	9.5	Al	3080	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2001	9.5	SpCond	490	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2001	9.5	Pb	2.1	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2001	9.5	TSS	66	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2001	9.5	Temp	7.5	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2001	9.5	TP	0.24	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2001	9.5	Hardness	203	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2001	9.5	Fe	3020	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2001	9.5	SO4	93	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2001	9.5	NH3-N	<0.03	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2001	9.5	NO2-NO3-N	1.07	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2001	9.5	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2001	9.5	Mg	17.7	mg/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2001	9.5	Cd	<0.5	ug/L	200.7	Grab Sample

Bimonthly Site Name	River	Confluence Mile Point	Latitude	Longitude	Date	Flow (kcfs)	Parameter	Censored Result	Units	Method #	Sample Type
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2001	9.5	Cu	<5	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/3/2001	6.2	DO	11	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/3/2001	6.2	Zn	<20	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/3/2001	6.2	Al	610	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/3/2001	6.2	Mg	18.5	mg/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/3/2001	6.2	Mn	131	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/3/2001	6.2	Pb	1.3	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/3/2001	6.2	Cl-	26	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/3/2001	6.2	pH	8.2	s.u.		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/3/2001	6.2	TOC	4	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/3/2001	6.2	SpCond	520	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/3/2001	6.2	Fe	1040	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/3/2001	6.2	Temp	19	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/3/2001	6.2	NO2-NO3-N	1.12	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/3/2001	6.2	TSS	28	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/3/2001	6.2	SO4	94	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/3/2001	6.2	Hardness	221	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/3/2001	6.2	TP	0.21	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/3/2001	6.2	Cu	8.4	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/3/2001	6.2	NH3-N	0.04	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/3/2001	6.2	Cd	<0.5	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2001	2.3	SpCond	660	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2001	2.3	Cu	<5	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2001	2.3	Fe	440	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2001	2.3	Pb	<1	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2001	2.3	Mn	100	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2001	2.3	Hg	<0.2	ug/L	245.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2001	2.3	Zn	<10	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2001	2.3	As	<3	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2001	2.3	Cl-	55.6	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2001	2.3	Ba	<10	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2001	2.3	DO	7.9	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2001	2.3	Ag	<0.5	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2001	2.3	Temp	28	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2001	2.3	TOC	3.47	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2001	2.3	pH	8.2	s.u.		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2001	2.3	NO2-NO3-N	0.28	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2001	2.3	Cr6+	<10	ug/L	SM3500 CrD	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2001	2.3	Cr	<5	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2001	2.3	Ni	<5	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2001	2.3	Se	<3	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2001	2.3	Al	440	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2001	2.3	TSS	18	mg/L	160.2	Grab Sample

Bimonthly Site Name	River	Confluence Mile Point	Latitude	Longitude	Date	Flow (kcfs)	Parameter	Censored Result	Units	Method #	Sample Type
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2001	2.3	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2001	2.3	NH3-N	<0.03	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2001	2.3	TP	0.39	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2001	2.3	Hardness	317	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2001	2.3	SO4	116	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2001	2.3	Mg	28	mg/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2001	2.3	Cd	<0.5	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/12/2001	1.1	pH	8.5	s.u.		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/12/2001	1.1	TOC	4.3	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/12/2001	1.1	Temp	27	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/12/2001	1.1	Cl-	81	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/12/2001	1.1	Mg	28	mg/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/12/2001	1.1	DO	8.7	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/12/2001	1.1	Phenols	5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/12/2001	1.1	Cd	<0.5	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/12/2001	1.1	Zn	<10	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/12/2001	1.1	Mn	110	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/12/2001	1.1	Pb	<1	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/12/2001	1.1	Cu	<5	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/12/2001	1.1	Al	253	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/12/2001	1.1	NO2-NO3-N	0.45	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/12/2001	1.1	Hardness	340	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/12/2001	1.1	SpCond	790	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/12/2001	1.1	Fe	370	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/12/2001	1.1	TP	2.1	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/12/2001	1.1	SO4	140	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/12/2001	1.1	TSS	8	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/12/2001	1.1	NH3-N	<0.03	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/6/2001	2.4	Ag	<0.5	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/6/2001	2.4	Fe	598	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/6/2001	2.4	Pb	1.4	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/6/2001	2.4	Mn	118	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/6/2001	2.4	Hg	<0.2	ug/L	245.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/6/2001	2.4	Zn	<10	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/6/2001	2.4	As	<3	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/6/2001	2.4	Cl-	50	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/6/2001	2.4	Ba	65.2	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/6/2001	2.4	Cr	<5	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/6/2001	2.4	Cu	<5	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/6/2001	2.4	Se	<3	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/6/2001	2.4	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/6/2001	2.4	Cr6+	<10	ug/L	SM3500 CrD	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/6/2001	2.4	pH	8.5	s.u.		Grab Sample

Bimonthly Site Name	River	Confluence Mile Point	Latitude	Longitude	Date	Flow (kcfs)	Parameter	Censored Result	Units	Method #	Sample Type
Marietta	Muskingum	172.2	39.47028	81.49111	11/6/2001	2.4	TOC	6	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/6/2001	2.4	Temp	14	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/6/2001	2.4	SpCond	630	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/6/2001	2.4	DO	9.7	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/6/2001	2.4	Al	296	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/6/2001	2.4	Ni	<5	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/6/2001	2.4	SO4	110	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/6/2001	2.4	Cd	<0.5	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/6/2001	2.4	TSS	6	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/6/2001	2.4	Hardness	220	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/6/2001	2.4	TP	<0.05	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/6/2001	2.4	NH3-N	0.11	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/6/2001	2.4	NO2-NO3-N	2.3	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/6/2001	2.4	Mg	18	mg/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2002	15.5	Cu	<5	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2002	15.5	NO2-NO3-N	2.1	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2002	15.5	TOC	4	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2002	15.5	Al	180	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2002	15.5	DO	12	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2002	15.5	SpCond	540	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2002	15.5	Temp	3	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2002	15.5	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2002	15.5	pH	8	s.u.		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2002	15.5	Cl-	32	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2002	15.5	Fe	510	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2002	15.5	NH3-N	0.33	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2002	15.5	Cd	<0.5	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2002	15.5	Mg	27	mg/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2002	15.5	Pb	<1	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2002	15.5	Mn	110	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2002	15.5	Hardness	280	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2002	15.5	SO4	130	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2002	15.5	TSS	4	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2002	15.5	TP	0.12	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2002	15.5	Zn	<10	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2002	5.9	Ag	<0.5	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2002	5.9	Cu	5.1	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2002	5.9	Fe	827	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2002	5.9	Pb	1.1	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2002	5.9	Mn	113	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2002	5.9	Hg	<0.2	ug/L	245.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2002	5.9	Zn	<10	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2002	5.9	Cl-	53	mg/L	SM 4500	Grab Sample

Bimonthly Site Name	River	Confluence Mile Point	Latitude	Longitude	Date	Flow (kcfs)	Parameter	Censored Result	Units	Method #	Sample Type
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2002	5.9	Cr	<5	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2002	5.9	Cd	<0.5	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2002	5.9	Se	<3	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2002	5.9	As	<3	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2002	5.9	Cr6+	<10	ug/L	SM3500 CrD	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2002	5.9	pH	8.7	s.u.		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2002	5.9	TOC	3.7	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2002	5.9	Temp	8	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2002	5.9	SpCond	580	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2002	5.9	DO	13.5	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2002	5.9	Al	405	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2002	5.9	Ni	<5	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2002	5.9	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2002	5.9	NO2-NO3-N	1.6	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2002	5.9	NH3-N	0.08	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2002	5.9	TP	0.08	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2002	5.9	Hardness	240	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2002	5.9	SO4	90	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2002	5.9	TSS	18	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2002	5.9	Mg	19	mg/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2002	5.9	Ba	43	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/6/2002	11.8	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/6/2002	11.8	Cd	<0.5	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/6/2002	11.8	SO4	87	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/6/2002	11.8	Hardness	250	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/6/2002	11.8	TP	0.13	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/6/2002	11.8	Cu	5	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/6/2002	11.8	NO2-NO3-N	1.3	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/6/2002	11.8	Zn	23.6	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/6/2002	11.8	NH3-N	0.04	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/6/2002	11.8	Fe	3860	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/6/2002	11.8	Pb	3.2	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/6/2002	11.8	Mg	22	mg/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/6/2002	11.8	Al	1690	ug/L	200.7	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/6/2002	11.8	TSS	75	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/6/2002	11.8	Cl-	26	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/6/2002	11.8	pH	7.9	s.u.		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/6/2002	11.8	TOC	3.6	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/6/2002	11.8	Temp	16	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/6/2002	11.8	SpCond	480	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/6/2002	11.8	DO	10.1	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/6/2002	11.8	Mn	203	ug/L	200.8	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2002	3	Hardness	252	mg/L	130.2	Grab Sample

Bimonthly Site Name	River	Confluence Mile Point	Latitude	Longitude	Date	Flow (kcfs)	Parameter	Censored Result	Units	Method #	Sample Type
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2002	3	TKN	1.54	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2002	3	NH3-N	0.24	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2002	3	SO4	28	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2002	3	NO2-NO3-N	1.5	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2002	3	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2002	3	Cl-	43	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2002	3	pH	8.2	s.u.		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2002	3	TOC	3.99	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2002	3	Temp	28	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2002	3	SpCond	680	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2002	3	DO	8.7	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2002	3	TSS	20	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2002	3	TP	0.164	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/5/2002	1.1	Temp	26	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/5/2002	1.1	SpCond	830	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/5/2002	1.1	TOC	4.53	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/5/2002	1.1	pH	8.2	s.u.		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/5/2002	1.1	Cl-	82	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/5/2002	1.1	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/5/2002	1.1	NO2-NO3-N	0.82	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/5/2002	1.1	NH3-N	0.03	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/5/2002	1.1	TKN	2.82	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/5/2002	1.1	TP	0.053	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/5/2002	1.1	Hardness	286	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/5/2002	1.1	SO4	117	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/5/2002	1.1	TSS	12	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/5/2002	1.1	DO	7.7	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/13/2002	7.9	TKN	0.66	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/13/2002	7.9	DO	10.4	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/13/2002	7.9	SpCond	780	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/13/2002	7.9	Temp	11	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/13/2002	7.9	TOC	5.05	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/13/2002	7.9	Cl-	50	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/13/2002	7.9	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/13/2002	7.9	NH3-N	0.03	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/13/2002	7.9	TP	0.141	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/13/2002	7.9	Hardness	320	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/13/2002	7.9	SO4	123	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/13/2002	7.9	TSS	41	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/13/2002	7.9	NO2-NO3-N	1.36	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/8/2003	9.3	TSS	37	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/8/2003	9.3	Temp	3	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/8/2003	9.3	TOC	5.73	mg/L	415.1	Grab Sample

Bimonthly Site Name	River	Confluence Mile Point	Latitude	Longitude	Date	Flow (kcfs)	Parameter	Censored Result	Units	Method #	Sample Type
Marietta	Muskingum	172.2	39.47028	81.49111	1/8/2003	9.3	Cl-	34	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/8/2003	9.3	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/8/2003	9.3	DO	13.5	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/8/2003	9.3	NO2-NO3-N	1.39	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/8/2003	9.3	NH3-N	0.08	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/8/2003	9.3	TKN	0.63	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/8/2003	9.3	TP	0.174	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/8/2003	9.3	Hardness	180	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/8/2003	9.3	SO4	55	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/8/2003	9.3	SpCond	460	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2003	26.3	SO4	62	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2003	26.3	Hardness	168	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2003	26.3	TP	0.32	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2003	26.3	TKN	1.05	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2003	26.3	NO2-NO3-N	1.16	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2003	26.3	Cl-	79	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2003	26.3	TOC	7.23	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2003	26.3	Temp	1	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2003	26.3	SpCond	410	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2003	26.3	NH3-N	0.2	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2003	26.3	DO	14.4	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2003	26.3	TSS	188	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/11/2003	26.3	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/14/2003	21.8	DO	9.4	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/14/2003	21.8	Temp	16	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/14/2003	21.8	TOC	6.64	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/14/2003	21.8	Cl-	51	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/14/2003	21.8	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/14/2003	21.8	NO2-NO3-N	0.68	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/14/2003	21.8	NH3-N	<0.03	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/14/2003	21.8	TKN	1.08	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/14/2003	21.8	TP	0.379	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/14/2003	21.8	Hardness	168	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/14/2003	21.8	SO4	54	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/14/2003	21.8	SpCond	400	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/14/2003	21.8	TSS	114	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2003	6.8	NO2-NO3-N	0.74	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2003	6.8	SO4	83	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2003	6.8	Hardness	252	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2003	6.8	TP	0.06	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2003	6.8	TKN	0.78	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2003	6.8	NH3-N	0.3	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2003	6.8	Phenols	<5	ug/L	420.4	Grab Sample

Bimonthly Site Name	River	Confluence Mile Point	Latitude	Longitude	Date	Flow (kcfs)	Parameter	Censored Result	Units	Method #	Sample Type
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2003	6.8	TOC	4.02	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2003	6.8	Temp	27	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2003	6.8	SpCond	720	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2003	6.8	DO	6.9	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2003	6.8	TSS	24.3	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/9/2003	6.8	Cl-	64	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/8/2003	11.9	TKN	0.36	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/8/2003	11.9	TSS	29	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/8/2003	11.9	SO4	52	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/8/2003	11.9	TP	0.281	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/8/2003	11.9	SpCond	410	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/8/2003	11.9	DO	9	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/8/2003	11.9	NH3-N	0.06	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/8/2003	11.9	NO2-NO3-N	1.18	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/8/2003	11.9	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/8/2003	11.9	Cl-	25	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/8/2003	11.9	TOC	6.29	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/8/2003	11.9	Temp	20	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/8/2003	11.9	Hardness	116	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/3/2003	6.7	NO2-NO3-N	1.1	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/3/2003	6.7	Phenols	5.4	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/3/2003	6.7	DO	12	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/3/2003	6.7	SpCond	580	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/3/2003	6.7	Temp	12	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/3/2003	6.7	TOC	4.93	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/3/2003	6.7	NH3-N	<0.03	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/3/2003	6.7	TKN	0.37	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/3/2003	6.7	TP	0.136	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/3/2003	6.7	Hardness	344	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/3/2003	6.7	SO4	110	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/3/2003	6.7	TSS	15	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/3/2003	6.7	Cl-	20	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/12/2004	30.4	TP	0.266	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/12/2004	30.4	DO	15	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/12/2004	30.4	SpCond	320	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/12/2004	30.4	Temp	2	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/12/2004	30.4	TOC	4.06	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/12/2004	30.4	Cl-	14	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/12/2004	30.4	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/12/2004	30.4	NO2-NO3-N	2.68	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/12/2004	30.4	TKN	0.41	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/12/2004	30.4	Hardness	144	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/12/2004	30.4	SO4	52	mg/L	HACH 8051	Grab Sample

Bimonthly Site Name	River	Confluence Mile Point	Latitude	Longitude	Date	Flow (kcfs)	Parameter	Censored Result	Units	Method #	Sample Type
Marietta	Muskingum	172.2	39.47028	81.49111	1/12/2004	30.4	TSS	57	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/12/2004	30.4	NH3-N	0.16	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/10/2004	12.4	Cl-	33	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/10/2004	12.4	TSS	30	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/10/2004	12.4	TOC	3.6	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/10/2004	12.4	SO4	88	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/10/2004	12.4	DO	13.1	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/10/2004	12.4	Temp	7	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/10/2004	12.4	pH	7.6	s.u.		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/10/2004	12.4	NO2-NO3-N	0.81	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/10/2004	12.4	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/10/2004	12.4	NH3-N	0.1	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/10/2004	12.4	TKN	0.29	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/10/2004	12.4	TP	0.091	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/10/2004	12.4	Hardness	196	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/10/2004	12.4	SpCond	490	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/4/2004	19	TP	0.228	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/4/2004	19	Cl-	28	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/4/2004	19	DO	10.2	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/4/2004	19	SpCond	530	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/4/2004	19	Temp	13	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/4/2004	19	TOC	10.2	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/4/2004	19	pH	7.4	s.u.		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/4/2004	19	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/4/2004	19	NO2-NO3-N	1.8	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/4/2004	19	TKN	0.81	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/4/2004	19	Hardness	170	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/4/2004	19	SO4	110	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/4/2004	19	TSS	56	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/4/2004	19	NH3-N	0.04	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/12/2004	7	Cl-	42	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/12/2004	7	Hardness	240	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/12/2004	7	DO	8.1	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/12/2004	7	SpCond	640	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/12/2004	7	Temp	25	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/12/2004	7	TOC	8.65	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/12/2004	7	pH	8.4	s.u.		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/12/2004	7	NH3-N	0.08	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/12/2004	7	TSS	14	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/12/2004	7	TP	0.056	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/12/2004	7	SO4	130	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/12/2004	7	TKN	0.38	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/12/2004	7	NO2-NO3-N	0.94	mg/L	353.2	Grab Sample

Bimonthly Site Name	River	Confluence Mile Point	Latitude	Longitude	Date	Flow (kcfs)	Parameter	Censored Result	Units	Method #	Sample Type
Marietta	Muskingum	172.2	39.47028	81.49111	9/15/2004	16	NH3-N	0.03	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/15/2004	16	DO	8.6	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/15/2004	16	SpCond	340	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/15/2004	16	Temp	21	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/15/2004	16	TOC	8.13	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/15/2004	16	pH	7.1	s.u.		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/15/2004	16	NO2-NO3-N	0.818	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/15/2004	16	TKN	0.692	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/15/2004	16	TP	0.14	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/15/2004	16	Hardness	136	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/15/2004	16	SO4	64	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/15/2004	16	TSS	83	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/15/2004	16	Cl-	16	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/10/2004	6	TSS	9.33	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/10/2004	6	pH	7.2	s.u.		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/10/2004	6	DO	11.6	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/10/2004	6	SpCond	620	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/10/2004	6	Temp	9	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/10/2004	6	TOC	3.18	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/10/2004	6	NH3-N	<0.03	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/10/2004	6	TKN	1.51	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/10/2004	6	TP	1.84	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/10/2004	6	Hardness	260	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/10/2004	6	SO4	160	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/10/2004	6	Cl-	34	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/3/2005	20.9	pH	8.1	s.u.		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/3/2005	20.9	DO	12.1	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/3/2005	20.9	SpCond	500	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/3/2005	20.9	TOC	2.87	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/3/2005	20.9	Cl-	47	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/3/2005	20.9	NO2-NO3-N	2.19	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/3/2005	20.9	TKN	1.37	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/3/2005	20.9	TP	0.219	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/3/2005	20.9	Hardness	196	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/3/2005	20.9	SO4	95	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/3/2005	20.9	NH3-N	0.09	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/3/2005	20.9	Temp	9	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/3/2005	20.9	TSS	73	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2005	10.2	TOC	5.37	mg/L	415.1	DUPLICATE
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2005	10.2	Cl-	44	mg/L	SM 4500	DUPLICATE
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2005	10.2	Hardness	228	mg/L	130.2	DUPLICATE
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2005	10.2	NO2-NO3-N	1.22	mg/L	353.2	DUPLICATE
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2005	10.2	TSS	22	mg/L	160.2	DUPLICATE

Bimonthly Site Name	River	Confluence Mile Point	Latitude	Longitude	Date	Flow (kcfs)	Parameter	Censored Result	Units	Method #	Sample Type
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2005	10.2	Phenols	<5	ug/L	420.4	DUPLICATE
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2005	10.2	TKN	0.887	mg/L	351.2	DUPLICATE
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2005	10.2	TP	0.303	mg/L	365.1	DUPLICATE
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2005	10.2	NH3-N	0.04	mg/L	350.3	DUPLICATE
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2005	10.2	TKN	1.28	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2005	10.2	SO4	100	mg/L	HACH 8051	DUPLICATE
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2005	10.2	SO4	100	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2005	10.2	NO2-NO3-N	1.23	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2005	10.2	TSS	19.3	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2005	10.2	DO	12.8	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2005	10.2	Hardness	104	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2005	10.2	TP	0.34	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2005	10.2	NH3-N	0.04	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2005	10.2	Cl-	44	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2005	10.2	TOC	7.23	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2005	10.2	Temp	4	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2005	10.2	SpCond	530	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/3/2005	16.5	TP	0.065	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/3/2005	16.5	DO	10.4	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/3/2005	16.5	SpCond	440	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/3/2005	16.5	Temp	11	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/3/2005	16.5	TOC	10.2	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/3/2005	16.5	Cl-	22	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/3/2005	16.5	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/3/2005	16.5	TSS	35.2	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/3/2005	16.5	TKN	1.21	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/3/2005	16.5	NH3-N	<0.03	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/3/2005	16.5	Hardness	190	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/3/2005	16.5	SO4	82	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/3/2005	16.5	NO2-NO3-N	1.51	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2005	2.6	NH3-N	0.05	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2005	2.6	DO	6.6	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2005	2.6	SpCond	610	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2005	2.6	Temp	25	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2005	2.6	TOC	6.3	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2005	2.6	Cl-	52	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2005	2.6	NO2-NO3-N	0.171	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2005	2.6	TKN	0.302	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2005	2.6	TP	0.04	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2005	2.6	Hardness	208	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2005	2.6	SO4	120	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2005	2.6	TSS	21	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2005	2.6	Phenols	<5	ug/L	420.4	Grab Sample

Bimonthly Site Name	River	Confluence Mile Point	Latitude	Longitude	Date	Flow (kcfs)	Parameter	Censored Result	Units	Method #	Sample Type
Marietta	Muskingum	172.2	39.47028	81.49111	9/12/2005	2.2	NH3-N	<0.03	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/12/2005	2.2	DO	7.8	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/12/2005	2.2	SpCond	560	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/12/2005	2.2	Temp	22	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/12/2005	2.2	TOC	5.16	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/12/2005	2.2	Cl-	38	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/12/2005	2.2	TKN	0.736	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/12/2005	2.2	TP	0.081	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/12/2005	2.2	Hardness	212	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/12/2005	2.2	SO4	115	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/12/2005	2.2	TSS	14.7	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/12/2005	2.2	NO2-NO3-N	1.17	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/12/2005	2.2	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/2/2005	4.8	TKN	0.861	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/2/2005	4.8	SpCond	550	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/2/2005	4.8	Temp	10	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/2/2005	4.8	TOC	3.97	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/2/2005	4.8	Cl-	42	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/2/2005	4.8	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/2/2005	4.8	NH3-N	<0.03	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/2/2005	4.8	TP	0.128	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/2/2005	4.8	Hardness	208	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/2/2005	4.8	SO4	135	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/2/2005	4.8	TSS	18	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/2/2005	4.8	NO2-NO3-N	2.69	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2006	8.5	NH3-N	0.12	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2006	8.5	SpCond	550	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2006	8.5	Temp	4.5	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2006	8.5	TOC	3.58	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2006	8.5	Cl-	44	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2006	8.5	DO	16.2	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2006	8.5	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2006	8.5	NO2-NO3-N	2.12	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2006	8.5	TSS	20.3	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2006	8.5	SO4	95	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2006	8.5	Hardness	220	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2006	8.5	TP	0.129	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/2/2006	8.5	TKN	0.75	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/8/2006	4.2	TP	0.095	mg/L	365.1	DUPLICATE
Marietta	Muskingum	172.2	39.47028	81.49111	3/8/2006	4.2	CN		ug/L	335.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/8/2006	4.2	SO4	118	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/8/2006	4.2	TKN	0.42	mg/L	351.2	DUPLICATE
Marietta	Muskingum	172.2	39.47028	81.49111	3/8/2006	4.2	Phenols	<5	ug/L	420.4	Grab Sample

Bimonthly Site Name	River	Confluence Mile Point	Latitude	Longitude	Date	Flow (kcfs)	Parameter	Censored Result	Units	Method #	Sample Type
Marietta	Muskingum	172.2	39.47028	81.49111	3/8/2006	4.2	NH3-N	<0.03	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/8/2006	4.2	TP	0.098	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/8/2006	4.2	NO2-NO3-N	1.46	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/8/2006	4.2	TKN	0.526	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/8/2006	4.2	TOC	2.09	mg/L	415.1	DUPLICATE
Marietta	Muskingum	172.2	39.47028	81.49111	3/8/2006	4.2	TOC	2.16	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/8/2006	4.2	TSS	9.6	mg/L	160.2	DUPLICATE
Marietta	Muskingum	172.2	39.47028	81.49111	3/8/2006	4.2	Cl-	48	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/8/2006	4.2	TSS	11.5	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/8/2006	4.2	NH3-N	<0.03	mg/L	350.3	DUPLICATE
Marietta	Muskingum	172.2	39.47028	81.49111	3/8/2006	4.2	Cl-	52	mg/L	SM 4500	DUPLICATE
Marietta	Muskingum	172.2	39.47028	81.49111	3/8/2006	4.2	Hardness	252	mg/L	130.2	DUPLICATE
Marietta	Muskingum	172.2	39.47028	81.49111	3/8/2006	4.2	SO4	120	mg/L	HACH 8051	DUPLICATE
Marietta	Muskingum	172.2	39.47028	81.49111	3/8/2006	4.2	NO2-NO3-N	1.48	mg/L	353.2	DUPLICATE
Marietta	Muskingum	172.2	39.47028	81.49111	3/8/2006	4.2	Phenols	<5	ug/L	420.4	DUPLICATE
Marietta	Muskingum	172.2	39.47028	81.49111	3/8/2006	4.2	Hardness	268	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/10/2006	3.5	SO4	128	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/10/2006	3.5	Cl-	42	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/10/2006	3.5	TOC	2.87	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/10/2006	3.5	TKN	0.823	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/10/2006	3.5	NO2-NO3-N	0.728	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/10/2006	3.5	TP	0.076	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/10/2006	3.5	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/10/2006	3.5	NH3-N	<0.03	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/10/2006	3.5	CN		ug/L	335.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/10/2006	3.5	Hardness	248	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/10/2006	3.5	TSS	22.3	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2006	6.6	TKN	0.845	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2006	6.6	NH3-N	<0.03	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2006	6.6	Hardness	172	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2006	6.6	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2006	6.6	TP	0.115	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2006	6.6	NO2-NO3-N	1.36	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2006	6.6	CN		ug/L	335.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2006	6.6	Cl-	28	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2006	6.6	TSS	28.3	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2006	6.6	SO4	76	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/11/2006	6.6	TOC	4.05	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/18/2006	3.4	NH3-N	0.03	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/18/2006	3.4	Hardness	292	mg/L	130.2	Duplicate
Marietta	Muskingum	172.2	39.47028	81.49111	9/18/2006	3.4	NO2-NO3-N	1.61	mg/L	353.2	Duplicate
Marietta	Muskingum	172.2	39.47028	81.49111	9/18/2006	3.4	NH3-N	0.03	mg/L	350.3	Duplicate
Marietta	Muskingum	172.2	39.47028	81.49111	9/18/2006	3.4	Cl-	72	mg/L	SM 4500	Duplicate

Bimonthly Site Name	River	Confluence Mile Point	Latitude	Longitude	Date	Flow (kcfs)	Parameter	Censored Result	Units	Method #	Sample Type
Marietta	Muskingum	172.2	39.47028	81.49111	9/18/2006	3.4	TSS	29.7	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/18/2006	3.4	TP	0.19	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/18/2006	3.4	Temp	22	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/18/2006	3.4	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/18/2006	3.4	Phenols	<5	ug/L	420.4	Duplicate
Marietta	Muskingum	172.2	39.47028	81.49111	9/18/2006	3.4	NO2-NO3-N	1.62	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/18/2006	3.4	Hardness	284	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/18/2006	3.4	TOC	3.15	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/18/2006	3.4	SO4	148	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/18/2006	3.4	DO	8.3	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/18/2006	3.4	SpCond	760	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/18/2006	3.4	TKN	0.434	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/18/2006	3.4	Cl-	72	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/18/2006	3.4	TKN	0.463	mg/L	351.2	Duplicate
Marietta	Muskingum	172.2	39.47028	81.49111	9/18/2006	3.4	TP	0.173	mg/L	365.1	Duplicate
Marietta	Muskingum	172.2	39.47028	81.49111	9/18/2006	3.4	TSS	30.7	mg/L	160.2	Duplicate
Marietta	Muskingum	172.2	39.47028	81.49111	9/18/2006	3.4	SO4	146	mg/L	HACH 8051	Duplicate
Marietta	Muskingum	172.2	39.47028	81.49111	9/18/2006	3.4	TOC	3.31	mg/L	415.1	Duplicate
Marietta	Muskingum	172.2	39.47028	81.49111	11/8/2006	6.9	TSS	16.8	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/8/2006	6.9	TP	0.117	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/8/2006	6.9	TKN	0.532	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/8/2006	6.9	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/8/2006	6.9	Temp	10	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/8/2006	6.9	SpCond	490	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/8/2006	6.9	Hardness	220	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/8/2006	6.9	NO2-NO3-N	1.6	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/8/2006	6.9	NH3-N	0.04	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/8/2006	6.9	Cl-	16	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/8/2006	6.9	TOC	3.54	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/8/2006	6.9	SO4	80	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/8/2006	6.9	DO	11	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/3/2007	9.4	TKN	0.745	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/3/2007	9.4	TSS	13.6	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/3/2007	9.4	TOC	3.41	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/3/2007	9.4	Temp	5	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/3/2007	9.4	SO4	90	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/3/2007	9.4	SpCond	480	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/3/2007	9.4	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/3/2007	9.4	NO2-NO3-N	1.84	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/3/2007	9.4	Hardness	216	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/3/2007	9.4	DO	12.8	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/3/2007	9.4	Cl-	30	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/3/2007	9.4	NH3-N	<0.03	mg/L	350.3	Grab Sample

Bimonthly Site Name	River	Confluence Mile Point	Latitude	Longitude	Date	Flow (kcfs)	Parameter	Censored Result	Units	Method #	Sample Type
Marietta	Muskingum	172.2	39.47028	81.49111	1/3/2007	9.4	TP	0.097	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2007	13.4	Cl-	30	mg/L	SM 4500	Duplicate
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2007	13.4	NH3-N	0.12	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2007	13.4	DO	12.5	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2007	13.4	NO2-NO3-N	1.68	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2007	13.4	SpCond	430	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2007	13.4	SO4	82	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2007	13.4	Temp	6	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2007	13.4	TKN	0.506	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2007	13.4	TOC	2.8	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2007	13.4	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2007	13.4	TSS	39.7	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2007	13.4	Cl-	40	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2007	13.4	NH3-N	0.18	mg/L	350.3	Duplicate
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2007	13.4	NO2-NO3-N	1.65	mg/L	353.2	Duplicate
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2007	13.4	Hardness	180	mg/L	130.2	Duplicate
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2007	13.4	TOC	3.2	mg/L	415.1	Duplicate
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2007	13.4	SO4	74	mg/L	HACH 8051	Duplicate
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2007	13.4	Phenols	<5	ug/L	420.4	Duplicate
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2007	13.4	TKN	0.584	mg/L	351.2	Duplicate
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2007	13.4	TP	0.105	mg/L	365.1	Duplicate
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2007	13.4	TSS	36	mg/L	160.2	Duplicate
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2007	13.4	TP	0.096	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/14/2007	13.4	Hardness	168	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/8/2007	8.1	TOC	4.27	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/8/2007	8.1	NH3-N	0.05	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/8/2007	8.1	Cl-	28	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/8/2007	8.1	DO	9.6	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/8/2007	8.1	NO2-NO3-N	1.55	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/8/2007	8.1	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/8/2007	8.1	TSS	63.5	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/8/2007	8.1	SO4	76	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/8/2007	8.1	Temp	18	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/8/2007	8.1	TKN	0.659	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/8/2007	8.1	Hardness	172	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/8/2007	8.1	TP	0.249	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/16/2007	1.4	TKN	0.918	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/16/2007	1.4	Temp	27	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/16/2007	1.4	SO4	175	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/16/2007	1.4	SpCond	780	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/16/2007	1.4	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/16/2007	1.4	NO2-NO3-N	0.313	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/16/2007	1.4	TSS	12.8	mg/L	160.2	Grab Sample

Bimonthly Site Name	River	Confluence Mile Point	Latitude	Longitude	Date	Flow (kcfs)	Parameter	Censored Result	Units	Method #	Sample Type
Marietta	Muskingum	172.2	39.47028	81.49111	7/16/2007	1.4	Hardness	272	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/16/2007	1.4	DO	7	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/16/2007	1.4	TP	0.068	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/16/2007	1.4	NH3-N	0.04	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/16/2007	1.4	Cl-	54	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/16/2007	1.4	TOC	4.94	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/18/2007	1.8	Cl-	56	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/18/2007	1.8	NH3-N	0.05	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/18/2007	1.8	NO2-NO3-N	1.19	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/18/2007	1.8	Hardness	264	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/18/2007	1.8	TOC	3.89	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/18/2007	1.8	SO4	144	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/18/2007	1.8	Temp	22	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/18/2007	1.8	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/18/2007	1.8	TKN	0.629	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/18/2007	1.8	TP	0.113	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/18/2007	1.8	TSS	10.6	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/18/2007	1.8	SpCond	720	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/18/2007	1.8	DO	8.1	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/7/2007	2.5	TP	0.12	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/7/2007	2.5	TSS	12.6	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/7/2007	2.5	TKN	0.698	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/7/2007	2.5	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/7/2007	2.5	Temp	11	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/7/2007	2.5	SpCond	600	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/7/2007	2.5	DO	9.9	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/7/2007	2.5	SO4	104	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/7/2007	2.5	TOC	4.84	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/7/2007	2.5	Hardness	100	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/7/2007	2.5	NO2-NO3-N	2.01	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/7/2007	2.5	NH3-N	<0.03	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/7/2007	2.5	Cl-	46	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/9/2008	8	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/9/2008	8	TSS	12.4	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/9/2008	8	TP	0.063	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/9/2008	8	TOC	2.7	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/9/2008	8	TKN	0.538	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/9/2008	8	Temp	6	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/9/2008	8	NH3-N	0.11	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/9/2008	8	SpCond	570	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/9/2008	8	NO2-NO3-N	1.95	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/9/2008	8	Hardness	216	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/9/2008	8	DO	12.6	mg/L		Grab Sample

Bimonthly Site Name	River	Confluence Mile Point	Latitude	Longitude	Date	Flow (kcfs)	Parameter	Censored Result	Units	Method #	Sample Type
Marietta	Muskingum	172.2	39.47028	81.49111	1/9/2008	8	Cl-	48	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/9/2008	8	SO4	110	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/26/2008	36.1	TOC	4.37	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/26/2008	36.1	NH3-N	0.08	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/26/2008	36.1	Cl-	18	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/26/2008	36.1	Hardness	112	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/26/2008	36.1	SO4	67	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/26/2008	36.1	DO	12.2	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/26/2008	36.1	SpCond	340	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/26/2008	36.1	Temp	6	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/26/2008	36.1	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/26/2008	36.1	TKN	0.506	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/26/2008	36.1	TP	0.085	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/26/2008	36.1	TSS	52	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/26/2008	36.1	NO2-NO3-N	1.47	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/15/2008	20.7	NO2-NO3-N	1.18	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/15/2008	20.7	SO4	82	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/15/2008	20.7	NH3-N	0.05	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/15/2008	20.7	TP	0.163	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/15/2008	20.7	Hardness	172	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/15/2008	20.7	TSS	79	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/15/2008	20.7	TOC	4.46	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/15/2008	20.7	Cl-	38	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/15/2008	20.7	SpCond	410	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/15/2008	20.7	Temp	15	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/15/2008	20.7	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/15/2008	20.7	TKN	1.12	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/15/2008	20.7	DO	9.9	mg/L		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/23/2008	4.9	TOC	5.7	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/23/2008	4.9	Temp	28	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/23/2008	4.9	NH3-N	0.09	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/23/2008	4.9	TP	0.083	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/23/2008	4.9	TKN	1.17	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/23/2008	4.9	SO4	100	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/23/2008	4.9	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/23/2008	4.9	NO2-NO3-N	0.431	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/23/2008	4.9	Hardness	260	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/23/2008	4.9	Cl-	32	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/23/2008	4.9	SpCond	590	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/23/2008	4.9	TSS	15	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/8/2008	1.8	TOC	4.36	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/8/2008	1.8	Cl-	72	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/8/2008	1.8	Hardness	288	mg/L	130.2	Grab Sample

Bimonthly Site Name	River	Confluence Mile Point	Latitude	Longitude	Date	Flow (kcfs)	Parameter	Censored Result	Units	Method #	Sample Type
Marietta	Muskingum	172.2	39.47028	81.49111	9/8/2008	1.8	NO2-NO3-N	0.228	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/8/2008	1.8	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/8/2008	1.8	SpCond	810	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/8/2008	1.8	SO4	144	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/8/2008	1.8	TKN	0.787	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/8/2008	1.8	TP	0.035	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/8/2008	1.8	TSS	12.2	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/8/2008	1.8	NH3-N	0.21	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	9/8/2008	1.8	Temp	27	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/19/2008	3.8	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/19/2008	3.8	Hardness	312	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/19/2008	3.8	TSS	8.73	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/19/2008	3.8	Cl-	74	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/19/2008	3.8	NO2-NO3-N	1.27	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/19/2008	3.8	TOC	3.33	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/19/2008	3.8	SO4	205	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/19/2008	3.8	SpCond	880	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/19/2008	3.8	Temp	8	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/19/2008	3.8	TP	0.157	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/19/2008	3.8	TKN	0.427	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	11/19/2008	3.8	NH3-N	0.06	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/13/2009	1.7	Cl-	28	mg/L	SM 4500	DUPLICATE
Marietta	Muskingum	172.2	39.47028	81.49111	7/13/2009	1.7	TSS	23.2	mg/L	160.2	DUPLICATE
Marietta	Muskingum	172.2	39.47028	81.49111	7/13/2009	1.7	SO4	140	mg/L	HACH 8051	DUPLICATE
Marietta	Muskingum	172.2	39.47028	81.49111	7/13/2009	1.7	Phenols	<5	ug/L	420.4	DUPLICATE
Marietta	Muskingum	172.2	39.47028	81.49111	7/13/2009	1.7	NO2-NO3-N	1.07	mg/L	353.2	DUPLICATE
Marietta	Muskingum	172.2	39.47028	81.49111	7/13/2009	1.7	TP	0.233	mg/L	365.1	DUPLICATE
Marietta	Muskingum	172.2	39.47028	81.49111	7/13/2009	1.7	TOC	6.8	mg/L	415.1	DUPLICATE
Marietta	Muskingum	172.2	39.47028	81.49111	7/13/2009	1.7	Hardness	228	mg/L	130.2	DUPLICATE
Marietta	Muskingum	172.2	39.47028	81.49111	7/13/2009	1.7	NH3-N	0.07	mg/L	350.3	DUPLICATE
Marietta	Muskingum	172.2	39.47028	81.49111	7/13/2009	1.7	TKN	1.63	mg/L	351.2	DUPLICATE
Marietta	Muskingum	172.2	39.47028	81.49111	1/25/2011	3.5	TKN	0.421	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/25/2011	3.5	Cl-	66	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/25/2011	3.5	TSS	3.75	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/25/2011	3.5	TP	0.122	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/25/2011	3.5	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/25/2011	3.5	TOC	3.96	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/25/2011	3.5	SO4	120	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/25/2011	3.5	SpCond	700	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/25/2011	3.5	Hardness	268	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/25/2011	3.5	NH3-N	0.11	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/25/2011	3.5	Temp	2	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	1/25/2011	3.5	NO2-NO3-N	2.2	mg/L	353.2	Grab Sample

Bimonthly Site Name	River	Confluence Mile Point	Latitude	Longitude	Date	Flow (kcfs)	Parameter	Censored Result	Units	Method #	Sample Type
Marietta	Muskingum	172.2	39.47028	81.49111	3/22/2011	33.9	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/22/2011	33.9	Cl-	28	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/22/2011	33.9	Hardness	148	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/22/2011	33.9	NO2-NO3-N	1.71	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/22/2011	33.9	SpCond	390	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/22/2011	33.9	SO4	59.9	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/22/2011	33.9	Temp	9	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/22/2011	33.9	TKN	1.17	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/22/2011	33.9	TSS	51.9	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/22/2011	33.9	TP	0.147	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/22/2011	33.9	NH3-N	0.04	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	3/22/2011	33.9	TOC	3.27	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/24/2011	21.7	NO2-NO3-N	0.974	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/24/2011	21.7	TSS	48.4	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/24/2011	21.7	Hardness	192	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/24/2011	21.7	Temp	19	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/24/2011	21.7	NH3-N	<0.03	mg/L	350.3	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/24/2011	21.7	Cl-	28	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/24/2011	21.7	Phenols	<5	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/24/2011	21.7	SpCond	460	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/24/2011	21.7	SO4	87.6	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/24/2011	21.7	TOC	3.89	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/24/2011	21.7	TP	0.112	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	5/24/2011	21.7	TKN	0.901	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/19/2011	2.5	TOC	3.5	mg/L	415.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/19/2011	2.5	Cl-	61.7	mg/L	SM 4500	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/19/2011	2.5	Temp	28.5	Deg C		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/19/2011	2.5	TDS	400	mg/L	M2540-C	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/19/2011	2.5	TSS	18	mg/L	160.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/19/2011	2.5	SO4	147	mg/L	HACH 8051	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/19/2011	2.5	TP	0.086	mg/L	365.1	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/19/2011	2.5	Phenols	3.4	ug/L	420.4	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/19/2011	2.5	NO2-NO3-N	0.6	mg/L	353.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/19/2011	2.5	TKN	0.44	mg/L	351.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/19/2011	2.5	Hardness	218	mg/L	130.2	Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/19/2011	2.5	SpCond	680	umhos/cm		Grab Sample
Marietta	Muskingum	172.2	39.47028	81.49111	7/19/2011	2.5	NH3-N	0.12	mg/L	350.3	Grab Sample

APPENDIX I.C.
Rare, Threatened, and Endangered Species List, ODNR-DNAP

Species Name	Common Name	Category	Last Observance	State Status	Federal Status
Great Blue Heron Rookery		Animal Assemblage	1990-03		
Great Blue Heron Rookery		Animal Assemblage	1990-03		
Mussel Bed		Animal Assemblage	1992-10		
Mussel Bed		Animal Assemblage	1992-10		
Mussel Bed		Animal Assemblage	1992-10		
Mussel Bed		Animal Assemblage	1992-10-30		
Mussel Bed		Animal Assemblage	1992-10		
Mussel Bed		Animal Assemblage	1987-06		
Mussel Bed		Animal Assemblage	1992-10		
Mussel Bed		Animal Assemblage	1987-09		
Mussel Bed		Animal Assemblage	1987-09		
Mussel Bed		Animal Assemblage	1987-09		
Mussel Bed		Animal Assemblage	1987-09		
Cyclonaias tuberculata	Purple Wartyback	Invertebrate Animal	1961-09	SC	
Cyclonaias tuberculata	Purple Wartyback	Invertebrate Animal	1992-10-30	SC	
Cyclonaias tuberculata	Purple Wartyback	Invertebrate Animal	1980-09-18	SC	
Cyprogenia stegaria	Fanshell	Invertebrate Animal	1993-10	E	FE
Cyprogenia stegaria	Fanshell	Invertebrate Animal	1992-10-23	E	FE
Cyprogenia stegaria	Fanshell	Invertebrate Animal	1973-09	E	FE
Cyprogenia stegaria	Fanshell	Invertebrate Animal	1962-05	E	FE
Cyprogenia stegaria	Fanshell	Invertebrate Animal	1992-10-30	E	FE
Ellipsaria lineolata	Butterfly	Invertebrate Animal	1980-10	E	
Ellipsaria lineolata	Butterfly	Invertebrate Animal	1992-10-23	E	
Ellipsaria lineolata	Butterfly	Invertebrate Animal	1992-10-30	E	
Ellipsaria lineolata	Butterfly	Invertebrate Animal	1993-10-01	E	
Ellipsaria lineolata	Butterfly	Invertebrate Animal	1980-09-18	E	
Ellipsaria lineolata	Butterfly	Invertebrate Animal	1992-10	E	
Ellipsaria lineolata	Butterfly	Invertebrate Animal	2010-05-06	E	
Elliptio crassidens	Elephant-ear	Invertebrate Animal	1992-10-30	E	
Epioblasma triquetra	Snuffbox	Invertebrate Animal	1980-10	E	FE
Epioblasma triquetra	Snuffbox	Invertebrate Animal	1980-10-01	E	FE
Epioblasma triquetra	Snuffbox	Invertebrate Animal	1962-07	E	FE
Fusconaia maculata maculata	Long-solid	Invertebrate Animal	1980-09-21	E	
Fusconaia maculata maculata	Long-solid	Invertebrate Animal	1992-10-30	E	
Fusconaia maculata maculata	Long-solid	Invertebrate Animal	1992-10-30	E	
Fusconaia maculata maculata	Long-solid	Invertebrate Animal	1992-10-01	E	
Fusconaia maculata maculata	Long-solid	Invertebrate Animal	1980-09	E	
Fusconaia maculata maculata	Long-solid	Invertebrate Animal	1992-10-30	E	
Lampsilis orbiculata	Pink Mucket	Invertebrate Animal	1981-08-16	E	FE
Lampsilis orbiculata	Pink Mucket	Invertebrate Animal	1981-08	E	FE
Lampsilis orbiculata	Pink Mucket	Invertebrate Animal	1966-06-22	E	FE
Lampsilis ovata	Pocketbook	Invertebrate Animal	1966-06	E	
Lampsilis ovata	Pocketbook	Invertebrate Animal	1965-09	E	
Lampsilis ovata	Pocketbook	Invertebrate Animal	1973-08	E	
Ligumia recta	Black Sandshell	Invertebrate Animal	1962-08	T	
Ligumia recta	Black Sandshell	Invertebrate Animal	1962-08	T	
Ligumia recta	Black Sandshell	Invertebrate Animal	1987-09-05	T	
Ligumia recta	Black Sandshell	Invertebrate Animal	1969-09	T	
Megalonaias nervosa	Washboard	Invertebrate Animal	1992-10-30	E	
Megalonaias nervosa	Washboard	Invertebrate Animal	1992-10-30	E	
Megalonaias nervosa	Washboard	Invertebrate Animal	1992-10-30	E	

Species Name	Common Name	Category	Last Observance	State Status	Federal Status
Megalonaias nervosa	Washboard	Invertebrate Animal	2010-05-06	E	
Obliquaria reflexa	Threehorn Wartyback	Invertebrate Animal	1977-06	T	
Obliquaria reflexa	Threehorn Wartyback	Invertebrate Animal	1980-07-18	T	
Obliquaria reflexa	Threehorn Wartyback	Invertebrate Animal	1980-09-20	T	
Obliquaria reflexa	Threehorn Wartyback	Invertebrate Animal	1993-10-01	T	
Obliquaria reflexa	Threehorn Wartyback	Invertebrate Animal	1992-10-30	T	
Obliquaria reflexa	Threehorn Wartyback	Invertebrate Animal	1980-08	T	
Obliquaria reflexa	Threehorn Wartyback	Invertebrate Animal	1992-10-30	T	
Obliquaria reflexa	Threehorn Wartyback	Invertebrate Animal	1980-09	T	
Obliquaria reflexa	Threehorn Wartyback	Invertebrate Animal	1980-07	T	
Obliquaria reflexa	Threehorn Wartyback	Invertebrate Animal	1992-10-30	T	
Plethobasus cyphyus	Sheepnose	Invertebrate Animal	1969-10	E	FE
Plethobasus cyphyus	Sheepnose	Invertebrate Animal	1980-10-07	E	FE
Plethobasus cyphyus	Sheepnose	Invertebrate Animal	1977-03	E	FE
Plethobasus cyphyus	Sheepnose	Invertebrate Animal	1962-08	E	FE
Plethobasus cyphyus	Sheepnose	Invertebrate Animal	1992-10-30	E	FE
Plethobasus cyphyus	Sheepnose	Invertebrate Animal	1992-10-30	E	FE
Pleurobema cordatum	Ohio Pigtoe	Invertebrate Animal	1980-09-21	E	
Pleurobema cordatum	Ohio Pigtoe	Invertebrate Animal	1992-10-26	E	
Pleurobema cordatum	Ohio Pigtoe	Invertebrate Animal	1992-10-30	E	
Pleurobema cordatum	Ohio Pigtoe	Invertebrate Animal	1992-10-30	E	
Pleurobema cordatum	Ohio Pigtoe	Invertebrate Animal	1992-10-30	E	
Pleurobema cordatum	Ohio Pigtoe	Invertebrate Animal	2010-05-06	E	
Pleurobema plenum	Rough Pigtoe	Invertebrate Animal	1992-10	X	FE
Pleurobema plenum	Rough Pigtoe	Invertebrate Animal	1992-10	X	FE
Pleurobema rubrum	Pyramid Pigtoe	Invertebrate Animal	1992-10	E	
Pleurobema rubrum	Pyramid Pigtoe	Invertebrate Animal	1992-10	E	
Pleurobema rubrum	Pyramid Pigtoe	Invertebrate Animal	1992-10-30	E	
Pleurobema sintoxia	Round Pigtoe	Invertebrate Animal	1992-10	SC	
Pleurobema sintoxia	Round Pigtoe	Invertebrate Animal	1992-10-30	SC	
Pleurobema sintoxia	Round Pigtoe	Invertebrate Animal	1992-10-30	SC	
Pleurobema sintoxia	Round Pigtoe	Invertebrate Animal	1992-10-30	SC	
Quadrula metanevra	Monkeyface	Invertebrate Animal	1992-10-30	E	
Quadrula metanevra	Monkeyface	Invertebrate Animal	1993-10-01	E	
Simpsonaias ambigua	Salamander Mussel	Invertebrate Animal	1967-01	SC	FSC
Simpsonaias ambigua	Salamander Mussel	Invertebrate Animal	1969-10	SC	FSC
Truncilla donaciformis	Fawnsfoot	Invertebrate Animal	1962-07	T	
Truncilla donaciformis	Fawnsfoot	Invertebrate Animal	1980-07-17	T	
Truncilla donaciformis	Fawnsfoot	Invertebrate Animal	1993-10-01	T	
Truncilla donaciformis	Fawnsfoot	Invertebrate Animal	1971-10	T	
Truncilla donaciformis	Fawnsfoot	Invertebrate Animal	1992-10-30	T	
Truncilla donaciformis	Fawnsfoot	Invertebrate Animal	1992-10-30	T	
Truncilla donaciformis	Fawnsfoot	Invertebrate Animal	1980-09	T	
Truncilla donaciformis	Fawnsfoot	Invertebrate Animal	1977-05-24	T	
Truncilla donaciformis	Fawnsfoot	Invertebrate Animal	1992-10-30	T	
Truncilla truncata	Deertoe	Invertebrate Animal	1992-10	SC	
Floodplain forest		Plant Community	1982-11-01		
Mixed emergent marsh		Plant Community	1983-08		
Mixed mesophytic forest		Plant Community	1984-07		
Mixed mesophytic forest		Plant Community	1982-10		
Mixed mesophytic forest		Plant Community	1994-04		

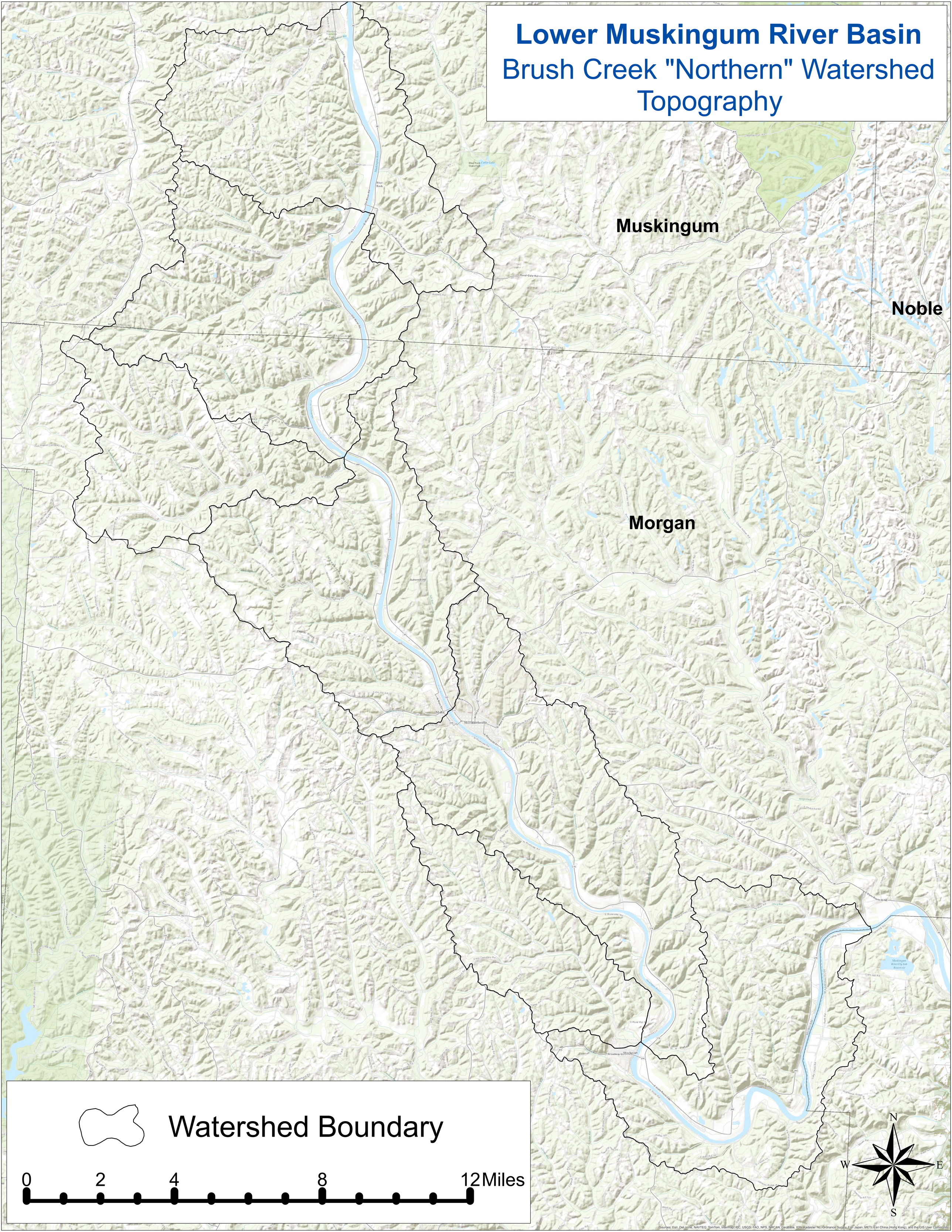
Species Name	Common Name	Category	Last Observance	State Status	Federal Status
Mixed mesophytic forest		Plant Community	1994-04		
Mixed mesophytic forest		Plant Community	1984-08		
Oak-hickory forest		Plant Community	1983-09-14		
Oak-maple forest		Plant Community	1994-11-23		
Chrysogonum virginianum	Golden-knees	Vascular Plant	1997-04-24	T	
Chrysogonum virginianum	Golden-knees	Vascular Plant	2011-05-19	T	
Chrysogonum virginianum	Golden-knees	Vascular Plant	2011-05-19	T	
Chrysogonum virginianum	Golden-knees	Vascular Plant	2011-05-19	T	
Chrysogonum virginianum	Golden-knees	Vascular Plant	1989-05-31	T	
Chrysogonum virginianum	Golden-knees	Vascular Plant	2011-05-19	T	
Accipiter striatus	Sharp-shinned Hawk	Vertebrate Animal	1986-08	SC	
Ammocrypta pellucida	Eastern Sand Darter	Vertebrate Animal	1987-11-04	SC	FSC
Ammocrypta pellucida	Eastern Sand Darter	Vertebrate Animal	1987-10	SC	FSC
Ammocrypta pellucida	Eastern Sand Darter	Vertebrate Animal	1983-10	SC	FSC
Ammocrypta pellucida	Eastern Sand Darter	Vertebrate Animal	1977	SC	FSC
Ammocrypta pellucida	Eastern Sand Darter	Vertebrate Animal	1988-09-22	SC	FSC
Ammocrypta pellucida	Eastern Sand Darter	Vertebrate Animal	1983-08	SC	FSC
Ammocrypta pellucida	Eastern Sand Darter	Vertebrate Animal	1983-08-11	SC	FSC
Ammocrypta pellucida	Eastern Sand Darter	Vertebrate Animal	1987-09-29	SC	FSC
Ammocrypta pellucida	Eastern Sand Darter	Vertebrate Animal	1988-07-13	SC	FSC
Circus cyaneus	Northern Harrier	Vertebrate Animal	1983	E	
Etheostoma tippecanoe	Tippecanoe Darter	Vertebrate Animal	1991-10-17	T	
Haliaeetus leucocephalus	Bald Eagle	Vertebrate Animal	2011-05-18	F	FSC
Hiodon alosoides	Goldeye	Vertebrate Animal	1971-09	E	
Ichthyomyzon bdellium	Ohio Lamprey	Vertebrate Animal	1991-10-07	E	
Lynx rufus	Bobcat	Vertebrate Animal	2000-06-24	T	
Lynx rufus	Bobcat	Vertebrate Animal	2002-05-15	T	
Lynx rufus	Bobcat	Vertebrate Animal	2004-08-12	T	
Lynx rufus	Bobcat	Vertebrate Animal	2004-08-25	T	
Lynx rufus	Bobcat	Vertebrate Animal	2004-08-20	T	
Lynx rufus	Bobcat	Vertebrate Animal	2004-07-04	T	
Lynx rufus	Bobcat	Vertebrate Animal	2000-11-11	T	
Lynx rufus	Bobcat	Vertebrate Animal	1993-12-11	T	
Lynx rufus	Bobcat	Vertebrate Animal	1999-12-08	T	
Lynx rufus	Bobcat	Vertebrate Animal	1999-12-24	T	
Moxostoma carinatum	River Redhorse	Vertebrate Animal	1988-10-17	SC	
Moxostoma carinatum	River Redhorse	Vertebrate Animal	1988-10-07	SC	
Moxostoma carinatum	River Redhorse	Vertebrate Animal	1976-12 (NO DA	SC	
Moxostoma carinatum	River Redhorse	Vertebrate Animal	1983-08-29	SC	
Moxostoma carinatum	River Redhorse	Vertebrate Animal	1988-08-22	SC	
Moxostoma carinatum	River Redhorse	Vertebrate Animal	1988-09-27	SC	
Noturus eleutherus	Mountain Madtom	Vertebrate Animal	1991-10-17	T	
Noturus eleutherus	Mountain Madtom	Vertebrate Animal	1987-12-09	T	
Noturus eleutherus	Mountain Madtom	Vertebrate Animal	1987-11-05	T	
Noturus eleutherus	Mountain Madtom	Vertebrate Animal	1986-09-11	T	
Noturus stigmosus	Northern Madtom	Vertebrate Animal	1987-12-09	E	
Noturus stigmosus	Northern Madtom	Vertebrate Animal	1987-11-05	E	
Noturus stigmosus	Northern Madtom	Vertebrate Animal	1984-11-28	E	
Opsopoeodus emiliae	Pugnose Minnow	Vertebrate Animal	1977	E	
Percina copelandi	Channel Darter	Vertebrate Animal	1987-12-07	T	
Percina shumardi	River Darter	Vertebrate Animal	1987-11-04	T	

Species Name	Common Name	Category	Last Observance	State Status	Federal Status
Scaphiopus holbrookii	Eastern Spadefoot	Vertebrate Animal	2001-06-21	E	
Scaphiopus holbrookii	Eastern Spadefoot	Vertebrate Animal	2002-06-12	E	
Scaphiopus holbrookii	Eastern Spadefoot	Vertebrate Animal	2001-06-21	E	
Scaphiopus holbrookii	Eastern Spadefoot	Vertebrate Animal	2011	E	

APPENDIX I.D.
Lower Muskingum River 10-digit HUC Topographic Maps

Lower Muskingum River Basin

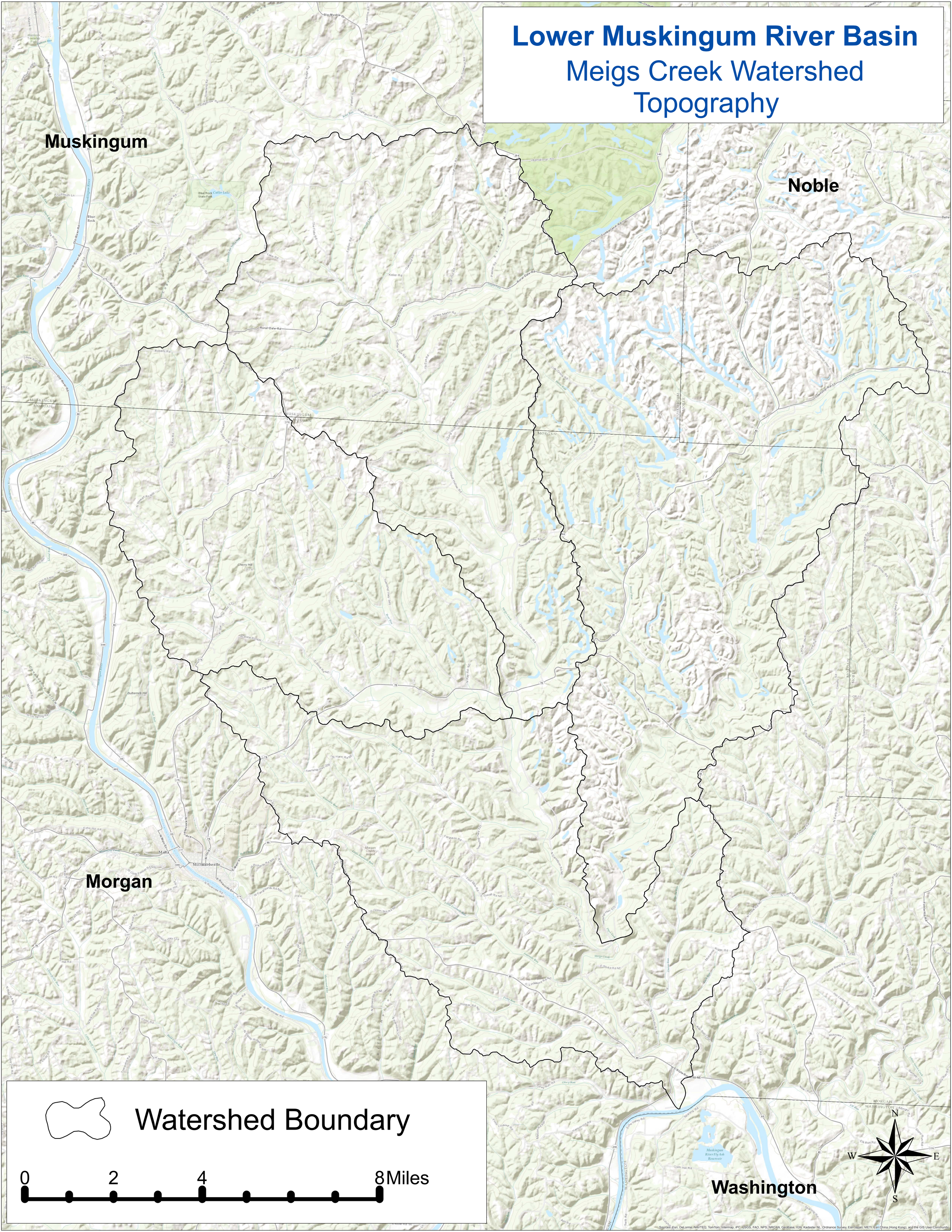
Brush Creek "Northern" Watershed Topography



Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

Lower Muskingum River Basin

Meigs Creek Watershed Topography



Lower Muskingum River Basin

Olive Green Creek Watershed Topography

Lower Muskingum River Basin
Southern Watershed Topography

APPENDIX II.A.
Stakeholder Advisory Committee Contact List

Name	Email	Phone	Affiliation
Carri Tullius	catullius@live.com	740- 896-2083	Adams Township Fiscal Officer
Terrance Schwendeman	N/A	740-896-3031	Adams Township Trustee
Jeffrey Anthony	N/A	740-896-3075	Adams Township Trustee
Wayne Isner	N/A	740-896-3139	Adams Township Trustee
Dr. David Brown	brownd@marietta.edu	740-376-4916	Associate Professor of Biology, Marietta College
Dr. Dave McShaffrey	mcshaffd@marietta.edu	740-376-4743	Associate Professor of Biology, Marietta College
Dr. Eric Fitch	fitche@marietta.edu	740-376-4997	Associate Professor, Director of Environmental Science, Marietta College
Bob First	buckeyehillsrcd@yahoo.com	740-374-6655	Buckeye Hills Resource Conservation & Development District
Bret Allphin	jpyles@buckeyehills.org	740-374-9436	Buckeye Hills-Hocking Valley Regional Development District- GIS Specialist
Gerald Gulley, R.S.,	geraldgulley@mariettaoh.net	740-373-0611 Ext. 103	City of Marietta Health Department, Director of Environmental Health
Kelly Miller, R.S.	kellymiller@mariettaoh.net	740-373-0611 Ext. 104	City of Marietta Health Department, Sanitarian
Eric Lambert	ericlambert@mariettaoh.net	740-373-5495	City of Marietta Project Engineer
Roger Kalter	RogerKalter@mariettaoh.net	740-373-1784	City of Marietta, 1st Ward Councilman
Mike McCauley	MikeMcCauley@mariettaoh.net	740-374-5155	City of Marietta, 2nd Ward Councilman
Steve Thomas	SteveThomas@mariettaoh.net	740-516-4153	City of Marietta, 3rd Ward Councilman
Tom Vukovic	tomvukovic@mariettaoh.net	740-373-2047	City of Marietta, 4th Ward Councilman
Joe Tucker	joetucker@mariettaoh.net	740-373-5495	City of Marietta, City Engineer
Walt Brothers	WaltBrothers@mariettaoh.net	740-376-9180	City of Marietta, Council President
Harley Noland	HarleyNoland@mariettaoh.net	740-350-9852	City of Marietta, Councilman at Large
Denver Abicht	DenverAbicht@mariettaoh.net	740-373-4921	City of Marietta, Councilman at Large
Michael Mullen	MichaelMullen@mariettaoh.net	740-376-0573	City of Marietta, Councilman at Large
Andy Coleman	andycoleman@mariettaoh.net	740-373-9354	City of Marietta, Development Administrator
Joe Matthews	mayor@mariettaoh.net	740-373-1387	City of Marietta, Mayor
Jonathan Hupp	JonathanHupp@mariettaoh.net	740-373-1387	City of Marietta, Safety-Service Director
Steve Elliot	steveelliott@mariettaoh.net	740-373-3858	City of Marietta, Waste Water Treatment Plant Superintendent

Name	Email	Phone	Affiliation
Jeffrey Kephart	JeffreyKephart@mariettaoh.net	740-374-6864	City of Marietta, Water Treatment Plant
Dan Haliburton	dan.halliburton@mail.house.gov	740-376-0868	Congressman Bill Johnson
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Marilyn Ortt	marilynortt@suddenlink.net	740-373-3372	FLMR Board President
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Sean Logan	slogan@mwcd.org	330-343-6647 ext 2271	Muskingum Watershed Conservancy District, Chief of Conservation
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Sen. Troy Balderson	sd20@senate.state.oh.us	641-466-8076	Ohio Senator- District 20
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Watler Morris	gene.morris749@yahoo.com	740-749-3554	Watertown Township Trustee

APPENDIX II.B
2012 Ohio EPA TMDL Water Chemistry Sampling Data

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Acidity	2.5	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/18/2012	Acidity	2.5	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	8/9/2012	Acidity	2.5	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Acidity	2.5	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/12/2012	Acidity	2.5	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Acidity	2.5	mg/L	0.480	050400041204	39.4628000	-81.4950000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	2/7/2012	Acidity	2.5	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	3/27/2012	Acidity	2.5	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	4/24/2012	Acidity	2.5	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	5/21/2012	Acidity	2.5	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/5/2012	Acidity	2.5	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/18/2012	Acidity	2.5	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	8/9/2012	Acidity	2.5	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/4/2012	Acidity	2.5	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/12/2012	Acidity	2.5	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	10/2/2012	Acidity	2.5	mg/L	4.250	050400041202	39.4963000	-81.5273000
301749	BIG RUN AT CR 56 BIG RUN ROAD	2/7/2012	Acidity	2.5	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	3/27/2012	Acidity	2.5	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	4/24/2012	Acidity	2.5	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	5/21/2012	Acidity	2.5	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/5/2012	Acidity	2.5	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/18/2012	Acidity	2.5	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	8/9/2012	Acidity	2.5	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/4/2012	Acidity	2.5	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/12/2012	Acidity	2.5	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	10/2/2012	Acidity	2.5	mg/L	2.320	050400041201	39.5704000	-81.5452000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	8/20/2012	Acidity	2.5	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/4/2012	Acidity	2.5	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/13/2012	Acidity	2.5	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	10/2/2012	Acidity	2.5	mg/L	0.730	050400041204	39.4339000	-81.4799000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	8/20/2012	Acidity	2.5	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/4/2012	Acidity	2.5	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/13/2012	Acidity	2.5	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	10/2/2012	Acidity	2.5	mg/L	0.330	050400041204	39.4607000	-81.4616000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/5/2012	Acidity	2.5	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/18/2012	Acidity	2.5	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	8/20/2012	Acidity	2.5	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/4/2012	Acidity	2.5	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/13/2012	Acidity	2.5	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	10/2/2012	Acidity	2.5	mg/L	0.200	050400041204	39.4603000	-81.4937000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	8/20/2012	Acidity	2.5	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/4/2012	Acidity	2.5	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/13/2012	Acidity	2.5	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	10/2/2012	Acidity	2.5	mg/L	0.200	050400041204	39.4834000	-81.5022000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Acidity	2.5	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	8/20/2012	Acidity	2.5	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Acidity	2.5	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/13/2012	Acidity	2.5	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Acidity	2.5	mg/L	6.540	050400041202	39.4893000	-81.5614000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	7/5/2012	Acidity	2.5	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	8/20/2012	Acidity	2.5	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/4/2012	Acidity	2.5	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/12/2012	Acidity	2.5	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	10/2/2012	Acidity	2.5	mg/L	0.140	050400041203	39.4880000	-81.4562000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/5/2012	Acidity	2.5	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/18/2012	Acidity	2.5	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	8/20/2012	Acidity	2.5	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/4/2012	Acidity	2.5	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/12/2012	Acidity	2.5	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	10/2/2012	Acidity	2.5	mg/L	0.220	050400041203	39.5462000	-81.5121000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	7/5/2012	Acidity	2.5	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	8/20/2012	Acidity	2.5	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/4/2012	Acidity	2.5	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/12/2012	Acidity	2.5	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	10/2/2012	Acidity	2.5	mg/L	0.100	050400041203	39.5680000	-81.5134000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	7/5/2012	Acidity	2.5	mg/L	0.080	050400041201	39.5415000	-81.5466000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	8/20/2012	Acidity	2.5	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/4/2012	Acidity	2.5	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/12/2012	Acidity	2.5	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	10/2/2012	Acidity	2.5	mg/L	0.080	050400041201	39.5415000	-81.5466000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/5/2012	Acidity	2.5	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/18/2012	Acidity	2.5	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	8/20/2012	Acidity	2.5	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/4/2012	Acidity	2.5	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/12/2012	Acidity	2.5	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	10/2/2012	Acidity	2.5	mg/L	4.490	050400041201	39.5928000	-81.5328000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	7/5/2012	Acidity	2.5	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	8/20/2012	Acidity	2.5	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/4/2012	Acidity	2.5	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/12/2012	Acidity	2.5	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	10/2/2012	Acidity	2.5	mg/L	0.070	050400041201	39.5710000	-81.5474000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	8/20/2012	Acidity	2.5	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/4/2012	Acidity	2.5	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/12/2012	Acidity	2.5	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	10/2/2012	Acidity	2.5	mg/L	0.010	050400041201	39.5832000	-81.5450000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	2/7/2012	Acidity	2.5	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	3/27/2012	Acidity	2.5	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	4/24/2012	Acidity	2.5	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	5/21/2012	Acidity	2.5	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/5/2012	Acidity	2.5	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/18/2012	Acidity	2.5	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	8/9/2012	Acidity	2.5	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/4/2012	Acidity	2.5	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/12/2012	Acidity	2.5	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	10/2/2012	Acidity	2.5	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/5/2012	Acidity	2.5	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/18/2012	Acidity	2.5	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	8/9/2012	Acidity	2.5	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/4/2012	Acidity	2.5	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/12/2012	Acidity	2.5	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	10/2/2012	Acidity	2.5	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/5/2012	Acidity	2.5	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/18/2012	Acidity	2.5	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	8/9/2012	Acidity	2.5	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/4/2012	Acidity	2.5	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/12/2012	Acidity	2.5	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	10/2/2012	Acidity	2.5	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/5/2012	Acidity	2.5	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/18/2012	Acidity	2.5	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	8/9/2012	Acidity	2.5	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/4/2012	Acidity	2.5	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/12/2012	Acidity	2.5	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	10/2/2012	Acidity	2.5	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/5/2012	Acidity	2.5	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/18/2012	Acidity	2.5	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	8/20/2012	Acidity	2.5	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/4/2012	Acidity	2.5	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/12/2012	Acidity	2.5	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	10/2/2012	Acidity	2.5	mg/L	0.180	050400041201	39.5522000	-81.5569000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Alkalinity	187	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/18/2012	Alkalinity	142	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	8/9/2012	Alkalinity	169	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Alkalinity	148	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/12/2012	Alkalinity	184	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Alkalinity	161	mg/L	0.480	050400041204	39.4628000	-81.4950000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	2/7/2012	Alkalinity	82.2	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	3/27/2012	Alkalinity	99.5	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	4/24/2012	Alkalinity	130	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	5/21/2012	Alkalinity	113	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/5/2012	Alkalinity	142	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/18/2012	Alkalinity	135	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	8/9/2012	Alkalinity	143	mg/L	4.250	050400041202	39.4963000	-81.5273000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/4/2012	Alkalinity	91.5	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/12/2012	Alkalinity	125	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	10/2/2012	Alkalinity	141	mg/L	4.250	050400041202	39.4963000	-81.5273000
301749	BIG RUN AT CR 56 BIG RUN ROAD	2/7/2012	Alkalinity	151	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	3/27/2012	Alkalinity	176	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	4/24/2012	Alkalinity	184	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	5/21/2012	Alkalinity	190	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/5/2012	Alkalinity	197	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/18/2012	Alkalinity	215	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	8/9/2012	Alkalinity	191	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/4/2012	Alkalinity	197	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/12/2012	Alkalinity	207	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	10/2/2012	Alkalinity	204	mg/L	2.320	050400041201	39.5704000	-81.5452000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	8/20/2012	Alkalinity	144	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/4/2012	Alkalinity	118	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/13/2012	Alkalinity	151	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	10/2/2012	Alkalinity	147	mg/L	0.730	050400041204	39.4339000	-81.4799000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	8/20/2012	Alkalinity	131	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/4/2012	Alkalinity	132	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/13/2012	Alkalinity	149	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	10/2/2012	Alkalinity	147	mg/L	0.330	050400041204	39.4607000	-81.4616000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/5/2012	Alkalinity	192	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/18/2012	Alkalinity	156	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	8/20/2012	Alkalinity	182	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/4/2012	Alkalinity	151	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/13/2012	Alkalinity	186	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	10/2/2012	Alkalinity	179	mg/L	0.200	050400041204	39.4603000	-81.4937000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	8/20/2012	Alkalinity	234	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/4/2012	Alkalinity	185	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/13/2012	Alkalinity	199	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	10/2/2012	Alkalinity	203	mg/L	0.200	050400041204	39.4834000	-81.5022000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Alkalinity	177	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	8/20/2012	Alkalinity	145	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Alkalinity	128	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/13/2012	Alkalinity	162	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Alkalinity	159	mg/L	6.540	050400041202	39.4893000	-81.5614000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	7/5/2012	Alkalinity	213	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	8/20/2012	Alkalinity	247	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/4/2012	Alkalinity	218	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/12/2012	Alkalinity	249	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	10/2/2012	Alkalinity	245	mg/L	0.140	050400041203	39.4880000	-81.4562000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/5/2012	Alkalinity	193	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/18/2012	Alkalinity	179	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	8/20/2012	Alkalinity	200	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/4/2012	Alkalinity	211	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/12/2012	Alkalinity	220	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	10/2/2012	Alkalinity	219	mg/L	0.220	050400041203	39.5462000	-81.5121000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	7/5/2012	Alkalinity	158	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	8/20/2012	Alkalinity	176	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/4/2012	Alkalinity	200	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/12/2012	Alkalinity	215	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	10/2/2012	Alkalinity	200	mg/L	0.100	050400041203	39.5680000	-81.5134000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	7/5/2012	Alkalinity	244	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	8/20/2012	Alkalinity	235	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/4/2012	Alkalinity	238	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/12/2012	Alkalinity	246	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	10/2/2012	Alkalinity	255	mg/L	0.080	050400041201	39.5415000	-81.5466000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/5/2012	Alkalinity	213	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/18/2012	Alkalinity	227	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	8/20/2012	Alkalinity	209	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/4/2012	Alkalinity	220	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/12/2012	Alkalinity	244	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	10/2/2012	Alkalinity	217	mg/L	4.490	050400041201	39.5928000	-81.5328000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	7/5/2012	Alkalinity	180	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	8/20/2012	Alkalinity	174	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/4/2012	Alkalinity	167	mg/L	0.070	050400041201	39.5710000	-81.5474000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/12/2012	Alkalinity	194	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	10/2/2012	Alkalinity	187	mg/L	0.070	050400041201	39.5710000	-81.5474000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	8/20/2012	Alkalinity	220	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/4/2012	Alkalinity	248	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/12/2012	Alkalinity	240	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	10/2/2012	Alkalinity	228	mg/L	0.010	050400041201	39.5832000	-81.5450000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	2/7/2012	Alkalinity	173	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	3/27/2012	Alkalinity	181	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	4/24/2012	Alkalinity	202	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	5/21/2012	Alkalinity	208	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/5/2012	Alkalinity	198	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/18/2012	Alkalinity	193	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	8/9/2012	Alkalinity	182	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/4/2012	Alkalinity	213	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/12/2012	Alkalinity	229	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	10/2/2012	Alkalinity	220	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/5/2012	Alkalinity	181	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/18/2012	Alkalinity	202	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	8/9/2012	Alkalinity	142	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/4/2012	Alkalinity	171	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/12/2012	Alkalinity	202	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	10/2/2012	Alkalinity	196	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/5/2012	Alkalinity	124	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/18/2012	Alkalinity	96.5	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	8/9/2012	Alkalinity	133	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/4/2012	Alkalinity	146	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/12/2012	Alkalinity	118	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	10/2/2012	Alkalinity	152	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/5/2012	Alkalinity	157	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/18/2012	Alkalinity	85.5	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	8/9/2012	Alkalinity	154	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/4/2012	Alkalinity	144	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/12/2012	Alkalinity	172	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	10/2/2012	Alkalinity	86.8	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/5/2012	Alkalinity	137	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/18/2012	Alkalinity	119	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	8/20/2012	Alkalinity	151	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/4/2012	Alkalinity	151	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/12/2012	Alkalinity	140	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	10/2/2012	Alkalinity	170	mg/L	0.180	050400041201	39.5522000	-81.5569000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Aluminum	100	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/18/2012	Aluminum	100	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Aluminum	100	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/12/2012	Aluminum	100	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Aluminum	100	ug/L	0.480	050400041204	39.4628000	-81.4950000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	2/7/2012	Aluminum	100	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	3/27/2012	Aluminum	100	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	4/24/2012	Aluminum	100	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	5/21/2012	Aluminum	100	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	10/2/2012	Aluminum	100	ug/L	4.250	050400041202	39.4963000	-81.5273000
301749	BIG RUN AT CR 56 BIG RUN ROAD	2/7/2012	Aluminum	100	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	3/27/2012	Aluminum	100	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	4/24/2012	Aluminum	100	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	5/21/2012	Aluminum	100	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/5/2012	Aluminum	100	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/18/2012	Aluminum	100	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	8/9/2012	Aluminum	100	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/4/2012	Aluminum	100	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/12/2012	Aluminum	100	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	10/2/2012	Aluminum	100	ug/L	2.320	050400041201	39.5704000	-81.5452000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	8/20/2012	Aluminum	100	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/13/2012	Aluminum	100	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	10/2/2012	Aluminum	100	ug/L	0.730	050400041204	39.4339000	-81.4799000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	8/20/2012	Aluminum	100	ug/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	10/2/2012	Aluminum	100	ug/L	0.330	050400041204	39.4607000	-81.4616000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	8/20/2012	Aluminum	100	ug/L	0.200	050400041204	39.4603000	-81.4937000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/4/2012	Aluminum	100	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/13/2012	Aluminum	100	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	10/2/2012	Aluminum	100	ug/L	0.200	050400041204	39.4603000	-81.4937000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/4/2012	Aluminum	100	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/13/2012	Aluminum	100	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	10/2/2012	Aluminum	100	ug/L	0.200	050400041204	39.4834000	-81.5022000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Aluminum	100	ug/L	6.540	050400041202	39.4893000	-81.5614000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	8/20/2012	Aluminum	100	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/4/2012	Aluminum	100	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/12/2012	Aluminum	100	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	10/2/2012	Aluminum	100	ug/L	0.140	050400041203	39.4880000	-81.4562000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	8/20/2012	Aluminum	100	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/4/2012	Aluminum	100	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	10/2/2012	Aluminum	100	ug/L	0.220	050400041203	39.5462000	-81.5121000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	8/20/2012	Aluminum	100	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/4/2012	Aluminum	100	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/12/2012	Aluminum	100	ug/L	0.100	050400041203	39.5680000	-81.5134000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	7/5/2012	Aluminum	100	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	8/20/2012	Aluminum	100	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/4/2012	Aluminum	100	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/12/2012	Aluminum	100	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	10/2/2012	Aluminum	100	ug/L	0.080	050400041201	39.5415000	-81.5466000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/18/2012	Aluminum	100	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	8/20/2012	Aluminum	100	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/4/2012	Aluminum	100	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/12/2012	Aluminum	100	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	10/2/2012	Aluminum	100	ug/L	4.490	050400041201	39.5928000	-81.5328000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	7/5/2012	Aluminum	100	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	8/20/2012	Aluminum	100	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/4/2012	Aluminum	100	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/12/2012	Aluminum	100	ug/L	0.070	050400041201	39.5710000	-81.5474000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	8/20/2012	Aluminum	100	ug/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	10/2/2012	Aluminum	100	ug/L	0.010	050400041201	39.5832000	-81.5450000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	2/7/2012	Aluminum	100	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	3/27/2012	Aluminum	100	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	4/24/2012	Aluminum	100	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	5/21/2012	Aluminum	100	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/5/2012	Aluminum	100	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/18/2012	Aluminum	100	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/4/2012	Aluminum	100	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/12/2012	Aluminum	100	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	10/2/2012	Aluminum	100	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/5/2012	Aluminum	100	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	10/2/2012	Aluminum	100	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/18/2012	Aluminum	100	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	10/2/2012	Aluminum	100	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/5/2012	Aluminum	100	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/18/2012	Aluminum	100	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	8/9/2012	Aluminum	100	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/12/2012	Aluminum	100	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/18/2012	Aluminum	100	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/12/2012	Aluminum	100	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	10/2/2012	Aluminum	100	ug/L	0.180	050400041201	39.5522000	-81.5569000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/18/2012	Aluminum	205	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/12/2012	Aluminum	213	ug/L	0.220	050400041203	39.5462000	-81.5121000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/13/2012	Aluminum	222	ug/L	0.330	050400041204	39.4607000	-81.4616000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/4/2012	Aluminum	223	ug/L	0.730	050400041204	39.4339000	-81.4799000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/5/2012	Aluminum	223	ug/L	4.490	050400041201	39.5928000	-81.5328000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/5/2012	Aluminum	228	ug/L	0.200	050400041204	39.4603000	-81.4937000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/18/2012	Aluminum	238	ug/L	4.250	050400041202	39.4963000	-81.5273000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	7/5/2012	Aluminum	242	ug/L	0.100	050400041203	39.5680000	-81.5134000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/18/2012	Aluminum	252	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/12/2012	Aluminum	252	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/12/2012	Aluminum	257	ug/L	0.110	050400041203	39.5222000	-81.4845000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	8/9/2012	Aluminum	259	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/5/2012	Aluminum	262	ug/L	4.250	050400041202	39.4963000	-81.5273000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/5/2012	Aluminum	265	ug/L	0.120	050400041202	39.4944000	-81.4911000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	7/5/2012	Aluminum	276	ug/L	0.140	050400041203	39.4880000	-81.4562000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/4/2012	Aluminum	277	ug/L	0.110	050400041203	39.5222000	-81.4845000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/12/2012	Aluminum	286	ug/L	0.010	050400041201	39.5832000	-81.5450000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	8/9/2012	Aluminum	291	ug/L	0.120	050400041202	39.4944000	-81.4911000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	10/2/2012	Aluminum	295	ug/L	0.100	050400041203	39.5680000	-81.5134000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/18/2012	Aluminum	303	ug/L	0.200	050400041204	39.4603000	-81.4937000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/5/2012	Aluminum	306	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/4/2012	Aluminum	330	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	8/20/2012	Aluminum	332	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/4/2012	Aluminum	338	ug/L	0.120	050400041202	39.4944000	-81.4911000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	8/9/2012	Aluminum	361	ug/L	0.480	050400041204	39.4628000	-81.4950000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/4/2012	Aluminum	488	ug/L	0.300	050400041204	39.4150000	-81.4481000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	10/2/2012	Aluminum	580	ug/L	0.070	050400041201	39.5710000	-81.5474000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	8/9/2012	Aluminum	615	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	10/2/2012	Aluminum	656	ug/L	0.300	050400041204	39.4150000	-81.4481000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	8/20/2012	Aluminum	681	ug/L	0.200	050400041204	39.4834000	-81.5022000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Aluminum	1100	ug/L	6.540	050400041202	39.4893000	-81.5614000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/4/2012	Aluminum	1180	ug/L	0.330	050400041204	39.4607000	-81.4616000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/4/2012	Aluminum	1290	ug/L	0.010	050400041201	39.5832000	-81.5450000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	8/9/2012	Aluminum	1420	ug/L	0.350	050400041203	39.5339000	-81.5165000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/5/2012	Aluminum	1640	ug/L	0.220	050400041203	39.5462000	-81.5121000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	8/20/2012	Aluminum	1730	ug/L	6.540	050400041202	39.4893000	-81.5614000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/12/2012	Aluminum	2100	ug/L	4.250	050400041202	39.4963000	-81.5273000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/13/2012	Aluminum	2490	ug/L	6.540	050400041202	39.4893000	-81.5614000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/4/2012	Aluminum	3210	ug/L	4.250	050400041202	39.4963000	-81.5273000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Aluminum	5430	ug/L	6.540	050400041202	39.4893000	-81.5614000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Ammonia	0.025	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/18/2012	Ammonia	0.025	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	8/9/2012	Ammonia	0.025	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Ammonia	0.025	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/12/2012	Ammonia	0.025	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Ammonia	0.06	mg/L	0.480	050400041204	39.4628000	-81.4950000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	2/7/2012	Ammonia	0.025	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	3/27/2012	Ammonia	0.025	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	4/24/2012	Ammonia	0.025	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	5/21/2012	Ammonia	0.025	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/5/2012	Ammonia	0.025	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/18/2012	Ammonia	0.025	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	8/9/2012	Ammonia	0.025	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/4/2012	Ammonia	0.11	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/12/2012	Ammonia	0.025	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	10/2/2012	Ammonia	0.025	mg/L	4.250	050400041202	39.4963000	-81.5273000
301749	BIG RUN AT CR 56 BIG RUN ROAD	2/7/2012	Ammonia	0.025	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	3/27/2012	Ammonia	0.025	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	4/24/2012	Ammonia	0.025	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	5/21/2012	Ammonia	0.025	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/5/2012	Ammonia	0.025	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/18/2012	Ammonia	0.025	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	8/9/2012	Ammonia	0.025	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/4/2012	Ammonia	0.025	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/12/2012	Ammonia	0.025	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	10/2/2012	Ammonia	0.025	mg/L	2.320	050400041201	39.5704000	-81.5452000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	8/20/2012	Ammonia	0.025	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/4/2012	Ammonia	0.025	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/13/2012	Ammonia	0.025	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	10/2/2012	Ammonia	0.025	mg/L	0.730	050400041204	39.4339000	-81.4799000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	8/20/2012	Ammonia	0.025	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/4/2012	Ammonia	0.025	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/13/2012	Ammonia	0.025	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	10/2/2012	Ammonia	0.025	mg/L	0.330	050400041204	39.4607000	-81.4616000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/5/2012	Ammonia	0.025	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/18/2012	Ammonia	0.025	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	8/20/2012	Ammonia	0.025	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/4/2012	Ammonia	0.025	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/13/2012	Ammonia	0.025	mg/L	0.200	050400041204	39.4603000	-81.4937000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	10/2/2012	Ammonia	0.025	mg/L	0.200	050400041204	39.4603000	-81.4937000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	8/20/2012	Ammonia	0.059	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/4/2012	Ammonia	0.025	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/13/2012	Ammonia	0.025	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	10/2/2012	Ammonia	0.065	mg/L	0.200	050400041204	39.4834000	-81.5022000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Ammonia	0.025	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	8/20/2012	Ammonia	0.025	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Ammonia	0.231	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/13/2012	Ammonia	0.15	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Ammonia	0.07	mg/L	6.540	050400041202	39.4893000	-81.5614000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	7/5/2012	Ammonia	0.025	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	8/20/2012	Ammonia	0.025	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/4/2012	Ammonia	0.08	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/12/2012	Ammonia	0.025	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	10/2/2012	Ammonia	0.115	mg/L	0.140	050400041203	39.4880000	-81.4562000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/5/2012	Ammonia	0.025	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/18/2012	Ammonia	0.025	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	8/20/2012	Ammonia	0.025	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/4/2012	Ammonia	0.025	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/12/2012	Ammonia	0.025	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	10/2/2012	Ammonia	0.025	mg/L	0.220	050400041203	39.5462000	-81.5121000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	7/5/2012	Ammonia	0.025	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	8/20/2012	Ammonia	0.025	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/4/2012	Ammonia	0.025	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/12/2012	Ammonia	0.025	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	10/2/2012	Ammonia	0.025	mg/L	0.100	050400041203	39.5680000	-81.5134000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	7/5/2012	Ammonia	0.025	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	8/20/2012	Ammonia	0.025	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/4/2012	Ammonia	0.025	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/12/2012	Ammonia	0.025	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	10/2/2012	Ammonia	0.095	mg/L	0.080	050400041201	39.5415000	-81.5466000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/5/2012	Ammonia	0.025	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/18/2012	Ammonia	0.025	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	8/20/2012	Ammonia	0.145	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/4/2012	Ammonia	0.025	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/12/2012	Ammonia	0.025	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	10/2/2012	Ammonia	0.025	mg/L	4.490	050400041201	39.5928000	-81.5328000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	7/5/2012	Ammonia	0.025	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	8/20/2012	Ammonia	0.025	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/4/2012	Ammonia	0.025	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/12/2012	Ammonia	0.025	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	10/2/2012	Ammonia	0.025	mg/L	0.070	050400041201	39.5710000	-81.5474000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	8/20/2012	Ammonia	0.025	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/4/2012	Ammonia	0.025	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/12/2012	Ammonia	0.025	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	10/2/2012	Ammonia	0.025	mg/L	0.010	050400041201	39.5832000	-81.5450000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	2/7/2012	Ammonia	0.025	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	3/27/2012	Ammonia	0.025	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	4/24/2012	Ammonia	0.025	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	5/21/2012	Ammonia	0.025	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/5/2012	Ammonia	0.025	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/18/2012	Ammonia	0.025	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	8/9/2012	Ammonia	0.025	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/4/2012	Ammonia	0.025	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/12/2012	Ammonia	0.025	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	10/2/2012	Ammonia	0.025	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/5/2012	Ammonia	0.025	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/18/2012	Ammonia	0.025	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	8/9/2012	Ammonia	0.025	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/4/2012	Ammonia	0.025	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/12/2012	Ammonia	0.025	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	10/2/2012	Ammonia	0.025	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/5/2012	Ammonia	0.025	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/18/2012	Ammonia	0.025	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	8/9/2012	Ammonia	0.025	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/4/2012	Ammonia	0.025	mg/L	0.120	050400041202	39.4944000	-81.4911000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/12/2012	Ammonia	0.025	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	10/2/2012	Ammonia	0.025	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/5/2012	Ammonia	0.025	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/18/2012	Ammonia	0.154	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	8/9/2012	Ammonia	0.025	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/4/2012	Ammonia	0.052	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/12/2012	Ammonia	0.025	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	10/2/2012	Ammonia	0.075	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/5/2012	Ammonia	0.025	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/18/2012	Ammonia	0.025	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	8/20/2012	Ammonia	0.025	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/4/2012	Ammonia	0.025	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/12/2012	Ammonia	0.025	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	10/2/2012	Ammonia	0.059	mg/L	0.180	050400041201	39.5522000	-81.5569000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Arsenic	1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/18/2012	Arsenic	1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	8/9/2012	Arsenic	1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Arsenic	1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/12/2012	Arsenic	1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Arsenic	1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	2/7/2012	Arsenic	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	3/27/2012	Arsenic	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	4/24/2012	Arsenic	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	5/21/2012	Arsenic	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/5/2012	Arsenic	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/18/2012	Arsenic	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	8/9/2012	Arsenic	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/4/2012	Arsenic	2	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/12/2012	Arsenic	2	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	10/2/2012	Arsenic	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301749	BIG RUN AT CR 56 BIG RUN ROAD	2/7/2012	Arsenic	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	3/27/2012	Arsenic	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	4/24/2012	Arsenic	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	5/21/2012	Arsenic	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/5/2012	Arsenic	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/18/2012	Arsenic	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	8/9/2012	Arsenic	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/4/2012	Arsenic	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/12/2012	Arsenic	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	10/2/2012	Arsenic	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	8/20/2012	Arsenic	1	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/4/2012	Arsenic	1	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/13/2012	Arsenic	1	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	10/2/2012	Arsenic	1	ug/L	0.730	050400041204	39.4339000	-81.4799000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	8/20/2012	Arsenic	2.4	ug/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/4/2012	Arsenic	2	ug/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/13/2012	Arsenic	2.2	ug/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	10/2/2012	Arsenic	2.3	ug/L	0.330	050400041204	39.4607000	-81.4616000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/5/2012	Arsenic	1	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/18/2012	Arsenic	1	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	8/20/2012	Arsenic	1	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/4/2012	Arsenic	1	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/13/2012	Arsenic	1	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	10/2/2012	Arsenic	1	ug/L	0.200	050400041204	39.4603000	-81.4937000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	8/20/2012	Arsenic	1	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/4/2012	Arsenic	1	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/13/2012	Arsenic	1	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	10/2/2012	Arsenic	1	ug/L	0.200	050400041204	39.4834000	-81.5022000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Arsenic	2.5	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	8/20/2012	Arsenic	2.4	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Arsenic	3	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/13/2012	Arsenic	2.1	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Arsenic	1	ug/L	6.540	050400041202	39.4893000	-81.5614000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	7/5/2012	Arsenic	1	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	8/20/2012	Arsenic	1	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/4/2012	Arsenic	1	ug/L	0.140	050400041203	39.4880000	-81.4562000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/12/2012	Arsenic	1	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	10/2/2012	Arsenic	1	ug/L	0.140	050400041203	39.4880000	-81.4562000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/5/2012	Arsenic	1	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/18/2012	Arsenic	1	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	8/20/2012	Arsenic	1	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/4/2012	Arsenic	1	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/12/2012	Arsenic	1	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	10/2/2012	Arsenic	1	ug/L	0.220	050400041203	39.5462000	-81.5121000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	7/5/2012	Arsenic	1	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	8/20/2012	Arsenic	1	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/4/2012	Arsenic	1	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/12/2012	Arsenic	1	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	10/2/2012	Arsenic	1	ug/L	0.100	050400041203	39.5680000	-81.5134000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	7/5/2012	Arsenic	1	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	8/20/2012	Arsenic	1	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/4/2012	Arsenic	1	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/12/2012	Arsenic	1	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	10/2/2012	Arsenic	1	ug/L	0.080	050400041201	39.5415000	-81.5466000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/5/2012	Arsenic	1	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/18/2012	Arsenic	1	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	8/20/2012	Arsenic	1	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/4/2012	Arsenic	1	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/12/2012	Arsenic	1	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	10/2/2012	Arsenic	1	ug/L	4.490	050400041201	39.5928000	-81.5328000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	7/5/2012	Arsenic	1	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	8/20/2012	Arsenic	1	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/4/2012	Arsenic	1	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/12/2012	Arsenic	1	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	10/2/2012	Arsenic	2.3	ug/L	0.070	050400041201	39.5710000	-81.5474000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	8/20/2012	Arsenic	1	ug/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/4/2012	Arsenic	1	ug/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/12/2012	Arsenic	1	ug/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	10/2/2012	Arsenic	1	ug/L	0.010	050400041201	39.5832000	-81.5450000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	2/7/2012	Arsenic	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	3/27/2012	Arsenic	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	4/24/2012	Arsenic	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	5/21/2012	Arsenic	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/5/2012	Arsenic	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/18/2012	Arsenic	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	8/9/2012	Arsenic	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/4/2012	Arsenic	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/12/2012	Arsenic	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	10/2/2012	Arsenic	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/5/2012	Arsenic	1	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/18/2012	Arsenic	1	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	8/9/2012	Arsenic	1	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/4/2012	Arsenic	1	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/12/2012	Arsenic	1	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	10/2/2012	Arsenic	1	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/5/2012	Arsenic	2.7	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/18/2012	Arsenic	3.1	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	8/9/2012	Arsenic	2.8	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/4/2012	Arsenic	2.5	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/12/2012	Arsenic	2.2	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	10/2/2012	Arsenic	1	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/5/2012	Arsenic	2.4	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/18/2012	Arsenic	2.2	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	8/9/2012	Arsenic	2.3	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/4/2012	Arsenic	2	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/12/2012	Arsenic	2.1	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	10/2/2012	Arsenic	1	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/5/2012	Arsenic	3	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/18/2012	Arsenic	3.5	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	8/20/2012	Arsenic	2.5	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/4/2012	Arsenic	2.5	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/12/2012	Arsenic	2.8	ug/L	0.180	050400041201	39.5522000	-81.5569000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	10/2/2012	Arsenic	1	ug/L	0.180	050400041201	39.5522000	-81.5569000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Barium	130	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/18/2012	Barium	101	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	8/9/2012	Barium	116	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Barium	101	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/12/2012	Barium	110	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Barium	110	ug/L	0.480	050400041204	39.4628000	-81.4950000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	2/7/2012	Barium	49	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	3/27/2012	Barium	52	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	4/24/2012	Barium	64	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	5/21/2012	Barium	69	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/5/2012	Barium	91	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/18/2012	Barium	73	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	8/9/2012	Barium	85	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/4/2012	Barium	90	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/12/2012	Barium	91	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	10/2/2012	Barium	81	ug/L	4.250	050400041202	39.4963000	-81.5273000
301749	BIG RUN AT CR 56 BIG RUN ROAD	2/7/2012	Barium	43	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	3/27/2012	Barium	46	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	4/24/2012	Barium	51	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	5/21/2012	Barium	57	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/5/2012	Barium	78	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/18/2012	Barium	73	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	8/9/2012	Barium	73	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/4/2012	Barium	65	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/12/2012	Barium	73	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	10/2/2012	Barium	76	ug/L	2.320	050400041201	39.5704000	-81.5452000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	8/20/2012	Barium	100	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/4/2012	Barium	80	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/13/2012	Barium	80	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	10/2/2012	Barium	87	ug/L	0.730	050400041204	39.4339000	-81.4799000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	8/20/2012	Barium	93	ug/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/4/2012	Barium	95	ug/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/13/2012	Barium	82	ug/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	10/2/2012	Barium	90	ug/L	0.330	050400041204	39.4607000	-81.4616000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/5/2012	Barium	140	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/18/2012	Barium	105	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	8/20/2012	Barium	119	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/4/2012	Barium	102	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/13/2012	Barium	101	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	10/2/2012	Barium	116	ug/L	0.200	050400041204	39.4603000	-81.4937000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	8/20/2012	Barium	159	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/4/2012	Barium	99	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/13/2012	Barium	105	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	10/2/2012	Barium	115	ug/L	0.200	050400041204	39.4834000	-81.5022000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Barium	105	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	8/20/2012	Barium	120	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Barium	119	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/13/2012	Barium	122	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Barium	110	ug/L	6.540	050400041202	39.4893000	-81.5614000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	7/5/2012	Barium	121	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	8/20/2012	Barium	125	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/4/2012	Barium	96	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/12/2012	Barium	105	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	10/2/2012	Barium	111	ug/L	0.140	050400041203	39.4880000	-81.4562000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/5/2012	Barium	101	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/18/2012	Barium	91	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	8/20/2012	Barium	86	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/4/2012	Barium	78	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/12/2012	Barium	89	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	10/2/2012	Barium	88	ug/L	0.220	050400041203	39.5462000	-81.5121000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	7/5/2012	Barium	70	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	8/20/2012	Barium	70	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/4/2012	Barium	68	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/12/2012	Barium	67	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	10/2/2012	Barium	76	ug/L	0.100	050400041203	39.5680000	-81.5134000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	7/5/2012	Barium	121	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	8/20/2012	Barium	117	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/4/2012	Barium	87	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/12/2012	Barium	108	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	10/2/2012	Barium	121	ug/L	0.080	050400041201	39.5415000	-81.5466000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/5/2012	Barium	74	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/18/2012	Barium	75	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	8/20/2012	Barium	70	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/4/2012	Barium	62	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/12/2012	Barium	63	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	10/2/2012	Barium	64	ug/L	4.490	050400041201	39.5928000	-81.5328000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	7/5/2012	Barium	78	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	8/20/2012	Barium	79	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/4/2012	Barium	64	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/12/2012	Barium	72	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	10/2/2012	Barium	93	ug/L	0.070	050400041201	39.5710000	-81.5474000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	8/20/2012	Barium	85	ug/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/4/2012	Barium	92	ug/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/12/2012	Barium	77	ug/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	10/2/2012	Barium	78	ug/L	0.010	050400041201	39.5832000	-81.5450000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	2/7/2012	Barium	61	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	3/27/2012	Barium	58	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	4/24/2012	Barium	66	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	5/21/2012	Barium	71	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/5/2012	Barium	80	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/18/2012	Barium	73	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	8/9/2012	Barium	79	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/4/2012	Barium	73	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/12/2012	Barium	73	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	10/2/2012	Barium	75	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/5/2012	Barium	96	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/18/2012	Barium	111	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	8/9/2012	Barium	71	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/4/2012	Barium	73	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/12/2012	Barium	84	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	10/2/2012	Barium	89	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/5/2012	Barium	71	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/18/2012	Barium	205	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	8/9/2012	Barium	75	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/4/2012	Barium	81	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/12/2012	Barium	69	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	10/2/2012	Barium	83	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/5/2012	Barium	70	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/18/2012	Barium	42	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	8/9/2012	Barium	69	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/4/2012	Barium	70	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/12/2012	Barium	73	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	10/2/2012	Barium	45	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/5/2012	Barium	82	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/18/2012	Barium	77	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	8/20/2012	Barium	85	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/4/2012	Barium	77	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/12/2012	Barium	62	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	10/2/2012	Barium	72	ug/L	0.180	050400041201	39.5522000	-81.5569000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Cadmium	0.1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/18/2012	Cadmium	0.1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	8/9/2012	Cadmium	0.1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Cadmium	0.1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/12/2012	Cadmium	0.1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Cadmium	0.1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	2/7/2012	Cadmium	0.1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	3/27/2012	Cadmium	0.1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	4/24/2012	Cadmium	0.1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	5/21/2012	Cadmium	0.1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/5/2012	Cadmium	0.1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/18/2012	Cadmium	0.1	ug/L	4.250	050400041202	39.4963000	-81.5273000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
301748	RAINBOW CREEK AT CR 79 HUCK RD.	8/9/2012	Cadmium	0.1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/4/2012	Cadmium	0.1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/12/2012	Cadmium	0.1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	10/2/2012	Cadmium	0.1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301749	BIG RUN AT CR 56 BIG RUN ROAD	2/7/2012	Cadmium	0.1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	3/27/2012	Cadmium	0.1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	4/24/2012	Cadmium	0.1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	5/21/2012	Cadmium	0.1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/5/2012	Cadmium	0.1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/18/2012	Cadmium	0.1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	8/9/2012	Cadmium	0.1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/4/2012	Cadmium	0.1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/12/2012	Cadmium	0.1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	10/2/2012	Cadmium	0.1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	8/20/2012	Cadmium	0.1	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/4/2012	Cadmium	0.1	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/13/2012	Cadmium	0.1	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	10/2/2012	Cadmium	0.1	ug/L	0.730	050400041204	39.4339000	-81.4799000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	8/20/2012	Cadmium	0.1	ug/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/4/2012	Cadmium	0.1	ug/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/13/2012	Cadmium	0.1	ug/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	10/2/2012	Cadmium	0.1	ug/L	0.330	050400041204	39.4607000	-81.4616000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/5/2012	Cadmium	0.1	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/18/2012	Cadmium	0.1	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	8/20/2012	Cadmium	0.1	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/4/2012	Cadmium	0.1	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/13/2012	Cadmium	0.1	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	10/2/2012	Cadmium	0.1	ug/L	0.200	050400041204	39.4603000	-81.4937000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	8/20/2012	Cadmium	0.1	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/4/2012	Cadmium	0.1	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/13/2012	Cadmium	0.1	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	10/2/2012	Cadmium	0.1	ug/L	0.200	050400041204	39.4834000	-81.5022000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Cadmium	0.1	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	8/20/2012	Cadmium	0.1	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Cadmium	0.1	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/13/2012	Cadmium	0.1	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Cadmium	0.1	ug/L	6.540	050400041202	39.4893000	-81.5614000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	7/5/2012	Cadmium	0.1	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	8/20/2012	Cadmium	0.1	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/4/2012	Cadmium	0.1	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/12/2012	Cadmium	0.1	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	10/2/2012	Cadmium	0.1	ug/L	0.140	050400041203	39.4880000	-81.4562000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/5/2012	Cadmium	0.1	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/18/2012	Cadmium	0.1	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	8/20/2012	Cadmium	0.1	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/4/2012	Cadmium	0.1	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/12/2012	Cadmium	0.1	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	10/2/2012	Cadmium	0.1	ug/L	0.220	050400041203	39.5462000	-81.5121000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	7/5/2012	Cadmium	0.1	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	8/20/2012	Cadmium	0.1	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/4/2012	Cadmium	0.1	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/12/2012	Cadmium	0.1	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	10/2/2012	Cadmium	0.1	ug/L	0.100	050400041203	39.5680000	-81.5134000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	7/5/2012	Cadmium	0.1	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	8/20/2012	Cadmium	0.1	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/4/2012	Cadmium	0.1	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/12/2012	Cadmium	0.1	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	10/2/2012	Cadmium	0.1	ug/L	0.080	050400041201	39.5415000	-81.5466000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/5/2012	Cadmium	0.1	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/18/2012	Cadmium	0.1	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	8/20/2012	Cadmium	0.1	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/4/2012	Cadmium	0.1	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/12/2012	Cadmium	0.1	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	10/2/2012	Cadmium	0.1	ug/L	4.490	050400041201	39.5928000	-81.5328000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	7/5/2012	Cadmium	0.1	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	8/20/2012	Cadmium	0.1	ug/L	0.070	050400041201	39.5710000	-81.5474000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/4/2012	Cadmium	0.1	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/12/2012	Cadmium	0.1	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	10/2/2012	Cadmium	0.1	ug/L	0.070	050400041201	39.5710000	-81.5474000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	8/20/2012	Cadmium	0.1	ug/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/4/2012	Cadmium	0.1	ug/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/12/2012	Cadmium	0.1	ug/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	10/2/2012	Cadmium	0.1	ug/L	0.010	050400041201	39.5832000	-81.5450000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	2/7/2012	Cadmium	0.1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	3/27/2012	Cadmium	0.1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	4/24/2012	Cadmium	0.1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	5/21/2012	Cadmium	0.1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/5/2012	Cadmium	0.1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/18/2012	Cadmium	0.1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	8/9/2012	Cadmium	0.1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/4/2012	Cadmium	0.1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/12/2012	Cadmium	0.1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	10/2/2012	Cadmium	0.1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/5/2012	Cadmium	0.1	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/18/2012	Cadmium	0.1	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	8/9/2012	Cadmium	0.1	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/4/2012	Cadmium	0.1	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/12/2012	Cadmium	0.1	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	10/2/2012	Cadmium	0.1	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/5/2012	Cadmium	0.1	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/18/2012	Cadmium	0.1	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	8/9/2012	Cadmium	0.1	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/4/2012	Cadmium	0.1	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/12/2012	Cadmium	0.1	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	10/2/2012	Cadmium	0.1	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/5/2012	Cadmium	0.1	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/18/2012	Cadmium	0.1	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	8/9/2012	Cadmium	0.1	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/4/2012	Cadmium	0.1	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/12/2012	Cadmium	0.1	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	10/2/2012	Cadmium	0.1	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/5/2012	Cadmium	0.1	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/18/2012	Cadmium	0.1	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	8/20/2012	Cadmium	0.1	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/4/2012	Cadmium	0.1	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/12/2012	Cadmium	0.1	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	10/2/2012	Cadmium	0.1	ug/L	0.180	050400041201	39.5522000	-81.5569000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Calcium	58	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/18/2012	Calcium	47	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	8/9/2012	Calcium	53	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Calcium	49	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/12/2012	Calcium	58	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Calcium	61	mg/L	0.480	050400041204	39.4628000	-81.4950000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	2/7/2012	Calcium	35	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	3/27/2012	Calcium	35	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	4/24/2012	Calcium	48	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	5/21/2012	Calcium	44	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/5/2012	Calcium	53	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/18/2012	Calcium	47	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	8/9/2012	Calcium	49	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/4/2012	Calcium	32	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/12/2012	Calcium	43	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	10/2/2012	Calcium	51	mg/L	4.250	050400041202	39.4963000	-81.5273000
301749	BIG RUN AT CR 56 BIG RUN ROAD	2/7/2012	Calcium	72	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	3/27/2012	Calcium	71	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	4/24/2012	Calcium	76	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	5/21/2012	Calcium	82	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/5/2012	Calcium	78	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/18/2012	Calcium	86	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	8/9/2012	Calcium	79	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/4/2012	Calcium	70	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/12/2012	Calcium	78	mg/L	2.320	050400041201	39.5704000	-81.5452000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
301749	BIG RUN AT CR 56 BIG RUN ROAD	10/2/2012	Calcium	84	mg/L	2.320	050400041201	39.5704000	-81.5452000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	8/20/2012	Calcium	54	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/4/2012	Calcium	41	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/13/2012	Calcium	46	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	10/2/2012	Calcium	52	mg/L	0.730	050400041204	39.4339000	-81.4799000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	8/20/2012	Calcium	45	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/4/2012	Calcium	43	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/13/2012	Calcium	41	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	10/2/2012	Calcium	50	mg/L	0.330	050400041204	39.4607000	-81.4616000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/5/2012	Calcium	65	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/18/2012	Calcium	49	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	8/20/2012	Calcium	64	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/4/2012	Calcium	51	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/13/2012	Calcium	56	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	10/2/2012	Calcium	67	mg/L	0.200	050400041204	39.4603000	-81.4937000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	8/20/2012	Calcium	79	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/4/2012	Calcium	51	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/13/2012	Calcium	56	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	10/2/2012	Calcium	66	mg/L	0.200	050400041204	39.4834000	-81.5022000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Calcium	61	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	8/20/2012	Calcium	56	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Calcium	42	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/13/2012	Calcium	58	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Calcium	61	mg/L	6.540	050400041202	39.4893000	-81.5614000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	7/5/2012	Calcium	84	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	8/20/2012	Calcium	92	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/4/2012	Calcium	65	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/12/2012	Calcium	80	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	10/2/2012	Calcium	87	mg/L	0.140	050400041203	39.4880000	-81.4562000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/5/2012	Calcium	76	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/18/2012	Calcium	77	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	8/20/2012	Calcium	79	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/4/2012	Calcium	70	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/12/2012	Calcium	78	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	10/2/2012	Calcium	81	mg/L	0.220	050400041203	39.5462000	-81.5121000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	7/5/2012	Calcium	94	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	8/20/2012	Calcium	104	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/4/2012	Calcium	93	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/12/2012	Calcium	102	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	10/2/2012	Calcium	112	mg/L	0.100	050400041203	39.5680000	-81.5134000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	7/5/2012	Calcium	80	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	8/20/2012	Calcium	80	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/4/2012	Calcium	66	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/12/2012	Calcium	78	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	10/2/2012	Calcium	82	mg/L	0.080	050400041201	39.5415000	-81.5466000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/5/2012	Calcium	97	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/18/2012	Calcium	91	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	8/20/2012	Calcium	100	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/4/2012	Calcium	90	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/12/2012	Calcium	89	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	10/2/2012	Calcium	97	mg/L	4.490	050400041201	39.5928000	-81.5328000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	7/5/2012	Calcium	65	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	8/20/2012	Calcium	68	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/4/2012	Calcium	51	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/12/2012	Calcium	62	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	10/2/2012	Calcium	72	mg/L	0.070	050400041201	39.5710000	-81.5474000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	8/20/2012	Calcium	88	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/4/2012	Calcium	85	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/12/2012	Calcium	81	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	10/2/2012	Calcium	83	mg/L	0.010	050400041201	39.5832000	-81.5450000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	2/7/2012	Calcium	73	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	3/27/2012	Calcium	71	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	4/24/2012	Calcium	81	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	5/21/2012	Calcium	81	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/5/2012	Calcium	79	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/18/2012	Calcium	74	mg/L	0.350	050400041203	39.5339000	-81.5165000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	8/9/2012	Calcium	68	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/4/2012	Calcium	74	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/12/2012	Calcium	77	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	10/2/2012	Calcium	83	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/5/2012	Calcium	74	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/18/2012	Calcium	76	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	8/9/2012	Calcium	55	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/4/2012	Calcium	58	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/12/2012	Calcium	70	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	10/2/2012	Calcium	78	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/5/2012	Calcium	58	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/18/2012	Calcium	87	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	8/9/2012	Calcium	62	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/4/2012	Calcium	67	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/12/2012	Calcium	52	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	10/2/2012	Calcium	52	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/5/2012	Calcium	62	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/18/2012	Calcium	33	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	8/9/2012	Calcium	61	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/4/2012	Calcium	53	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/12/2012	Calcium	69	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	10/2/2012	Calcium	36	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/5/2012	Calcium	69	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/18/2012	Calcium	58	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	8/20/2012	Calcium	66	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/4/2012	Calcium	66	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/12/2012	Calcium	57	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	10/2/2012	Calcium	67	mg/L	0.180	050400041201	39.5522000	-81.5569000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/5/2012	CBOD20	6.4	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/18/2012	CBOD20	7.3	mg/L	4.250	050400041202	39.4963000	-81.5273000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/5/2012	CBOD20	1.5	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/18/2012	CBOD20	1.5	mg/L	2.320	050400041201	39.5704000	-81.5452000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/5/2012	CBOD20	4	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/18/2012	CBOD20	1.5	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/18/2012	CBOD20	1.5	mg/L	0.110	050400041203	39.5222000	-81.4845000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Chloride	19.4	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/18/2012	Chloride	19.7	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	8/9/2012	Chloride	19	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Chloride	24.5	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/12/2012	Chloride	25.2	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Chloride	27.6	mg/L	0.480	050400041204	39.4628000	-81.4950000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	2/7/2012	Chloride	11.7	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	3/27/2012	Chloride	10.1	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	4/24/2012	Chloride	13.4	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	5/21/2012	Chloride	11.9	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/5/2012	Chloride	15.5	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/18/2012	Chloride	14.3	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	8/9/2012	Chloride	19.2	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/4/2012	Chloride	14.9	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/12/2012	Chloride	21	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	10/2/2012	Chloride	23.3	mg/L	4.250	050400041202	39.4963000	-81.5273000
301749	BIG RUN AT CR 56 BIG RUN ROAD	2/7/2012	Chloride	5.4	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	3/27/2012	Chloride	5.2	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	4/24/2012	Chloride	5.6	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	5/21/2012	Chloride	2.5	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/5/2012	Chloride	7.6	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/18/2012	Chloride	11.3	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	8/9/2012	Chloride	7	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/4/2012	Chloride	6	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/12/2012	Chloride	8.1	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	10/2/2012	Chloride	8.9	mg/L	2.320	050400041201	39.5704000	-81.5452000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	8/20/2012	Chloride	16.1	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/4/2012	Chloride	18.9	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/13/2012	Chloride	19.7	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	10/2/2012	Chloride	18.5	mg/L	0.730	050400041204	39.4339000	-81.4799000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	8/20/2012	Chloride	64.6	mg/L	0.330	050400041204	39.4607000	-81.4616000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/4/2012	Chloride	54.6	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/13/2012	Chloride	76.1	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	10/2/2012	Chloride	57.9	mg/L	0.330	050400041204	39.4607000	-81.4616000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/5/2012	Chloride	19.4	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/18/2012	Chloride	15.3	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	8/20/2012	Chloride	20.8	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/4/2012	Chloride	27.7	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/13/2012	Chloride	24.7	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	10/2/2012	Chloride	23.3	mg/L	0.200	050400041204	39.4603000	-81.4937000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	8/20/2012	Chloride	14.3	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/4/2012	Chloride	10.5	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/13/2012	Chloride	9.9	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	10/2/2012	Chloride	13.2	mg/L	0.200	050400041204	39.4834000	-81.5022000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Chloride	15.4	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	8/20/2012	Chloride	15.9	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Chloride	17.4	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/13/2012	Chloride	20	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Chloride	19.6	mg/L	6.540	050400041202	39.4893000	-81.5614000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	7/5/2012	Chloride	80.5	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	8/20/2012	Chloride	77.2	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/4/2012	Chloride	62.7	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/12/2012	Chloride	74.1	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	10/2/2012	Chloride	96.9	mg/L	0.140	050400041203	39.4880000	-81.4562000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/5/2012	Chloride	9	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/18/2012	Chloride	11.1	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	8/20/2012	Chloride	11.7	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/4/2012	Chloride	10.5	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/12/2012	Chloride	11.4	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	10/2/2012	Chloride	11.5	mg/L	0.220	050400041203	39.5462000	-81.5121000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	7/5/2012	Chloride	7.5	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	8/20/2012	Chloride	10.2	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/4/2012	Chloride	10.7	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/12/2012	Chloride	12.9	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	10/2/2012	Chloride	12.8	mg/L	0.100	050400041203	39.5680000	-81.5134000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	7/5/2012	Chloride	9.6	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	8/20/2012	Chloride	10.8	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/4/2012	Chloride	5.1	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/12/2012	Chloride	6.5	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	10/2/2012	Chloride	11.1	mg/L	0.080	050400041201	39.5415000	-81.5466000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/5/2012	Chloride	2.5	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/18/2012	Chloride	5.4	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	8/20/2012	Chloride	6	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/4/2012	Chloride	6	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/12/2012	Chloride	7.1	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	10/2/2012	Chloride	8.8	mg/L	4.490	050400041201	39.5928000	-81.5328000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	7/5/2012	Chloride	7.3	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	8/20/2012	Chloride	7.6	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/4/2012	Chloride	6.8	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/12/2012	Chloride	7.6	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	10/2/2012	Chloride	8.9	mg/L	0.070	050400041201	39.5710000	-81.5474000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	8/20/2012	Chloride	5.4	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/4/2012	Chloride	5.7	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/12/2012	Chloride	6.3	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	10/2/2012	Chloride	6.3	mg/L	0.010	050400041201	39.5832000	-81.5450000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	2/7/2012	Chloride	9.3	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	3/27/2012	Chloride	9	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	4/24/2012	Chloride	14	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	5/21/2012	Chloride	9.6	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/5/2012	Chloride	14.8	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/18/2012	Chloride	15	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	8/9/2012	Chloride	13.4	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/4/2012	Chloride	17.2	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/12/2012	Chloride	21.4	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	10/2/2012	Chloride	25	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/5/2012	Chloride	21.2	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/18/2012	Chloride	21.1	mg/L	0.110	050400041203	39.5222000	-81.4845000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	8/9/2012	Chloride	21	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/4/2012	Chloride	28.8	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/12/2012	Chloride	34.9	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	10/2/2012	Chloride	34.3	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/5/2012	Chloride	66.3	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/18/2012	Chloride	73.3	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	8/9/2012	Chloride	82.8	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/4/2012	Chloride	74.9	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/12/2012	Chloride	77.2	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	10/2/2012	Chloride	17.2	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/5/2012	Chloride	67.9	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/18/2012	Chloride	32.6	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	8/9/2012	Chloride	58.7	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/4/2012	Chloride	32.8	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/12/2012	Chloride	69.9	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	10/2/2012	Chloride	33.5	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/5/2012	Chloride	57.9	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/18/2012	Chloride	75.4	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	8/20/2012	Chloride	66.2	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/4/2012	Chloride	76.8	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/12/2012	Chloride	89.5	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	10/2/2012	Chloride	53	mg/L	0.180	050400041201	39.5522000	-81.5569000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Chromium	1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/18/2012	Chromium	1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	8/9/2012	Chromium	1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Chromium	1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/12/2012	Chromium	1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Chromium	1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	2/7/2012	Chromium	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	3/27/2012	Chromium	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	4/24/2012	Chromium	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	5/21/2012	Chromium	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/5/2012	Chromium	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/18/2012	Chromium	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	8/9/2012	Chromium	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/4/2012	Chromium	2.6	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/12/2012	Chromium	2	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	10/2/2012	Chromium	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301749	BIG RUN AT CR 56 BIG RUN ROAD	2/7/2012	Chromium	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	3/27/2012	Chromium	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	4/24/2012	Chromium	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	5/21/2012	Chromium	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/5/2012	Chromium	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/18/2012	Chromium	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	8/9/2012	Chromium	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/4/2012	Chromium	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/12/2012	Chromium	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	10/2/2012	Chromium	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	8/20/2012	Chromium	1	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/4/2012	Chromium	1	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/13/2012	Chromium	1	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	10/2/2012	Chromium	1	ug/L	0.730	050400041204	39.4339000	-81.4799000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	8/20/2012	Chromium	1	ug/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/4/2012	Chromium	1	ug/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/13/2012	Chromium	1	ug/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	10/2/2012	Chromium	1	ug/L	0.330	050400041204	39.4607000	-81.4616000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/5/2012	Chromium	1	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/18/2012	Chromium	1	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	8/20/2012	Chromium	1	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/4/2012	Chromium	1	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/13/2012	Chromium	1	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	10/2/2012	Chromium	1	ug/L	0.200	050400041204	39.4603000	-81.4937000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	8/20/2012	Chromium	1	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/4/2012	Chromium	1	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/13/2012	Chromium	1	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	10/2/2012	Chromium	1	ug/L	0.200	050400041204	39.4834000	-81.5022000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Chromium	1	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	8/20/2012	Chromium	1	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Chromium	5.1	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/13/2012	Chromium	2.3	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Chromium	1	ug/L	6.540	050400041202	39.4893000	-81.5614000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	7/5/2012	Chromium	1	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	8/20/2012	Chromium	1	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/4/2012	Chromium	1	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/12/2012	Chromium	1	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	10/2/2012	Chromium	1	ug/L	0.140	050400041203	39.4880000	-81.4562000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/5/2012	Chromium	1	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/18/2012	Chromium	1	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	8/20/2012	Chromium	1	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/4/2012	Chromium	1	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/12/2012	Chromium	1	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	10/2/2012	Chromium	1	ug/L	0.220	050400041203	39.5462000	-81.5121000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	7/5/2012	Chromium	1	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	8/20/2012	Chromium	1	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/4/2012	Chromium	1	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/12/2012	Chromium	1	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	10/2/2012	Chromium	1	ug/L	0.100	050400041203	39.5680000	-81.5134000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	7/5/2012	Chromium	1	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	8/20/2012	Chromium	1	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/4/2012	Chromium	1	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/12/2012	Chromium	1	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	10/2/2012	Chromium	1	ug/L	0.080	050400041201	39.5415000	-81.5466000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/5/2012	Chromium	1	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/18/2012	Chromium	1	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	8/20/2012	Chromium	1	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/4/2012	Chromium	1	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/12/2012	Chromium	1	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	10/2/2012	Chromium	1	ug/L	4.490	050400041201	39.5928000	-81.5328000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	7/5/2012	Chromium	1	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	8/20/2012	Chromium	1	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/4/2012	Chromium	1	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/12/2012	Chromium	1	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	10/2/2012	Chromium	1	ug/L	0.070	050400041201	39.5710000	-81.5474000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	8/20/2012	Chromium	1	ug/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/4/2012	Chromium	1	ug/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/12/2012	Chromium	1	ug/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	10/2/2012	Chromium	1	ug/L	0.010	050400041201	39.5832000	-81.5450000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	2/7/2012	Chromium	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	3/27/2012	Chromium	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	4/24/2012	Chromium	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	5/21/2012	Chromium	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/5/2012	Chromium	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/18/2012	Chromium	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	8/9/2012	Chromium	3.6	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/4/2012	Chromium	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/12/2012	Chromium	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	10/2/2012	Chromium	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/5/2012	Chromium	1	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/18/2012	Chromium	1	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	8/9/2012	Chromium	1	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/4/2012	Chromium	1	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/12/2012	Chromium	1	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	10/2/2012	Chromium	1	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/5/2012	Chromium	1	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/18/2012	Chromium	1	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	8/9/2012	Chromium	1	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/4/2012	Chromium	1	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/12/2012	Chromium	1	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	10/2/2012	Chromium	1	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/5/2012	Chromium	1	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/18/2012	Chromium	1	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	8/9/2012	Chromium	1	ug/L	0.300	050400041204	39.4150000	-81.4481000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/4/2012	Chromium	3.2	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/12/2012	Chromium	1	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	10/2/2012	Chromium	2	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/5/2012	Chromium	1	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/18/2012	Chromium	1	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	8/20/2012	Chromium	1	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/4/2012	Chromium	1	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/12/2012	Chromium	1	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	10/2/2012	Chromium	1	ug/L	0.180	050400041201	39.5522000	-81.5569000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	COD	10	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/18/2012	COD	10	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	8/9/2012	COD	10	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	COD	10	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/12/2012	COD	10	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	COD	10	mg/L	0.480	050400041204	39.4628000	-81.4950000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	2/7/2012	COD	10	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	3/27/2012	COD	10	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	4/24/2012	COD	10	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	5/21/2012	COD	10	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/5/2012	COD	10	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/18/2012	COD	10	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	8/9/2012	COD	10	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/4/2012	COD	23	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/12/2012	COD	10	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	10/2/2012	COD	10	mg/L	4.250	050400041202	39.4963000	-81.5273000
301749	BIG RUN AT CR 56 BIG RUN ROAD	2/7/2012	COD	10	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	3/27/2012	COD	10	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	4/24/2012	COD	10	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	5/21/2012	COD	10	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/5/2012	COD	10	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/18/2012	COD	10	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	8/9/2012	COD	10	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/4/2012	COD	10	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/12/2012	COD	10	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	10/2/2012	COD	10	mg/L	2.320	050400041201	39.5704000	-81.5452000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	8/20/2012	COD	10	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/4/2012	COD	10	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/13/2012	COD	10	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	10/2/2012	COD	10	mg/L	0.730	050400041204	39.4339000	-81.4799000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	8/20/2012	COD	10	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/4/2012	COD	23	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/13/2012	COD	21	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	10/2/2012	COD	10	mg/L	0.330	050400041204	39.4607000	-81.4616000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/5/2012	COD	10	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/18/2012	COD	10	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	8/20/2012	COD	10	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/4/2012	COD	32	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/13/2012	COD	10	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	10/2/2012	COD	10	mg/L	0.200	050400041204	39.4603000	-81.4937000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	8/20/2012	COD	10	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/4/2012	COD	10	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/13/2012	COD	10	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	10/2/2012	COD	10	mg/L	0.200	050400041204	39.4834000	-81.5022000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	COD	10	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	8/20/2012	COD	10	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	COD	10	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/13/2012	COD	10	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	COD	10	mg/L	6.540	050400041202	39.4893000	-81.5614000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	7/5/2012	COD	10	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	8/20/2012	COD	10	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/4/2012	COD	10	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/12/2012	COD	10	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	10/2/2012	COD	10	mg/L	0.140	050400041203	39.4880000	-81.4562000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/5/2012	COD	10	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/18/2012	COD	10	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	8/20/2012	COD	10	mg/L	0.220	050400041203	39.5462000	-81.5121000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/4/2012	COD	10	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/12/2012	COD	10	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	10/2/2012	COD	10	mg/L	0.220	050400041203	39.5462000	-81.5121000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	7/5/2012	COD	10	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	8/20/2012	COD	10	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/4/2012	COD	10	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/12/2012	COD	10	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	10/2/2012	COD	10	mg/L	0.100	050400041203	39.5680000	-81.5134000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	7/5/2012	COD	10	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	8/20/2012	COD	10	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/4/2012	COD	10	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/12/2012	COD	10	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	10/2/2012	COD	10	mg/L	0.080	050400041201	39.5415000	-81.5466000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/5/2012	COD	10	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/18/2012	COD	10	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	8/20/2012	COD	10	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/4/2012	COD	10	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/12/2012	COD	10	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	10/2/2012	COD	10	mg/L	4.490	050400041201	39.5928000	-81.5328000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	7/5/2012	COD	10	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	8/20/2012	COD	10	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/4/2012	COD	10	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/12/2012	COD	10	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	10/2/2012	COD	10	mg/L	0.070	050400041201	39.5710000	-81.5474000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	8/20/2012	COD	10	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/4/2012	COD	10	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/12/2012	COD	10	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	10/2/2012	COD	10	mg/L	0.010	050400041201	39.5832000	-81.5450000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	2/7/2012	COD	10	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	3/27/2012	COD	10	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	4/24/2012	COD	10	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	5/21/2012	COD	10	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/5/2012	COD	10	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/18/2012	COD	10	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	8/9/2012	COD	10	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/4/2012	COD	10	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/12/2012	COD	10	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	10/2/2012	COD	10	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/5/2012	COD	10	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/18/2012	COD	10	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	8/9/2012	COD	10	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/4/2012	COD	10	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/12/2012	COD	24	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	10/2/2012	COD	10	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/5/2012	COD	10	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/18/2012	COD	10	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	8/9/2012	COD	10	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/4/2012	COD	46	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/12/2012	COD	10	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	10/2/2012	COD	10	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/5/2012	COD	10	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/18/2012	COD	25	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	8/9/2012	COD	23	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/4/2012	COD	20	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/12/2012	COD	10	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	10/2/2012	COD	10	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/5/2012	COD	10	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/18/2012	COD	10	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	8/20/2012	COD	10	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/4/2012	COD	10	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/12/2012	COD	10	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	10/2/2012	COD	10	mg/L	0.180	050400041201	39.5522000	-81.5569000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Conductivity	538	umhos/cm	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/18/2012	Conductivity	484	umhos/cm	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	8/9/2012	Conductivity	486	umhos/cm	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Conductivity	475	umhos/cm	0.480	050400041204	39.4628000	-81.4950000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/12/2012	Conductivity	533	umhos/cm	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Conductivity	534	umhos/cm	0.480	050400041204	39.4628000	-81.4950000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	2/7/2012	Conductivity	321	umhos/cm	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	3/27/2012	Conductivity	310	umhos/cm	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	4/24/2012	Conductivity	409	umhos/cm	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	5/21/2012	Conductivity	378	umhos/cm	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/5/2012	Conductivity	425	umhos/cm	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/18/2012	Conductivity	422	umhos/cm	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	8/9/2012	Conductivity	431	umhos/cm	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/4/2012	Conductivity	288	umhos/cm	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/12/2012	Conductivity	395	umhos/cm	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	10/2/2012	Conductivity	435	umhos/cm	4.250	050400041202	39.4963000	-81.5273000
301749	BIG RUN AT CR 56 BIG RUN ROAD	2/7/2012	Conductivity	481	umhos/cm	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	3/27/2012	Conductivity	466	umhos/cm	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	4/24/2012	Conductivity	520	umhos/cm	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	5/21/2012	Conductivity	535	umhos/cm	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/5/2012	Conductivity	511	umhos/cm	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/18/2012	Conductivity	564	umhos/cm	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	8/9/2012	Conductivity	520	umhos/cm	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/4/2012	Conductivity	469	umhos/cm	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/12/2012	Conductivity	534	umhos/cm	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	10/2/2012	Conductivity	541	umhos/cm	2.320	050400041201	39.5704000	-81.5452000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	8/20/2012	Conductivity	447	umhos/cm	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/4/2012	Conductivity	373	umhos/cm	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/13/2012	Conductivity	422	umhos/cm	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	10/2/2012	Conductivity	434	umhos/cm	0.730	050400041204	39.4339000	-81.4799000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	8/20/2012	Conductivity	556	umhos/cm	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/4/2012	Conductivity	490	umhos/cm	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/13/2012	Conductivity	576	umhos/cm	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	10/2/2012	Conductivity	557	umhos/cm	0.330	050400041204	39.4607000	-81.4616000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/5/2012	Conductivity	576	umhos/cm	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/18/2012	Conductivity	481	umhos/cm	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	8/20/2012	Conductivity	572	umhos/cm	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/4/2012	Conductivity	493	umhos/cm	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/13/2012	Conductivity	567	umhos/cm	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	10/2/2012	Conductivity	577	umhos/cm	0.200	050400041204	39.4603000	-81.4937000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	8/20/2012	Conductivity	614	umhos/cm	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/4/2012	Conductivity	468	umhos/cm	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/13/2012	Conductivity	506	umhos/cm	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	10/2/2012	Conductivity	548	umhos/cm	0.200	050400041204	39.4834000	-81.5022000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Conductivity	491	umhos/cm	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	8/20/2012	Conductivity	465	umhos/cm	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Conductivity	368	umhos/cm	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/13/2012	Conductivity	458	umhos/cm	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Conductivity	485	umhos/cm	6.540	050400041202	39.4893000	-81.5614000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	7/5/2012	Conductivity	807	umhos/cm	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	8/20/2012	Conductivity	864	umhos/cm	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/4/2012	Conductivity	665	umhos/cm	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/12/2012	Conductivity	764	umhos/cm	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	10/2/2012	Conductivity	899	umhos/cm	0.140	050400041203	39.4880000	-81.4562000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/5/2012	Conductivity	487	umhos/cm	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/18/2012	Conductivity	519	umhos/cm	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	8/20/2012	Conductivity	533	umhos/cm	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/4/2012	Conductivity	480	umhos/cm	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/12/2012	Conductivity	510	umhos/cm	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	10/2/2012	Conductivity	532	umhos/cm	0.220	050400041203	39.5462000	-81.5121000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	7/5/2012	Conductivity	653	umhos/cm	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	8/20/2012	Conductivity	733	umhos/cm	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/4/2012	Conductivity	640	umhos/cm	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/12/2012	Conductivity	691	umhos/cm	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	10/2/2012	Conductivity	762	umhos/cm	0.100	050400041203	39.5680000	-81.5134000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	7/5/2012	Conductivity	562	umhos/cm	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	8/20/2012	Conductivity	577	umhos/cm	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/4/2012	Conductivity	495	umhos/cm	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/12/2012	Conductivity	535	umhos/cm	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	10/2/2012	Conductivity	579	umhos/cm	0.080	050400041201	39.5415000	-81.5466000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/5/2012	Conductivity	587	umhos/cm	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/18/2012	Conductivity	595	umhos/cm	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	8/20/2012	Conductivity	627	umhos/cm	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/4/2012	Conductivity	574	umhos/cm	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/12/2012	Conductivity	613	umhos/cm	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	10/2/2012	Conductivity	618	umhos/cm	4.490	050400041201	39.5928000	-81.5328000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	7/5/2012	Conductivity	456	umhos/cm	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	8/20/2012	Conductivity	489	umhos/cm	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/4/2012	Conductivity	388	umhos/cm	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/12/2012	Conductivity	452	umhos/cm	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	10/2/2012	Conductivity	480	umhos/cm	0.070	050400041201	39.5710000	-81.5474000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	8/20/2012	Conductivity	574	umhos/cm	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/4/2012	Conductivity	548	umhos/cm	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/12/2012	Conductivity	552	umhos/cm	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	10/2/2012	Conductivity	561	umhos/cm	0.010	050400041201	39.5832000	-81.5450000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	2/7/2012	Conductivity	494	umhos/cm	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	3/27/2012	Conductivity	486	umhos/cm	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	4/24/2012	Conductivity	561	umhos/cm	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	5/21/2012	Conductivity	540	umhos/cm	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/5/2012	Conductivity	529	umhos/cm	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/18/2012	Conductivity	545	umhos/cm	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	8/9/2012	Conductivity	469	umhos/cm	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/4/2012	Conductivity	507	umhos/cm	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/12/2012	Conductivity	561	umhos/cm	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	10/2/2012	Conductivity	572	umhos/cm	0.350	050400041203	39.5339000	-81.5165000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/5/2012	Conductivity	538	umhos/cm	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/18/2012	Conductivity	566	umhos/cm	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	8/9/2012	Conductivity	433	umhos/cm	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/4/2012	Conductivity	473	umhos/cm	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/12/2012	Conductivity	565	umhos/cm	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	10/2/2012	Conductivity	589	umhos/cm	0.110	050400041203	39.5222000	-81.4845000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/5/2012	Conductivity	685	umhos/cm	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/18/2012	Conductivity	694	umhos/cm	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	8/9/2012	Conductivity	776	umhos/cm	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/4/2012	Conductivity	800	umhos/cm	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/12/2012	Conductivity	702	umhos/cm	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	10/2/2012	Conductivity	423	umhos/cm	0.120	050400041202	39.4944000	-81.4911000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/5/2012	Conductivity	630	umhos/cm	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/18/2012	Conductivity	361	umhos/cm	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	8/9/2012	Conductivity	600	umhos/cm	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/4/2012	Conductivity	484	umhos/cm	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/12/2012	Conductivity	694	umhos/cm	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	10/2/2012	Conductivity	382	umhos/cm	0.300	050400041204	39.4150000	-81.4481000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/5/2012	Conductivity	681	umhos/cm	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/18/2012	Conductivity	729	umhos/cm	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	8/20/2012	Conductivity	755	umhos/cm	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/4/2012	Conductivity	796	umhos/cm	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/12/2012	Conductivity	769	umhos/cm	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	10/2/2012	Conductivity	695	umhos/cm	0.180	050400041201	39.5522000	-81.5569000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Copper	1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/18/2012	Copper	2.1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	8/9/2012	Copper	2.4	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Copper	2.9	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/12/2012	Copper	2.1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Copper	1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	2/7/2012	Copper	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	3/27/2012	Copper	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	4/24/2012	Copper	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	5/21/2012	Copper	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/5/2012	Copper	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/18/2012	Copper	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	8/9/2012	Copper	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/4/2012	Copper	4.9	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/12/2012	Copper	3.1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	10/2/2012	Copper	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301749	BIG RUN AT CR 56 BIG RUN ROAD	2/7/2012	Copper	1	ug/L	2.320	050400041201	39.5704000	-81.5452000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
301749	BIG RUN AT CR 56 BIG RUN ROAD	3/27/2012	Copper	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	4/24/2012	Copper	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	5/21/2012	Copper	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/5/2012	Copper	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/18/2012	Copper	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	8/9/2012	Copper	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/4/2012	Copper	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/12/2012	Copper	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	10/2/2012	Copper	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	8/20/2012	Copper	1	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/4/2012	Copper	2.7	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/13/2012	Copper	1	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	10/2/2012	Copper	1	ug/L	0.730	050400041204	39.4339000	-81.4799000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	8/20/2012	Copper	1	ug/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/4/2012	Copper	3.9	ug/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/13/2012	Copper	2.6	ug/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	10/2/2012	Copper	1	ug/L	0.330	050400041204	39.4607000	-81.4616000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/5/2012	Copper	2.3	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/18/2012	Copper	2.2	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	8/20/2012	Copper	1	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/4/2012	Copper	3	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/13/2012	Copper	1	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	10/2/2012	Copper	1	ug/L	0.200	050400041204	39.4603000	-81.4937000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	8/20/2012	Copper	3.5	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/4/2012	Copper	2.4	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/13/2012	Copper	1	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	10/2/2012	Copper	2.7	ug/L	0.200	050400041204	39.4834000	-81.5022000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Copper	1	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	8/20/2012	Copper	2.2	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Copper	5.4	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/13/2012	Copper	3.1	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Copper	2.1	ug/L	6.540	050400041202	39.4893000	-81.5614000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	7/5/2012	Copper	3	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	8/20/2012	Copper	2.1	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/4/2012	Copper	3.1	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/12/2012	Copper	2.3	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	10/2/2012	Copper	2.8	ug/L	0.140	050400041203	39.4880000	-81.4562000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/5/2012	Copper	2.3	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/18/2012	Copper	1	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	8/20/2012	Copper	1	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/4/2012	Copper	1	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/12/2012	Copper	1	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	10/2/2012	Copper	1	ug/L	0.220	050400041203	39.5462000	-81.5121000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	7/5/2012	Copper	1	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	8/20/2012	Copper	1	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/4/2012	Copper	1	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/12/2012	Copper	1	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	10/2/2012	Copper	1	ug/L	0.100	050400041203	39.5680000	-81.5134000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	7/5/2012	Copper	1	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	8/20/2012	Copper	1	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/4/2012	Copper	1	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/12/2012	Copper	1	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	10/2/2012	Copper	1	ug/L	0.080	050400041201	39.5415000	-81.5466000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/5/2012	Copper	1	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/18/2012	Copper	1	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	8/20/2012	Copper	1	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/4/2012	Copper	1	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/12/2012	Copper	1	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	10/2/2012	Copper	1	ug/L	4.490	050400041201	39.5928000	-81.5328000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	7/5/2012	Copper	1	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	8/20/2012	Copper	1	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/4/2012	Copper	1	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/12/2012	Copper	1	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	10/2/2012	Copper	2.6	ug/L	0.070	050400041201	39.5710000	-81.5474000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	8/20/2012	Copper	1	ug/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/4/2012	Copper	1	ug/L	0.010	050400041201	39.5832000	-81.5450000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/12/2012	Copper	1	ug/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	10/2/2012	Copper	1	ug/L	0.010	050400041201	39.5832000	-81.5450000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	2/7/2012	Copper	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	3/27/2012	Copper	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	4/24/2012	Copper	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	5/21/2012	Copper	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/5/2012	Copper	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/18/2012	Copper	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	8/9/2012	Copper	2.5	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/4/2012	Copper	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/12/2012	Copper	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	10/2/2012	Copper	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/5/2012	Copper	2.8	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/18/2012	Copper	1	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	8/9/2012	Copper	2.3	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/4/2012	Copper	1	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/12/2012	Copper	1	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	10/2/2012	Copper	1	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/5/2012	Copper	2.7	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/18/2012	Copper	2.3	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	8/9/2012	Copper	2.7	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/4/2012	Copper	2.4	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/12/2012	Copper	2.2	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	10/2/2012	Copper	1	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/5/2012	Copper	2.6	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/18/2012	Copper	4.8	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	8/9/2012	Copper	3.7	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/4/2012	Copper	4.5	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/12/2012	Copper	2.5	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	10/2/2012	Copper	4	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/5/2012	Copper	2.3	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/18/2012	Copper	2.4	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	8/20/2012	Copper	2.3	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/4/2012	Copper	2.3	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/12/2012	Copper	2	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	10/2/2012	Copper	1	ug/L	0.180	050400041201	39.5522000	-81.5569000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Hardness, Total	219	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/18/2012	Hardness, Total	175	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	8/9/2012	Hardness, Total	194	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Hardness, Total	176	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/12/2012	Hardness, Total	211	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Hardness, Total	218	mg/L	0.480	050400041204	39.4628000	-81.4950000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	2/7/2012	Hardness, Total	133	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	3/27/2012	Hardness, Total	133	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	4/24/2012	Hardness, Total	178	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	5/21/2012	Hardness, Total	163	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/5/2012	Hardness, Total	190	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/18/2012	Hardness, Total	167	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	8/9/2012	Hardness, Total	176	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/4/2012	Hardness, Total	117	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/12/2012	Hardness, Total	157	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	10/2/2012	Hardness, Total	185	mg/L	4.250	050400041202	39.4963000	-81.5273000
301749	BIG RUN AT CR 56 BIG RUN ROAD	2/7/2012	Hardness, Total	250	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	3/27/2012	Hardness, Total	243	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	4/24/2012	Hardness, Total	264	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	5/21/2012	Hardness, Total	283	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/5/2012	Hardness, Total	265	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/18/2012	Hardness, Total	285	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	8/9/2012	Hardness, Total	267	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/4/2012	Hardness, Total	237	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/12/2012	Hardness, Total	265	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	10/2/2012	Hardness, Total	284	mg/L	2.320	050400041201	39.5704000	-81.5452000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	8/20/2012	Hardness, Total	188	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/4/2012	Hardness, Total	144	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/13/2012	Hardness, Total	160	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	10/2/2012	Hardness, Total	183	mg/L	0.730	050400041204	39.4339000	-81.4799000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	8/20/2012	Hardness, Total	162	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/4/2012	Hardness, Total	157	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/13/2012	Hardness, Total	148	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	10/2/2012	Hardness, Total	183	mg/L	0.330	050400041204	39.4607000	-81.4616000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/5/2012	Hardness, Total	236	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/18/2012	Hardness, Total	184	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	8/20/2012	Hardness, Total	234	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/4/2012	Hardness, Total	185	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/13/2012	Hardness, Total	206	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	10/2/2012	Hardness, Total	250	mg/L	0.200	050400041204	39.4603000	-81.4937000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	8/20/2012	Hardness, Total	271	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/4/2012	Hardness, Total	185	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/13/2012	Hardness, Total	202	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	10/2/2012	Hardness, Total	231	mg/L	0.200	050400041204	39.4834000	-81.5022000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Hardness, Total	226	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	8/20/2012	Hardness, Total	202	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Hardness, Total	154	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/13/2012	Hardness, Total	211	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Hardness, Total	222	mg/L	6.540	050400041202	39.4893000	-81.5614000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	7/5/2012	Hardness, Total	309	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	8/20/2012	Hardness, Total	333	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/4/2012	Hardness, Total	236	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/12/2012	Hardness, Total	294	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	10/2/2012	Hardness, Total	320	mg/L	0.140	050400041203	39.4880000	-81.4562000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/5/2012	Hardness, Total	252	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/18/2012	Hardness, Total	258	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	8/20/2012	Hardness, Total	263	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/4/2012	Hardness, Total	232	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/12/2012	Hardness, Total	261	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	10/2/2012	Hardness, Total	268	mg/L	0.220	050400041203	39.5462000	-81.5121000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	7/5/2012	Hardness, Total	329	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	8/20/2012	Hardness, Total	359	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/4/2012	Hardness, Total	327	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/12/2012	Hardness, Total	354	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	10/2/2012	Hardness, Total	387	mg/L	0.100	050400041203	39.5680000	-81.5134000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	7/5/2012	Hardness, Total	278	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	8/20/2012	Hardness, Total	278	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/4/2012	Hardness, Total	235	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/12/2012	Hardness, Total	273	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	10/2/2012	Hardness, Total	283	mg/L	0.080	050400041201	39.5415000	-81.5466000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/5/2012	Hardness, Total	325	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/18/2012	Hardness, Total	314	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	8/20/2012	Hardness, Total	332	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/4/2012	Hardness, Total	303	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/12/2012	Hardness, Total	296	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	10/2/2012	Hardness, Total	325	mg/L	4.490	050400041201	39.5928000	-81.5328000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	7/5/2012	Hardness, Total	224	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	8/20/2012	Hardness, Total	232	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/4/2012	Hardness, Total	181	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/12/2012	Hardness, Total	217	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	10/2/2012	Hardness, Total	270	mg/L	0.070	050400041201	39.5710000	-81.5474000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	8/20/2012	Hardness, Total	298	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/4/2012	Hardness, Total	295	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/12/2012	Hardness, Total	280	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	10/2/2012	Hardness, Total	290	mg/L	0.010	050400041201	39.5832000	-81.5450000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	2/7/2012	Hardness, Total	252	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	3/27/2012	Hardness, Total	243	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	4/24/2012	Hardness, Total	276	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	5/21/2012	Hardness, Total	272	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/5/2012	Hardness, Total	267	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/18/2012	Hardness, Total	247	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	8/9/2012	Hardness, Total	227	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/4/2012	Hardness, Total	247	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/12/2012	Hardness, Total	258	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	10/2/2012	Hardness, Total	277	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/5/2012	Hardness, Total	259	mg/L	0.110	050400041203	39.5222000	-81.4845000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/18/2012	Hardness, Total	247	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	8/9/2012	Hardness, Total	187	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/4/2012	Hardness, Total	198	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/12/2012	Hardness, Total	241	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	10/2/2012	Hardness, Total	269	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/5/2012	Hardness, Total	235	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/18/2012	Hardness, Total	349	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	8/9/2012	Hardness, Total	258	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/4/2012	Hardness, Total	283	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/12/2012	Hardness, Total	225	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	10/2/2012	Hardness, Total	183	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/5/2012	Hardness, Total	225	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/18/2012	Hardness, Total	115	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	8/9/2012	Hardness, Total	210	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/4/2012	Hardness, Total	190	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/12/2012	Hardness, Total	251	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	10/2/2012	Hardness, Total	131	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/5/2012	Hardness, Total	263	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/18/2012	Hardness, Total	244	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	8/20/2012	Hardness, Total	264	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/4/2012	Hardness, Total	276	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/12/2012	Hardness, Total	249	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	10/2/2012	Hardness, Total	233	mg/L	0.180	050400041201	39.5522000	-81.5569000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Iron	58	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/18/2012	Iron	186	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	8/9/2012	Iron	447	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Iron	143	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/12/2012	Iron	77	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Iron	25	ug/L	0.480	050400041204	39.4628000	-81.4950000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	2/7/2012	Iron	156	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	3/27/2012	Iron	186	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	4/24/2012	Iron	227	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	5/21/2012	Iron	168	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/5/2012	Iron	337	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/18/2012	Iron	345	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	8/9/2012	Iron	369	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/4/2012	Iron	3760	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/12/2012	Iron	2570	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	10/2/2012	Iron	209	ug/L	4.250	050400041202	39.4963000	-81.5273000
301749	BIG RUN AT CR 56 BIG RUN ROAD	2/7/2012	Iron	84	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	3/27/2012	Iron	84	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	4/24/2012	Iron	25	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	5/21/2012	Iron	65	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/5/2012	Iron	188	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/18/2012	Iron	96	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	8/9/2012	Iron	115	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/4/2012	Iron	182	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/12/2012	Iron	77	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	10/2/2012	Iron	25	ug/L	2.320	050400041201	39.5704000	-81.5452000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	8/20/2012	Iron	271	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/4/2012	Iron	228	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/13/2012	Iron	61	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	10/2/2012	Iron	64	ug/L	0.730	050400041204	39.4339000	-81.4799000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	8/20/2012	Iron	271	ug/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/4/2012	Iron	1380	ug/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/13/2012	Iron	396	ug/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	10/2/2012	Iron	198	ug/L	0.330	050400041204	39.4607000	-81.4616000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/5/2012	Iron	266	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/18/2012	Iron	355	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	8/20/2012	Iron	105	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/4/2012	Iron	151	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/13/2012	Iron	25	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	10/2/2012	Iron	25	ug/L	0.200	050400041204	39.4603000	-81.4937000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	8/20/2012	Iron	1370	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/4/2012	Iron	189	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/13/2012	Iron	25	ug/L	0.200	050400041204	39.4834000	-81.5022000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	10/2/2012	Iron	180	ug/L	0.200	050400041204	39.4834000	-81.5022000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Iron	285	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	8/20/2012	Iron	2260	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Iron	6980	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/13/2012	Iron	3550	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Iron	1470	ug/L	6.540	050400041202	39.4893000	-81.5614000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	7/5/2012	Iron	215	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	8/20/2012	Iron	85	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/4/2012	Iron	141	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/12/2012	Iron	25	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	10/2/2012	Iron	25	ug/L	0.140	050400041203	39.4880000	-81.4562000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/5/2012	Iron	1740	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/18/2012	Iron	271	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	8/20/2012	Iron	83	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/4/2012	Iron	110	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/12/2012	Iron	299	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	10/2/2012	Iron	62	ug/L	0.220	050400041203	39.5462000	-81.5121000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	7/5/2012	Iron	261	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	8/20/2012	Iron	200	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/4/2012	Iron	265	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/12/2012	Iron	216	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	10/2/2012	Iron	419	ug/L	0.100	050400041203	39.5680000	-81.5134000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	7/5/2012	Iron	254	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	8/20/2012	Iron	216	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/4/2012	Iron	79	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/12/2012	Iron	140	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	10/2/2012	Iron	249	ug/L	0.080	050400041201	39.5415000	-81.5466000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/5/2012	Iron	236	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/18/2012	Iron	129	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	8/20/2012	Iron	144	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/4/2012	Iron	167	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/12/2012	Iron	142	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	10/2/2012	Iron	25	ug/L	4.490	050400041201	39.5928000	-81.5328000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	7/5/2012	Iron	64	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	8/20/2012	Iron	58	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/4/2012	Iron	113	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/12/2012	Iron	58	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	10/2/2012	Iron	1010	ug/L	0.070	050400041201	39.5710000	-81.5474000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	8/20/2012	Iron	142	ug/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/4/2012	Iron	1730	ug/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/12/2012	Iron	335	ug/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	10/2/2012	Iron	69	ug/L	0.010	050400041201	39.5832000	-81.5450000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	2/7/2012	Iron	64	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	3/27/2012	Iron	65	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	4/24/2012	Iron	58	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	5/21/2012	Iron	57	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/5/2012	Iron	121	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/18/2012	Iron	82	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	8/9/2012	Iron	1720	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/4/2012	Iron	155	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/12/2012	Iron	92	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	10/2/2012	Iron	50	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/5/2012	Iron	163	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/18/2012	Iron	416	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	8/9/2012	Iron	701	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/4/2012	Iron	318	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/12/2012	Iron	271	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	10/2/2012	Iron	97	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/5/2012	Iron	385	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/18/2012	Iron	208	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	8/9/2012	Iron	469	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/4/2012	Iron	511	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/12/2012	Iron	378	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	10/2/2012	Iron	251	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/5/2012	Iron	347	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/18/2012	Iron	556	ug/L	0.300	050400041204	39.4150000	-81.4481000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	8/9/2012	Iron	399	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/4/2012	Iron	840	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/12/2012	Iron	117	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	10/2/2012	Iron	829	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/5/2012	Iron	461	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/18/2012	Iron	342	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	8/20/2012	Iron	571	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/4/2012	Iron	508	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/12/2012	Iron	156	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	10/2/2012	Iron	25	ug/L	0.180	050400041201	39.5522000	-81.5569000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Lead	1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/18/2012	Lead	1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	8/9/2012	Lead	1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Lead	1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/12/2012	Lead	1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Lead	1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	2/7/2012	Lead	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	3/27/2012	Lead	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	4/24/2012	Lead	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	5/21/2012	Lead	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/5/2012	Lead	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/18/2012	Lead	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	8/9/2012	Lead	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/4/2012	Lead	2.6	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/12/2012	Lead	2	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	10/2/2012	Lead	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301749	BIG RUN AT CR 56 BIG RUN ROAD	2/7/2012	Lead	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	3/27/2012	Lead	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	4/24/2012	Lead	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	5/21/2012	Lead	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/5/2012	Lead	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/18/2012	Lead	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	8/9/2012	Lead	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/4/2012	Lead	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/12/2012	Lead	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	10/2/2012	Lead	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	8/20/2012	Lead	1	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/4/2012	Lead	1	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/13/2012	Lead	1	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	10/2/2012	Lead	1	ug/L	0.730	050400041204	39.4339000	-81.4799000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	8/20/2012	Lead	1	ug/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/4/2012	Lead	1	ug/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/13/2012	Lead	1	ug/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	10/2/2012	Lead	1	ug/L	0.330	050400041204	39.4607000	-81.4616000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/5/2012	Lead	1	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/18/2012	Lead	1	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	8/20/2012	Lead	1	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/4/2012	Lead	1	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/13/2012	Lead	1	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	10/2/2012	Lead	1	ug/L	0.200	050400041204	39.4603000	-81.4937000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	8/20/2012	Lead	1	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/4/2012	Lead	1	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/13/2012	Lead	1	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	10/2/2012	Lead	1	ug/L	0.200	050400041204	39.4834000	-81.5022000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Lead	1	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	8/20/2012	Lead	1	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Lead	5.1	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/13/2012	Lead	2.6	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Lead	1	ug/L	6.540	050400041202	39.4893000	-81.5614000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	7/5/2012	Lead	1	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	8/20/2012	Lead	1	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/4/2012	Lead	1	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/12/2012	Lead	1	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	10/2/2012	Lead	1	ug/L	0.140	050400041203	39.4880000	-81.4562000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/5/2012	Lead	1	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/18/2012	Lead	1	ug/L	0.220	050400041203	39.5462000	-81.5121000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	8/20/2012	Lead	1	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/4/2012	Lead	1	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/12/2012	Lead	1	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	10/2/2012	Lead	1	ug/L	0.220	050400041203	39.5462000	-81.5121000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	7/5/2012	Lead	1	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	8/20/2012	Lead	1	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/4/2012	Lead	1	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/12/2012	Lead	1	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	10/2/2012	Lead	1	ug/L	0.100	050400041203	39.5680000	-81.5134000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	7/5/2012	Lead	1	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	8/20/2012	Lead	1	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/4/2012	Lead	1	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/12/2012	Lead	1	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	10/2/2012	Lead	1	ug/L	0.080	050400041201	39.5415000	-81.5466000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/5/2012	Lead	1	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/18/2012	Lead	1	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	8/20/2012	Lead	1	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/4/2012	Lead	1	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/12/2012	Lead	1	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	10/2/2012	Lead	1	ug/L	4.490	050400041201	39.5928000	-81.5328000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	7/5/2012	Lead	1	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	8/20/2012	Lead	1	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/4/2012	Lead	1	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/12/2012	Lead	1	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	10/2/2012	Lead	1	ug/L	0.070	050400041201	39.5710000	-81.5474000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	8/20/2012	Lead	1	ug/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/4/2012	Lead	1	ug/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/12/2012	Lead	1	ug/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	10/2/2012	Lead	1	ug/L	0.010	050400041201	39.5832000	-81.5450000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	2/7/2012	Lead	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	3/27/2012	Lead	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	4/24/2012	Lead	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	5/21/2012	Lead	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/5/2012	Lead	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/18/2012	Lead	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	8/9/2012	Lead	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/4/2012	Lead	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/12/2012	Lead	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	10/2/2012	Lead	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/5/2012	Lead	1	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/18/2012	Lead	1	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	8/9/2012	Lead	1	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/4/2012	Lead	1	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/12/2012	Lead	1	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	10/2/2012	Lead	1	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/5/2012	Lead	1	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/18/2012	Lead	1	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	8/9/2012	Lead	1	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/4/2012	Lead	1	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/12/2012	Lead	1	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	10/2/2012	Lead	1	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/5/2012	Lead	1	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/18/2012	Lead	2.6	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	8/9/2012	Lead	1	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/4/2012	Lead	1	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/12/2012	Lead	1	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	10/2/2012	Lead	5.4	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/5/2012	Lead	1	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/18/2012	Lead	1	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	8/20/2012	Lead	1	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/4/2012	Lead	1	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/12/2012	Lead	1	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	10/2/2012	Lead	1	ug/L	0.180	050400041201	39.5522000	-81.5569000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Magnesium	18	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/18/2012	Magnesium	14	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	8/9/2012	Magnesium	15	mg/L	0.480	050400041204	39.4628000	-81.4950000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Magnesium	13	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/12/2012	Magnesium	16	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Magnesium	16	mg/L	0.480	050400041204	39.4628000	-81.4950000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	2/7/2012	Magnesium	11	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	3/27/2012	Magnesium	11	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	4/24/2012	Magnesium	14	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	5/21/2012	Magnesium	13	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/5/2012	Magnesium	14	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/18/2012	Magnesium	12	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	8/9/2012	Magnesium	13	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/4/2012	Magnesium		mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/12/2012	Magnesium	12	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	10/2/2012	Magnesium	14	mg/L	4.250	050400041202	39.4963000	-81.5273000
301749	BIG RUN AT CR 56 BIG RUN ROAD	2/7/2012	Magnesium	17	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	3/27/2012	Magnesium	16	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	4/24/2012	Magnesium	18	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	5/21/2012	Magnesium	19	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/5/2012	Magnesium	17	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/18/2012	Magnesium	17	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	8/9/2012	Magnesium	17	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/4/2012	Magnesium	15	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/12/2012	Magnesium	17	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	10/2/2012	Magnesium	18	mg/L	2.320	050400041201	39.5704000	-81.5452000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	8/20/2012	Magnesium	13	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/4/2012	Magnesium	10	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/13/2012	Magnesium	11	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	10/2/2012	Magnesium	13	mg/L	0.730	050400041204	39.4339000	-81.4799000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	8/20/2012	Magnesium	12	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/4/2012	Magnesium	12	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/13/2012	Magnesium	11	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	10/2/2012	Magnesium	14	mg/L	0.330	050400041204	39.4607000	-81.4616000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/5/2012	Magnesium	18	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/18/2012	Magnesium	15	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	8/20/2012	Magnesium	18	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/4/2012	Magnesium	14	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/13/2012	Magnesium	16	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	10/2/2012	Magnesium	20	mg/L	0.200	050400041204	39.4603000	-81.4937000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	8/20/2012	Magnesium	18	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/4/2012	Magnesium	14	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/13/2012	Magnesium	15	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	10/2/2012	Magnesium	16	mg/L	0.200	050400041204	39.4834000	-81.5022000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Magnesium	18	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	8/20/2012	Magnesium	15	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Magnesium	12	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/13/2012	Magnesium	16	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Magnesium	17	mg/L	6.540	050400041202	39.4893000	-81.5614000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	7/5/2012	Magnesium	24	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	8/20/2012	Magnesium	25	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/4/2012	Magnesium	18	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/12/2012	Magnesium	23	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	10/2/2012	Magnesium	25	mg/L	0.140	050400041203	39.4880000	-81.4562000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/5/2012	Magnesium	15	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/18/2012	Magnesium	16	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	8/20/2012	Magnesium	16	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/4/2012	Magnesium	14	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/12/2012	Magnesium	16	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	10/2/2012	Magnesium	16	mg/L	0.220	050400041203	39.5462000	-81.5121000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	7/5/2012	Magnesium	23	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	8/20/2012	Magnesium	24	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/4/2012	Magnesium	23	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/12/2012	Magnesium	24	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	10/2/2012	Magnesium	26	mg/L	0.100	050400041203	39.5680000	-81.5134000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	7/5/2012	Magnesium	19	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	8/20/2012	Magnesium	19	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/4/2012	Magnesium	17	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/12/2012	Magnesium	19	mg/L	0.080	050400041201	39.5415000	-81.5466000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	10/2/2012	Magnesium	19	mg/L	0.080	050400041201	39.5415000	-81.5466000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/5/2012	Magnesium	20	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/18/2012	Magnesium	21	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	8/20/2012	Magnesium	20	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/4/2012	Magnesium	19	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/12/2012	Magnesium	18	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	10/2/2012	Magnesium	20	mg/L	4.490	050400041201	39.5928000	-81.5328000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	7/5/2012	Magnesium	15	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	8/20/2012	Magnesium	15	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/4/2012	Magnesium	13	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/12/2012	Magnesium	15	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	10/2/2012	Magnesium	22	mg/L	0.070	050400041201	39.5710000	-81.5474000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	8/20/2012	Magnesium	19	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/4/2012	Magnesium	20	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/12/2012	Magnesium	19	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	10/2/2012	Magnesium	20	mg/L	0.010	050400041201	39.5832000	-81.5450000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	2/7/2012	Magnesium	17	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	3/27/2012	Magnesium	16	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	4/24/2012	Magnesium	18	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	5/21/2012	Magnesium	17	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/5/2012	Magnesium	17	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/18/2012	Magnesium	15	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	8/9/2012	Magnesium	14	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/4/2012	Magnesium	15	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/12/2012	Magnesium	16	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	10/2/2012	Magnesium	17	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/5/2012	Magnesium	18	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/18/2012	Magnesium	14	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	8/9/2012	Magnesium	12	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/4/2012	Magnesium	13	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/12/2012	Magnesium	16	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	10/2/2012	Magnesium	18	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/5/2012	Magnesium	22	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/18/2012	Magnesium	32	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	8/9/2012	Magnesium	25	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/4/2012	Magnesium	28	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/12/2012	Magnesium	23	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	10/2/2012	Magnesium	13	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/5/2012	Magnesium	17	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/18/2012	Magnesium		mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	8/9/2012	Magnesium	14	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/4/2012	Magnesium	14	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/12/2012	Magnesium	19	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	10/2/2012	Magnesium	10	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/5/2012	Magnesium	22	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/18/2012	Magnesium	24	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	8/20/2012	Magnesium	24	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/4/2012	Magnesium	27	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/12/2012	Magnesium	26	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	10/2/2012	Magnesium	16	mg/L	0.180	050400041201	39.5522000	-81.5569000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Manganese	136	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/18/2012	Manganese	11	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	8/9/2012	Manganese	79	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Manganese	5	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/12/2012	Manganese	5	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Manganese	23	ug/L	0.480	050400041204	39.4628000	-81.4950000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	2/7/2012	Manganese	82	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	3/27/2012	Manganese	122	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	4/24/2012	Manganese	112	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	5/21/2012	Manganese	67	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/5/2012	Manganese	369	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/18/2012	Manganese	323	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	8/9/2012	Manganese	297	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/4/2012	Manganese	254	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/12/2012	Manganese	223	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	10/2/2012	Manganese	198	ug/L	4.250	050400041202	39.4963000	-81.5273000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
301749	BIG RUN AT CR 56 BIG RUN ROAD	2/7/2012	Manganese	5	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	3/27/2012	Manganese	10	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	4/24/2012	Manganese	5	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	5/21/2012	Manganese	10	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/5/2012	Manganese	57	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/18/2012	Manganese	88	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	8/9/2012	Manganese	36	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/4/2012	Manganese	25	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/12/2012	Manganese	36	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	10/2/2012	Manganese	20	ug/L	2.320	050400041201	39.5704000	-81.5452000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	8/20/2012	Manganese	566	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/4/2012	Manganese	22	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/13/2012	Manganese	57	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	10/2/2012	Manganese	60	ug/L	0.730	050400041204	39.4339000	-81.4799000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	8/20/2012	Manganese	355	ug/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/4/2012	Manganese	50	ug/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/13/2012	Manganese	153	ug/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	10/2/2012	Manganese	247	ug/L	0.330	050400041204	39.4607000	-81.4616000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/5/2012	Manganese	50	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/18/2012	Manganese	18	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	8/20/2012	Manganese	20	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/4/2012	Manganese	14	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/13/2012	Manganese	17	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	10/2/2012	Manganese	5	ug/L	0.200	050400041204	39.4603000	-81.4937000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	8/20/2012	Manganese	386	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/4/2012	Manganese	5	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/13/2012	Manganese	21	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	10/2/2012	Manganese	41	ug/L	0.200	050400041204	39.4834000	-81.5022000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Manganese	444	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	8/20/2012	Manganese	1260	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Manganese	688	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/13/2012	Manganese	751	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Manganese	507	ug/L	6.540	050400041202	39.4893000	-81.5614000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	7/5/2012	Manganese	16	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	8/20/2012	Manganese	71	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/4/2012	Manganese	68	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/12/2012	Manganese	94	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	10/2/2012	Manganese	64	ug/L	0.140	050400041203	39.4880000	-81.4562000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/5/2012	Manganese	81	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/18/2012	Manganese	119	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	8/20/2012	Manganese	45	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/4/2012	Manganese	20	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/12/2012	Manganese	67	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	10/2/2012	Manganese	76	ug/L	0.220	050400041203	39.5462000	-81.5121000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	7/5/2012	Manganese	29	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	8/20/2012	Manganese	26	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/4/2012	Manganese	21	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/12/2012	Manganese	39	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	10/2/2012	Manganese	71	ug/L	0.100	050400041203	39.5680000	-81.5134000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	7/5/2012	Manganese	289	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	8/20/2012	Manganese	257	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/4/2012	Manganese	61	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/12/2012	Manganese	198	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	10/2/2012	Manganese	388	ug/L	0.080	050400041201	39.5415000	-81.5466000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/5/2012	Manganese	136	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/18/2012	Manganese	143	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	8/20/2012	Manganese	87	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/4/2012	Manganese	50	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/12/2012	Manganese	79	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	10/2/2012	Manganese	59	ug/L	4.490	050400041201	39.5928000	-81.5328000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	7/5/2012	Manganese	58	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	8/20/2012	Manganese	62	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/4/2012	Manganese	39	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/12/2012	Manganese	38	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	10/2/2012	Manganese	288	ug/L	0.070	050400041201	39.5710000	-81.5474000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	8/20/2012	Manganese	5	ug/L	0.010	050400041201	39.5832000	-81.5450000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/4/2012	Manganese	56	ug/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/12/2012	Manganese	17	ug/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	10/2/2012	Manganese	5	ug/L	0.010	050400041201	39.5832000	-81.5450000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	2/7/2012	Manganese	24	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	3/27/2012	Manganese	24	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	4/24/2012	Manganese	37	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	5/21/2012	Manganese	22	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/5/2012	Manganese	73	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/18/2012	Manganese	128	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	8/9/2012	Manganese	70	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/4/2012	Manganese	52	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/12/2012	Manganese	72	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	10/2/2012	Manganese	66	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/5/2012	Manganese	68	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/18/2012	Manganese	153	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	8/9/2012	Manganese	35	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/4/2012	Manganese	24	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/12/2012	Manganese	57	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	10/2/2012	Manganese	49	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/5/2012	Manganese	152	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/18/2012	Manganese	5	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	8/9/2012	Manganese	160	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/4/2012	Manganese	154	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/12/2012	Manganese	115	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	10/2/2012	Manganese	398	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/5/2012	Manganese	261	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/18/2012	Manganese	119	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	8/9/2012	Manganese	179	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/4/2012	Manganese	184	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/12/2012	Manganese	173	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	10/2/2012	Manganese	136	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/5/2012	Manganese	226	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/18/2012	Manganese	182	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	8/20/2012	Manganese	175	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/4/2012	Manganese	131	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/12/2012	Manganese	148	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	10/2/2012	Manganese	45	ug/L	0.180	050400041201	39.5522000	-81.5569000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Nickel	1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/18/2012	Nickel	1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	8/9/2012	Nickel	2.1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Nickel	1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/12/2012	Nickel	2.1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Nickel	1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	2/7/2012	Nickel	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	3/27/2012	Nickel	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	4/24/2012	Nickel	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	5/21/2012	Nickel	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/5/2012	Nickel	2	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/18/2012	Nickel	2	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	8/9/2012	Nickel	2	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/4/2012	Nickel	4.2	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/12/2012	Nickel	3.8	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	10/2/2012	Nickel	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301749	BIG RUN AT CR 56 BIG RUN ROAD	2/7/2012	Nickel	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	3/27/2012	Nickel	2	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	4/24/2012	Nickel	2	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	5/21/2012	Nickel	2.3	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/5/2012	Nickel	2.2	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/18/2012	Nickel	2.4	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	8/9/2012	Nickel	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/4/2012	Nickel	2	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/12/2012	Nickel	2.4	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	10/2/2012	Nickel	2	ug/L	2.320	050400041201	39.5704000	-81.5452000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	8/20/2012	Nickel	2	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/4/2012	Nickel	1	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/13/2012	Nickel	1	ug/L	0.730	050400041204	39.4339000	-81.4799000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	10/2/2012	Nickel	1	ug/L	0.730	050400041204	39.4339000	-81.4799000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	8/20/2012	Nickel	2.4	ug/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/4/2012	Nickel	3	ug/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/13/2012	Nickel	2.6	ug/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	10/2/2012	Nickel	2.3	ug/L	0.330	050400041204	39.4607000	-81.4616000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/5/2012	Nickel	2.4	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/18/2012	Nickel	1	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	8/20/2012	Nickel	2.1	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/4/2012	Nickel	1	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/13/2012	Nickel	2.2	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	10/2/2012	Nickel	2.3	ug/L	0.200	050400041204	39.4603000	-81.4937000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	8/20/2012	Nickel	4	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/4/2012	Nickel	1	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/13/2012	Nickel	2.1	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	10/2/2012	Nickel	2.4	ug/L	0.200	050400041204	39.4834000	-81.5022000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Nickel	2.4	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	8/20/2012	Nickel	3.4	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Nickel	7	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/13/2012	Nickel	4.5	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Nickel	3.3	ug/L	6.540	050400041202	39.4893000	-81.5614000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	7/5/2012	Nickel	2.7	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	8/20/2012	Nickel	3.3	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/4/2012	Nickel	2.3	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/12/2012	Nickel	2.9	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	10/2/2012	Nickel	3	ug/L	0.140	050400041203	39.4880000	-81.4562000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/5/2012	Nickel	3.5	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/18/2012	Nickel	2.3	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	8/20/2012	Nickel	2.3	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/4/2012	Nickel	1	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/12/2012	Nickel	2.7	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	10/2/2012	Nickel	2.3	ug/L	0.220	050400041203	39.5462000	-81.5121000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	7/5/2012	Nickel	3	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	8/20/2012	Nickel	3.5	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/4/2012	Nickel	2.7	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/12/2012	Nickel	3.6	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	10/2/2012	Nickel	4	ug/L	0.100	050400041203	39.5680000	-81.5134000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	7/5/2012	Nickel	2.4	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	8/20/2012	Nickel	2.7	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/4/2012	Nickel	1	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/12/2012	Nickel	2.4	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	10/2/2012	Nickel	2.6	ug/L	0.080	050400041201	39.5415000	-81.5466000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/5/2012	Nickel	2.7	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/18/2012	Nickel	2.5	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	8/20/2012	Nickel	2.9	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/4/2012	Nickel	2.5	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/12/2012	Nickel	3.2	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	10/2/2012	Nickel	2.7	ug/L	4.490	050400041201	39.5928000	-81.5328000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	7/5/2012	Nickel	1	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	8/20/2012	Nickel	2	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/4/2012	Nickel	1	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/12/2012	Nickel	1	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	10/2/2012	Nickel	4.3	ug/L	0.070	050400041201	39.5710000	-81.5474000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	8/20/2012	Nickel	2.4	ug/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/4/2012	Nickel	3.7	ug/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/12/2012	Nickel	2.6	ug/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	10/2/2012	Nickel	2.4	ug/L	0.010	050400041201	39.5832000	-81.5450000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	2/7/2012	Nickel	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	3/27/2012	Nickel	2	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	4/24/2012	Nickel	2.1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	5/21/2012	Nickel	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/5/2012	Nickel	2.1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/18/2012	Nickel	2.1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	8/9/2012	Nickel	3.4	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/4/2012	Nickel	2.1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/12/2012	Nickel	2.4	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	10/2/2012	Nickel	2	ug/L	0.350	050400041203	39.5339000	-81.5165000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/5/2012	Nickel	2.2	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/18/2012	Nickel	2.5	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	8/9/2012	Nickel	2.3	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/4/2012	Nickel	2.1	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/12/2012	Nickel	2.6	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	10/2/2012	Nickel	2.2	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/5/2012	Nickel	3.8	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/18/2012	Nickel	4	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	8/9/2012	Nickel	4.2	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/4/2012	Nickel	4.6	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/12/2012	Nickel	4.2	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	10/2/2012	Nickel	2.1	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/5/2012	Nickel	2.6	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/18/2012	Nickel	2.2	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	8/9/2012	Nickel	2.3	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/4/2012	Nickel	3	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/12/2012	Nickel	2.9	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	10/2/2012	Nickel	2	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/5/2012	Nickel	3.7	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/18/2012	Nickel	4.1	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	8/20/2012	Nickel	4.2	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/4/2012	Nickel	4.3	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/12/2012	Nickel	4.4	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	10/2/2012	Nickel	2	ug/L	0.180	050400041201	39.5522000	-81.5569000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Nitrate+nitrite	0.1	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/18/2012	Nitrate+nitrite	0.29	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	8/9/2012	Nitrate+nitrite	0.33	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Nitrate+nitrite	0.16	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/12/2012	Nitrate+nitrite	0.1	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Nitrate+nitrite	0.46	mg/L	0.480	050400041204	39.4628000	-81.4950000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	2/7/2012	Nitrate+nitrite	0.37	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	3/27/2012	Nitrate+nitrite	0.14	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	4/24/2012	Nitrate+nitrite	0.05	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	5/21/2012	Nitrate+nitrite	0.15	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/5/2012	Nitrate+nitrite	0.05	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/18/2012	Nitrate+nitrite	0.05	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	8/9/2012	Nitrate+nitrite	0.17	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/4/2012	Nitrate+nitrite	0.62	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/12/2012	Nitrate+nitrite	0.27	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	10/2/2012	Nitrate+nitrite	0.05	mg/L	4.250	050400041202	39.4963000	-81.5273000
301749	BIG RUN AT CR 56 BIG RUN ROAD	2/7/2012	Nitrate+nitrite	0.15	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	3/27/2012	Nitrate+nitrite	0.05	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	4/24/2012	Nitrate+nitrite	0.05	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	5/21/2012	Nitrate+nitrite	0.05	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/5/2012	Nitrate+nitrite	0.05	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/18/2012	Nitrate+nitrite	0.13	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	8/9/2012	Nitrate+nitrite	0.05	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/4/2012	Nitrate+nitrite	0.1	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/12/2012	Nitrate+nitrite	0.05	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	10/2/2012	Nitrate+nitrite	0.05	mg/L	2.320	050400041201	39.5704000	-81.5452000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	8/20/2012	Nitrate+nitrite	0.05	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/4/2012	Nitrate+nitrite	1.31	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/13/2012	Nitrate+nitrite	1.01	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	10/2/2012	Nitrate+nitrite	0.05	mg/L	0.730	050400041204	39.4339000	-81.4799000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	8/20/2012	Nitrate+nitrite	0.19	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/4/2012	Nitrate+nitrite	0.5	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/13/2012	Nitrate+nitrite	0.22	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	10/2/2012	Nitrate+nitrite	0.05	mg/L	0.330	050400041204	39.4607000	-81.4616000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/5/2012	Nitrate+nitrite	0.1	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/18/2012	Nitrate+nitrite	0.74	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	8/20/2012	Nitrate+nitrite	0.18	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/4/2012	Nitrate+nitrite	0.2	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/13/2012	Nitrate+nitrite	0.15	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	10/2/2012	Nitrate+nitrite	0.05	mg/L	0.200	050400041204	39.4603000	-81.4937000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	8/20/2012	Nitrate+nitrite	1.26	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/4/2012	Nitrate+nitrite	0.78	mg/L	0.200	050400041204	39.4834000	-81.5022000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/13/2012	Nitrate+nitrite	0.21	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	10/2/2012	Nitrate+nitrite	0.05	mg/L	0.200	050400041204	39.4834000	-81.5022000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Nitrate+nitrite	0.05	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	8/20/2012	Nitrate+nitrite	0.05	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Nitrate+nitrite	0.38	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/13/2012	Nitrate+nitrite	0.05	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Nitrate+nitrite	0.05	mg/L	6.540	050400041202	39.4893000	-81.5614000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	7/5/2012	Nitrate+nitrite	0.11	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	8/20/2012	Nitrate+nitrite	0.05	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/4/2012	Nitrate+nitrite	0.61	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/12/2012	Nitrate+nitrite	0.05	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	10/2/2012	Nitrate+nitrite	0.05	mg/L	0.140	050400041203	39.4880000	-81.4562000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/5/2012	Nitrate+nitrite	0.14	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/18/2012	Nitrate+nitrite	0.05	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	8/20/2012	Nitrate+nitrite	0.16	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/4/2012	Nitrate+nitrite	0.11	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/12/2012	Nitrate+nitrite	0.05	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	10/2/2012	Nitrate+nitrite	0.05	mg/L	0.220	050400041203	39.5462000	-81.5121000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	7/5/2012	Nitrate+nitrite	0.12	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	8/20/2012	Nitrate+nitrite	0.12	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/4/2012	Nitrate+nitrite	0.2	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/12/2012	Nitrate+nitrite	0.11	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	10/2/2012	Nitrate+nitrite	0.05	mg/L	0.100	050400041203	39.5680000	-81.5134000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	7/5/2012	Nitrate+nitrite	0.05	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	8/20/2012	Nitrate+nitrite	0.05	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/4/2012	Nitrate+nitrite	0.13	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/12/2012	Nitrate+nitrite	0.05	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	10/2/2012	Nitrate+nitrite	0.05	mg/L	0.080	050400041201	39.5415000	-81.5466000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/5/2012	Nitrate+nitrite	0.05	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/18/2012	Nitrate+nitrite	0.05	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	8/20/2012	Nitrate+nitrite	0.05	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/4/2012	Nitrate+nitrite	0.05	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/12/2012	Nitrate+nitrite	0.05	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	10/2/2012	Nitrate+nitrite	0.05	mg/L	4.490	050400041201	39.5928000	-81.5328000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	7/5/2012	Nitrate+nitrite	0.05	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	8/20/2012	Nitrate+nitrite	0.05	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/4/2012	Nitrate+nitrite	0.11	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/12/2012	Nitrate+nitrite	0.05	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	10/2/2012	Nitrate+nitrite	0.05	mg/L	0.070	050400041201	39.5710000	-81.5474000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	8/20/2012	Nitrate+nitrite	0.12	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/4/2012	Nitrate+nitrite	0.05	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/12/2012	Nitrate+nitrite	0.05	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	10/2/2012	Nitrate+nitrite	0.05	mg/L	0.010	050400041201	39.5832000	-81.5450000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	2/7/2012	Nitrate+nitrite	0.05	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	3/27/2012	Nitrate+nitrite	0.05	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	4/24/2012	Nitrate+nitrite	0.05	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	5/21/2012	Nitrate+nitrite	0.05	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/5/2012	Nitrate+nitrite	0.05	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/18/2012	Nitrate+nitrite	0.05	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	8/9/2012	Nitrate+nitrite	0.2	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/4/2012	Nitrate+nitrite	0.12	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/12/2012	Nitrate+nitrite	0.05	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	10/2/2012	Nitrate+nitrite	0.05	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/5/2012	Nitrate+nitrite	0.05	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/18/2012	Nitrate+nitrite	0.14	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	8/9/2012	Nitrate+nitrite	0.26	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/4/2012	Nitrate+nitrite	0.11	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/12/2012	Nitrate+nitrite	0.05	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	10/2/2012	Nitrate+nitrite	0.05	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/5/2012	Nitrate+nitrite	0.21	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/18/2012	Nitrate+nitrite	0.05	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	8/9/2012	Nitrate+nitrite	0.05	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/4/2012	Nitrate+nitrite	0.25	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/12/2012	Nitrate+nitrite	0.2	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	10/2/2012	Nitrate+nitrite	0.05	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/5/2012	Nitrate+nitrite	0.38	mg/L	0.300	050400041204	39.4150000	-81.4481000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/18/2012	Nitrate+nitrite	0.9	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	8/9/2012	Nitrate+nitrite	0.41	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/4/2012	Nitrate+nitrite	0.66	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/12/2012	Nitrate+nitrite	0.83	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	10/2/2012	Nitrate+nitrite	0.28	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/5/2012	Nitrate+nitrite	0.25	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/18/2012	Nitrate+nitrite	0.05	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	8/20/2012	Nitrate+nitrite	0.21	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/4/2012	Nitrate+nitrite	0.34	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/12/2012	Nitrate+nitrite	0.05	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	10/2/2012	Nitrate+nitrite	0.39	mg/L	0.180	050400041201	39.5522000	-81.5569000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Nitrite	0.01	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/18/2012	Nitrite	0.01	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	8/9/2012	Nitrite	0.01	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Nitrite	0.01	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/12/2012	Nitrite	0.01	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Nitrite	0.01	mg/L	0.480	050400041204	39.4628000	-81.4950000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	2/7/2012	Nitrite	0.01	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	3/27/2012	Nitrite	0.01	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	4/24/2012	Nitrite	0.02	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	5/21/2012	Nitrite	0.01	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/5/2012	Nitrite	0.02	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/18/2012	Nitrite	0.01	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	8/9/2012	Nitrite	0.01	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/4/2012	Nitrite	0.048	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/12/2012	Nitrite	0.036	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	10/2/2012	Nitrite	0.01	mg/L	4.250	050400041202	39.4963000	-81.5273000
301749	BIG RUN AT CR 56 BIG RUN ROAD	2/7/2012	Nitrite	0.01	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	3/27/2012	Nitrite	0.01	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	4/24/2012	Nitrite	0.01	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	5/21/2012	Nitrite	0.01	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/5/2012	Nitrite	0.01	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/18/2012	Nitrite	0.01	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	8/9/2012	Nitrite	0.01	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/4/2012	Nitrite	0.01	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/12/2012	Nitrite	0.01	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	10/2/2012	Nitrite	0.01	mg/L	2.320	050400041201	39.5704000	-81.5452000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	8/20/2012	Nitrite	0.025	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/4/2012	Nitrite	0.01	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/13/2012	Nitrite	0.01	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	10/2/2012	Nitrite	0.01	mg/L	0.730	050400041204	39.4339000	-81.4799000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	8/20/2012	Nitrite	0.021	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/4/2012	Nitrite	0.021	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/13/2012	Nitrite	0.01	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	10/2/2012	Nitrite	0.01	mg/L	0.330	050400041204	39.4607000	-81.4616000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/5/2012	Nitrite	0.01	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/18/2012	Nitrite	0.01	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	8/20/2012	Nitrite	0.01	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/4/2012	Nitrite	0.01	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/13/2012	Nitrite	0.01	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	10/2/2012	Nitrite	0.01	mg/L	0.200	050400041204	39.4603000	-81.4937000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	8/20/2012	Nitrite	0.026	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/4/2012	Nitrite	0.01	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/13/2012	Nitrite	0.01	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	10/2/2012	Nitrite	0.01	mg/L	0.200	050400041204	39.4834000	-81.5022000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Nitrite	0.024	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	8/20/2012	Nitrite	0.025	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Nitrite	0.026	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/13/2012	Nitrite	0.01	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Nitrite	0.01	mg/L	6.540	050400041202	39.4893000	-81.5614000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	7/5/2012	Nitrite	0.01	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	8/20/2012	Nitrite	0.01	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/4/2012	Nitrite	0.01	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/12/2012	Nitrite	0.01	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	10/2/2012	Nitrite	0.01	mg/L	0.140	050400041203	39.4880000	-81.4562000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/5/2012	Nitrite	0.01	mg/L	0.220	050400041203	39.5462000	-81.5121000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/18/2012	Nitrite	0.01	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	8/20/2012	Nitrite	0.01	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/4/2012	Nitrite	0.01	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/12/2012	Nitrite	0.01	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	10/2/2012	Nitrite	0.01	mg/L	0.220	050400041203	39.5462000	-81.5121000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	7/5/2012	Nitrite	0.01	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	8/20/2012	Nitrite	0.02	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/4/2012	Nitrite	0.01	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/12/2012	Nitrite	0.01	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	10/2/2012	Nitrite	0.01	mg/L	0.100	050400041203	39.5680000	-81.5134000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	7/5/2012	Nitrite	0.024	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	8/20/2012	Nitrite	0.021	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/4/2012	Nitrite	0.01	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/12/2012	Nitrite	0.01	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	10/2/2012	Nitrite	0.01	mg/L	0.080	050400041201	39.5415000	-81.5466000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/5/2012	Nitrite	0.01	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/18/2012	Nitrite	0.01	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	8/20/2012	Nitrite	0.01	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/4/2012	Nitrite	0.01	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/12/2012	Nitrite	0.01	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	10/2/2012	Nitrite	0.01	mg/L	4.490	050400041201	39.5928000	-81.5328000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	7/5/2012	Nitrite	0.01	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	8/20/2012	Nitrite	0.01	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/4/2012	Nitrite	0.01	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/12/2012	Nitrite	0.01	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	10/2/2012	Nitrite	0.01	mg/L	0.070	050400041201	39.5710000	-81.5474000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	8/20/2012	Nitrite	0.01	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/4/2012	Nitrite	0.01	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/12/2012	Nitrite	0.01	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	10/2/2012	Nitrite	0.01	mg/L	0.010	050400041201	39.5832000	-81.5450000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	2/7/2012	Nitrite	0.01	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	3/27/2012	Nitrite	0.01	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	4/24/2012	Nitrite	0.01	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	5/21/2012	Nitrite	0.01	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/5/2012	Nitrite	0.02	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/18/2012	Nitrite	0.01	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	8/9/2012	Nitrite	0.01	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/4/2012	Nitrite	0.01	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/12/2012	Nitrite	0.01	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	10/2/2012	Nitrite	0.01	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/5/2012	Nitrite	0.01	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/18/2012	Nitrite	0.01	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	8/9/2012	Nitrite	0.01	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/4/2012	Nitrite	0.01	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/12/2012	Nitrite	0.01	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	10/2/2012	Nitrite	0.01	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/5/2012	Nitrite	0.033	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/18/2012	Nitrite	0.01	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	8/9/2012	Nitrite	0.01	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/4/2012	Nitrite	0.02	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/12/2012	Nitrite	0.03	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	10/2/2012	Nitrite	0.01	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/5/2012	Nitrite	0.026	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/18/2012	Nitrite	0.072	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	8/9/2012	Nitrite	0.01	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/4/2012	Nitrite	0.023	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/12/2012	Nitrite	0.024	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	10/2/2012	Nitrite	0.01	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/5/2012	Nitrite	0.033	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/18/2012	Nitrite	0.01	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	8/20/2012	Nitrite	0.03	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/4/2012	Nitrite	0.023	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/12/2012	Nitrite	0.01	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	10/2/2012	Nitrite	0.01	mg/L	0.180	050400041201	39.5522000	-81.5569000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/18/2012	Orthophosphate, dissolved	0.022	mg/L	0.480	050400041204	39.4628000	-81.4950000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/5/2012	Orthophosphate, dissolved	0.012	mg/L	4.250	050400041202	39.4963000	-81.5273000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/18/2012	Orthophosphate, dissolved	0.005	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	8/9/2012	Orthophosphate, dissolved	0.005	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/4/2012	Orthophosphate, dissolved	0.035	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/12/2012	Orthophosphate, dissolved	0.021	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	10/2/2012	Orthophosphate, dissolved	0.024	mg/L	4.250	050400041202	39.4963000	-81.5273000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/5/2012	Orthophosphate, dissolved	0.011	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/18/2012	Orthophosphate, dissolved	0.005	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/4/2012	Orthophosphate, dissolved	0.011	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/12/2012	Orthophosphate, dissolved	0.005	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	10/2/2012	Orthophosphate, dissolved	0.02	mg/L	2.320	050400041201	39.5704000	-81.5452000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/5/2012	Orthophosphate, dissolved	0.012	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/18/2012	Orthophosphate, dissolved	0.005	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	8/9/2012	Orthophosphate, dissolved	0.005	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/4/2012	Orthophosphate, dissolved	0.015	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/12/2012	Orthophosphate, dissolved	0.01	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	10/2/2012	Orthophosphate, dissolved	0.019	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/18/2012	Orthophosphate, dissolved	0.005	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	8/9/2012	Orthophosphate, dissolved	0.005	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/18/2012	Orthophosphate, dissolved	0.058	mg/L	0.300	050400041204	39.4150000	-81.4481000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Potassium		mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/18/2012	Potassium		mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	8/9/2012	Potassium		mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Potassium		mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/12/2012	Potassium		mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Potassium		mg/L	0.480	050400041204	39.4628000	-81.4950000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	2/7/2012	Potassium		mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	3/27/2012	Potassium		mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	4/24/2012	Potassium		mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	5/21/2012	Potassium		mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/5/2012	Potassium		mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/18/2012	Potassium		mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	8/9/2012	Potassium		mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/4/2012	Potassium		mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/12/2012	Potassium		mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	10/2/2012	Potassium		mg/L	4.250	050400041202	39.4963000	-81.5273000
301749	BIG RUN AT CR 56 BIG RUN ROAD	2/7/2012	Potassium	1	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	3/27/2012	Potassium	1	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	4/24/2012	Potassium	1	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	5/21/2012	Potassium		mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/5/2012	Potassium		mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/18/2012	Potassium		mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	8/9/2012	Potassium		mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/4/2012	Potassium		mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/12/2012	Potassium		mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	10/2/2012	Potassium		mg/L	2.320	050400041201	39.5704000	-81.5452000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	8/20/2012	Potassium		mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/4/2012	Potassium		mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/13/2012	Potassium		mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	10/2/2012	Potassium		mg/L	0.730	050400041204	39.4339000	-81.4799000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	8/20/2012	Potassium		mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/4/2012	Potassium		mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/13/2012	Potassium		mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	10/2/2012	Potassium		mg/L	0.330	050400041204	39.4607000	-81.4616000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/5/2012	Potassium		mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/18/2012	Potassium		mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	8/20/2012	Potassium		mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/4/2012	Potassium		mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/13/2012	Potassium		mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	10/2/2012	Potassium		mg/L	0.200	050400041204	39.4603000	-81.4937000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	8/20/2012	Potassium		mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/4/2012	Potassium		mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/13/2012	Potassium		mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	10/2/2012	Potassium		mg/L	0.200	050400041204	39.4834000	-81.5022000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Potassium		mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	8/20/2012	Potassium		mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Potassium		mg/L	6.540	050400041202	39.4893000	-81.5614000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/13/2012	Potassium		mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Potassium		mg/L	6.540	050400041202	39.4893000	-81.5614000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	7/5/2012	Potassium		mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	8/20/2012	Potassium		mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/4/2012	Potassium		mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/12/2012	Potassium		mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	10/2/2012	Potassium		mg/L	0.140	050400041203	39.4880000	-81.4562000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/5/2012	Potassium		mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/18/2012	Potassium		mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	8/20/2012	Potassium		mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/4/2012	Potassium		mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/12/2012	Potassium		mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	10/2/2012	Potassium		mg/L	0.220	050400041203	39.5462000	-81.5121000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	7/5/2012	Potassium		mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	8/20/2012	Potassium		mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/4/2012	Potassium		mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/12/2012	Potassium		mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	10/2/2012	Potassium		mg/L	0.100	050400041203	39.5680000	-81.5134000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	7/5/2012	Potassium		mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	8/20/2012	Potassium		mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/4/2012	Potassium		mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/12/2012	Potassium		mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	10/2/2012	Potassium		mg/L	0.080	050400041201	39.5415000	-81.5466000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/5/2012	Potassium		mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/18/2012	Potassium		mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	8/20/2012	Potassium		mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/4/2012	Potassium		mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/12/2012	Potassium		mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	10/2/2012	Potassium		mg/L	4.490	050400041201	39.5928000	-81.5328000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	7/5/2012	Potassium		mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	8/20/2012	Potassium		mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/4/2012	Potassium		mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/12/2012	Potassium		mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	10/2/2012	Potassium		mg/L	0.070	050400041201	39.5710000	-81.5474000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	8/20/2012	Potassium		mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/4/2012	Potassium		mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/12/2012	Potassium		mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	10/2/2012	Potassium		mg/L	0.010	050400041201	39.5832000	-81.5450000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	2/7/2012	Potassium	1	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	3/27/2012	Potassium	1	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	4/24/2012	Potassium		mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	5/21/2012	Potassium		mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/5/2012	Potassium		mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/18/2012	Potassium		mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	8/9/2012	Potassium		mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/4/2012	Potassium		mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/12/2012	Potassium		mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	10/2/2012	Potassium		mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/5/2012	Potassium		mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/18/2012	Potassium		mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	8/9/2012	Potassium		mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/4/2012	Potassium		mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/12/2012	Potassium		mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	10/2/2012	Potassium		mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/5/2012	Potassium		mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/18/2012	Potassium		mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	8/9/2012	Potassium		mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/4/2012	Potassium		mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/12/2012	Potassium		mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	10/2/2012	Potassium		mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/5/2012	Potassium		mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/18/2012	Potassium		mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	8/9/2012	Potassium		mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/4/2012	Potassium		mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/12/2012	Potassium		mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	10/2/2012	Potassium		mg/L	0.300	050400041204	39.4150000	-81.4481000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/5/2012	Potassium		mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/18/2012	Potassium		mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	8/20/2012	Potassium		mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/4/2012	Potassium		mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/12/2012	Potassium		mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	10/2/2012	Potassium		mg/L	0.180	050400041201	39.5522000	-81.5569000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Selenium	1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/18/2012	Selenium	1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	8/9/2012	Selenium	1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Selenium	1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/12/2012	Selenium	1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Selenium	1	ug/L	0.480	050400041204	39.4628000	-81.4950000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	2/7/2012	Selenium	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	3/27/2012	Selenium	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	4/24/2012	Selenium	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	5/21/2012	Selenium	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/5/2012	Selenium	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/18/2012	Selenium	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	8/9/2012	Selenium	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/4/2012	Selenium	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/12/2012	Selenium	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	10/2/2012	Selenium	1	ug/L	4.250	050400041202	39.4963000	-81.5273000
301749	BIG RUN AT CR 56 BIG RUN ROAD	2/7/2012	Selenium	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	3/27/2012	Selenium	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	4/24/2012	Selenium	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	5/21/2012	Selenium	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/5/2012	Selenium	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/18/2012	Selenium	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	8/9/2012	Selenium	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/4/2012	Selenium	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/12/2012	Selenium	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	10/2/2012	Selenium	1	ug/L	2.320	050400041201	39.5704000	-81.5452000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	8/20/2012	Selenium	1	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/4/2012	Selenium	1	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/13/2012	Selenium	1	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	10/2/2012	Selenium	1	ug/L	0.730	050400041204	39.4339000	-81.4799000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	8/20/2012	Selenium	1	ug/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/4/2012	Selenium	1	ug/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/13/2012	Selenium	1	ug/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	10/2/2012	Selenium	1	ug/L	0.330	050400041204	39.4607000	-81.4616000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/5/2012	Selenium	1	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/18/2012	Selenium	1	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	8/20/2012	Selenium	1	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/4/2012	Selenium	1	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/13/2012	Selenium	1	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	10/2/2012	Selenium	1	ug/L	0.200	050400041204	39.4603000	-81.4937000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	8/20/2012	Selenium	1	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/4/2012	Selenium	1	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/13/2012	Selenium	1	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	10/2/2012	Selenium	1	ug/L	0.200	050400041204	39.4834000	-81.5022000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Selenium	1	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	8/20/2012	Selenium	1	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Selenium	1	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/13/2012	Selenium	1	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Selenium	1	ug/L	6.540	050400041202	39.4893000	-81.5614000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	7/5/2012	Selenium	1	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	8/20/2012	Selenium	1	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/4/2012	Selenium	1	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/12/2012	Selenium	1	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	10/2/2012	Selenium	1	ug/L	0.140	050400041203	39.4880000	-81.4562000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/5/2012	Selenium	1	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/18/2012	Selenium	1	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	8/20/2012	Selenium	1	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/4/2012	Selenium	1	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/12/2012	Selenium	1	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	10/2/2012	Selenium	1	ug/L	0.220	050400041203	39.5462000	-81.5121000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	7/5/2012	Selenium	1	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	8/20/2012	Selenium	1	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/4/2012	Selenium	1	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/12/2012	Selenium	1	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	10/2/2012	Selenium	1	ug/L	0.100	050400041203	39.5680000	-81.5134000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	7/5/2012	Selenium	1	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	8/20/2012	Selenium	1	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/4/2012	Selenium	1	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/12/2012	Selenium	1	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	10/2/2012	Selenium	1	ug/L	0.080	050400041201	39.5415000	-81.5466000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/5/2012	Selenium	1	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/18/2012	Selenium	1	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	8/20/2012	Selenium	1	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/4/2012	Selenium	1	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/12/2012	Selenium	1	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	10/2/2012	Selenium	1	ug/L	4.490	050400041201	39.5928000	-81.5328000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	7/5/2012	Selenium	1	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	8/20/2012	Selenium	1	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/4/2012	Selenium	1	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/12/2012	Selenium	1	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	10/2/2012	Selenium	1	ug/L	0.070	050400041201	39.5710000	-81.5474000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	8/20/2012	Selenium	1	ug/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/4/2012	Selenium	1	ug/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/12/2012	Selenium	1	ug/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	10/2/2012	Selenium	1	ug/L	0.010	050400041201	39.5832000	-81.5450000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	2/7/2012	Selenium	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	3/27/2012	Selenium	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	4/24/2012	Selenium	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	5/21/2012	Selenium	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/5/2012	Selenium	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/18/2012	Selenium	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	8/9/2012	Selenium	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/4/2012	Selenium	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/12/2012	Selenium	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	10/2/2012	Selenium	1	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/5/2012	Selenium	1	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/18/2012	Selenium	1	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	8/9/2012	Selenium	1	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/4/2012	Selenium	1	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/12/2012	Selenium	1	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	10/2/2012	Selenium	1	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/5/2012	Selenium	1	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/18/2012	Selenium	1	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	8/9/2012	Selenium	1	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/4/2012	Selenium	1	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/12/2012	Selenium	1	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	10/2/2012	Selenium	1	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/5/2012	Selenium	1	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/18/2012	Selenium	1	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	8/9/2012	Selenium	1	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/4/2012	Selenium	1	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/12/2012	Selenium	1	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	10/2/2012	Selenium	1	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/5/2012	Selenium	1	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/18/2012	Selenium	1	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	8/20/2012	Selenium	1	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/4/2012	Selenium	1	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/12/2012	Selenium	1	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	10/2/2012	Selenium	1	ug/L	0.180	050400041201	39.5522000	-81.5569000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Sodium	34	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/18/2012	Sodium	25	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	8/9/2012	Sodium	26	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Sodium	25	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/12/2012	Sodium	28	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Sodium	30	mg/L	0.480	050400041204	39.4628000	-81.4950000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	2/7/2012	Sodium	11	mg/L	4.250	050400041202	39.4963000	-81.5273000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
301748	RAINBOW CREEK AT CR 79 HUCK RD.	3/27/2012	Sodium	10	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	4/24/2012	Sodium	15	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	5/21/2012	Sodium	13	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/5/2012	Sodium	17	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/18/2012	Sodium	14	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	8/9/2012	Sodium	15	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/4/2012	Sodium		mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/12/2012	Sodium	13	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	10/2/2012	Sodium	15	mg/L	4.250	050400041202	39.4963000	-81.5273000
301749	BIG RUN AT CR 56 BIG RUN ROAD	2/7/2012	Sodium		mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	3/27/2012	Sodium		mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	4/24/2012	Sodium		mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	5/21/2012	Sodium		mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/5/2012	Sodium		mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/18/2012	Sodium		mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	8/9/2012	Sodium		mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/4/2012	Sodium		mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/12/2012	Sodium		mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	10/2/2012	Sodium		mg/L	2.320	050400041201	39.5704000	-81.5452000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	8/20/2012	Sodium	19	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/4/2012	Sodium	17	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/13/2012	Sodium	17	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	10/2/2012	Sodium	19	mg/L	0.730	050400041204	39.4339000	-81.4799000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	8/20/2012	Sodium	42	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/4/2012	Sodium	37	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/13/2012	Sodium	47	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	10/2/2012	Sodium	40	mg/L	0.330	050400041204	39.4607000	-81.4616000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/5/2012	Sodium	31	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/18/2012	Sodium	26	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	8/20/2012	Sodium	28	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/4/2012	Sodium	27	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/13/2012	Sodium	27	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	10/2/2012	Sodium	30	mg/L	0.200	050400041204	39.4603000	-81.4937000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	8/20/2012	Sodium	25	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/4/2012	Sodium	23	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/13/2012	Sodium	20	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	10/2/2012	Sodium	24	mg/L	0.200	050400041204	39.4834000	-81.5022000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Sodium	17	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	8/20/2012	Sodium	15	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Sodium	12	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/13/2012	Sodium	16	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Sodium	16	mg/L	6.540	050400041202	39.4893000	-81.5614000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	7/5/2012	Sodium	57	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	8/20/2012	Sodium	53	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/4/2012	Sodium	46	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/12/2012	Sodium	50	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	10/2/2012	Sodium	63	mg/L	0.140	050400041203	39.4880000	-81.4562000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/5/2012	Sodium	10	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/18/2012	Sodium	10	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	8/20/2012	Sodium	10	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/4/2012	Sodium	10	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/12/2012	Sodium	10	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	10/2/2012	Sodium	10	mg/L	0.220	050400041203	39.5462000	-81.5121000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	7/5/2012	Sodium	14	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	8/20/2012	Sodium	15	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/4/2012	Sodium	15	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/12/2012	Sodium	15	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	10/2/2012	Sodium	16	mg/L	0.100	050400041203	39.5680000	-81.5134000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	7/5/2012	Sodium	17	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	8/20/2012	Sodium	17	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/4/2012	Sodium	15	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/12/2012	Sodium	16	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	10/2/2012	Sodium	17	mg/L	0.080	050400041201	39.5415000	-81.5466000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/5/2012	Sodium		mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/18/2012	Sodium		mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	8/20/2012	Sodium		mg/L	4.490	050400041201	39.5928000	-81.5328000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/4/2012	Sodium		mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/12/2012	Sodium		mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	10/2/2012	Sodium		mg/L	4.490	050400041201	39.5928000	-81.5328000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	7/5/2012	Sodium	10	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	8/20/2012	Sodium	10	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/4/2012	Sodium		mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/12/2012	Sodium	10	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	10/2/2012	Sodium	35	mg/L	0.070	050400041201	39.5710000	-81.5474000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	8/20/2012	Sodium		mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/4/2012	Sodium		mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/12/2012	Sodium		mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	10/2/2012	Sodium		mg/L	0.010	050400041201	39.5832000	-81.5450000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	2/7/2012	Sodium		mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	3/27/2012	Sodium		mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	4/24/2012	Sodium	11	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	5/21/2012	Sodium	10	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/5/2012	Sodium	13	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/18/2012	Sodium	12	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	8/9/2012	Sodium	10	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/4/2012	Sodium	11	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/12/2012	Sodium	12	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	10/2/2012	Sodium	14	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/5/2012	Sodium	18	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/18/2012	Sodium	13	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	8/9/2012	Sodium	16	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/4/2012	Sodium	22	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/12/2012	Sodium	23	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	10/2/2012	Sodium	22	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/5/2012	Sodium	43	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/18/2012	Sodium		mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	8/9/2012	Sodium	58	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/4/2012	Sodium	59	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/12/2012	Sodium	50	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	10/2/2012	Sodium	14	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/5/2012	Sodium	42	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/18/2012	Sodium	20	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	8/9/2012	Sodium	36	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/4/2012	Sodium	27	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/12/2012	Sodium	43	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	10/2/2012	Sodium	22	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/5/2012	Sodium	38	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/18/2012	Sodium	48	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	8/20/2012	Sodium	46	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/4/2012	Sodium	59	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/12/2012	Sodium	59	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	10/2/2012	Sodium	11	mg/L	0.180	050400041201	39.5522000	-81.5569000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Strontium	469	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/18/2012	Strontium	361	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	8/9/2012	Strontium	397	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Strontium	360	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/12/2012	Strontium	420	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Strontium	418	ug/L	0.480	050400041204	39.4628000	-81.4950000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	2/7/2012	Strontium	231	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	3/27/2012	Strontium	224	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	4/24/2012	Strontium	307	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	5/21/2012	Strontium	272	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/5/2012	Strontium	318	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/18/2012	Strontium	264	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	8/9/2012	Strontium	286	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/4/2012	Strontium	188	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/12/2012	Strontium	258	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	10/2/2012	Strontium	302	ug/L	4.250	050400041202	39.4963000	-81.5273000
301749	BIG RUN AT CR 56 BIG RUN ROAD	2/7/2012	Strontium	342	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	3/27/2012	Strontium	330	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	4/24/2012	Strontium	376	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	5/21/2012	Strontium	390	ug/L	2.320	050400041201	39.5704000	-81.5452000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/5/2012	Strontium	383	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/18/2012	Strontium	387	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	8/9/2012	Strontium	371	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/4/2012	Strontium	328	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/12/2012	Strontium	376	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	10/2/2012	Strontium	396	ug/L	2.320	050400041201	39.5704000	-81.5452000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	8/20/2012	Strontium	307	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/4/2012	Strontium	258	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/13/2012	Strontium	282	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	10/2/2012	Strontium	325	ug/L	0.730	050400041204	39.4339000	-81.4799000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	8/20/2012	Strontium	283	ug/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/4/2012	Strontium	297	ug/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/13/2012	Strontium	262	ug/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	10/2/2012	Strontium	340	ug/L	0.330	050400041204	39.4607000	-81.4616000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/5/2012	Strontium	471	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/18/2012	Strontium	390	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	8/20/2012	Strontium	471	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/4/2012	Strontium	369	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/13/2012	Strontium	421	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	10/2/2012	Strontium	503	ug/L	0.200	050400041204	39.4603000	-81.4937000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	8/20/2012	Strontium	443	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/4/2012	Strontium	377	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/13/2012	Strontium	378	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	10/2/2012	Strontium	432	ug/L	0.200	050400041204	39.4834000	-81.5022000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Strontium	375	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	8/20/2012	Strontium	317	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Strontium	259	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/13/2012	Strontium	341	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Strontium	354	ug/L	6.540	050400041202	39.4893000	-81.5614000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	7/5/2012	Strontium	648	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	8/20/2012	Strontium	631	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/4/2012	Strontium	492	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/12/2012	Strontium	568	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	10/2/2012	Strontium	636	ug/L	0.140	050400041203	39.4880000	-81.4562000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/5/2012	Strontium	347	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/18/2012	Strontium	356	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	8/20/2012	Strontium	349	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/4/2012	Strontium	332	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/12/2012	Strontium	359	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	10/2/2012	Strontium	370	ug/L	0.220	050400041203	39.5462000	-81.5121000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	7/5/2012	Strontium	472	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	8/20/2012	Strontium	495	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/4/2012	Strontium	480	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/12/2012	Strontium	491	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	10/2/2012	Strontium	531	ug/L	0.100	050400041203	39.5680000	-81.5134000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	7/5/2012	Strontium	464	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	8/20/2012	Strontium	452	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/4/2012	Strontium	422	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/12/2012	Strontium	462	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	10/2/2012	Strontium	471	ug/L	0.080	050400041201	39.5415000	-81.5466000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/5/2012	Strontium	436	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/18/2012	Strontium	450	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	8/20/2012	Strontium	432	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/4/2012	Strontium	411	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/12/2012	Strontium	400	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	10/2/2012	Strontium	425	ug/L	4.490	050400041201	39.5928000	-81.5328000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	7/5/2012	Strontium	335	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	8/20/2012	Strontium	325	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/4/2012	Strontium	289	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/12/2012	Strontium	339	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	10/2/2012	Strontium	342	ug/L	0.070	050400041201	39.5710000	-81.5474000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	8/20/2012	Strontium	400	ug/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/4/2012	Strontium	410	ug/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/12/2012	Strontium	396	ug/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	10/2/2012	Strontium	414	ug/L	0.010	050400041201	39.5832000	-81.5450000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	2/7/2012	Strontium	359	ug/L	0.350	050400041203	39.5339000	-81.5165000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	3/27/2012	Strontium	341	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	4/24/2012	Strontium	400	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	5/21/2012	Strontium	390	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/5/2012	Strontium	381	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/18/2012	Strontium	343	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	8/9/2012	Strontium	317	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/4/2012	Strontium	346	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/12/2012	Strontium	364	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	10/2/2012	Strontium	392	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/5/2012	Strontium	429	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/18/2012	Strontium	392	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	8/9/2012	Strontium	293	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/4/2012	Strontium	319	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/12/2012	Strontium	380	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	10/2/2012	Strontium	420	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/5/2012	Strontium	284	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/18/2012	Strontium	271	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	8/9/2012	Strontium	318	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/4/2012	Strontium	371	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/12/2012	Strontium	290	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	10/2/2012	Strontium	287	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/5/2012	Strontium	430	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/18/2012	Strontium	195	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	8/9/2012	Strontium	370	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/4/2012	Strontium	378	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/12/2012	Strontium	446	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	10/2/2012	Strontium	243	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/5/2012	Strontium	325	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/18/2012	Strontium	309	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	8/20/2012	Strontium	337	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/4/2012	Strontium	367	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/12/2012	Strontium	339	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	10/2/2012	Strontium	353	ug/L	0.180	050400041201	39.5522000	-81.5569000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Sulfate	66.2	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/18/2012	Sulfate	60.2	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	8/9/2012	Sulfate	55	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Sulfate	70.3	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/12/2012	Sulfate	76	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Sulfate	65.2	mg/L	0.480	050400041204	39.4628000	-81.4950000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	2/7/2012	Sulfate	56.1	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	3/27/2012	Sulfate	51	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	4/24/2012	Sulfate	77.2	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	5/21/2012	Sulfate	65.7	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/5/2012	Sulfate	48.8	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/18/2012	Sulfate	40.9	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	8/9/2012	Sulfate	57.6	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/4/2012	Sulfate	42.5	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/12/2012	Sulfate	58.1	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	10/2/2012	Sulfate	48.5	mg/L	4.250	050400041202	39.4963000	-81.5273000
301749	BIG RUN AT CR 56 BIG RUN ROAD	2/7/2012	Sulfate	78.9	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	3/27/2012	Sulfate	73.5	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	4/24/2012	Sulfate	93.6	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	5/21/2012	Sulfate	93.8	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/5/2012	Sulfate	76.2	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/18/2012	Sulfate	60.8	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	8/9/2012	Sulfate	77.3	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/4/2012	Sulfate	60.3	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/12/2012	Sulfate	71.8	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	10/2/2012	Sulfate	69.7	mg/L	2.320	050400041201	39.5704000	-81.5452000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	8/20/2012	Sulfate	36.1	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/4/2012	Sulfate	44.4	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/13/2012	Sulfate	45	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	10/2/2012	Sulfate	40.9	mg/L	0.730	050400041204	39.4339000	-81.4799000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	8/20/2012	Sulfate	37.7	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/4/2012	Sulfate	43	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/13/2012	Sulfate	44.4	mg/L	0.330	050400041204	39.4607000	-81.4616000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	10/2/2012	Sulfate	38.8	mg/L	0.330	050400041204	39.4607000	-81.4616000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/5/2012	Sulfate	84.9	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/18/2012	Sulfate	58.9	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	8/20/2012	Sulfate	74.8	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/4/2012	Sulfate	75.2	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/13/2012	Sulfate	87.5	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	10/2/2012	Sulfate	83.6	mg/L	0.200	050400041204	39.4603000	-81.4937000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	8/20/2012	Sulfate	56.1	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/4/2012	Sulfate	55.8	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/13/2012	Sulfate	65.3	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	10/2/2012	Sulfate	64.9	mg/L	0.200	050400041204	39.4834000	-81.5022000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Sulfate	67.7	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	8/20/2012	Sulfate	61	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Sulfate	50.3	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/13/2012	Sulfate	63.4	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Sulfate	58.9	mg/L	6.540	050400041202	39.4893000	-81.5614000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	7/5/2012	Sulfate	74.9	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	8/20/2012	Sulfate	64.6	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/4/2012	Sulfate	52.3	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/12/2012	Sulfate	65.7	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	10/2/2012	Sulfate	75.3	mg/L	0.140	050400041203	39.4880000	-81.4562000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/5/2012	Sulfate	52.3	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/18/2012	Sulfate	49.1	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	8/20/2012	Sulfate	50.4	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/4/2012	Sulfate	47	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/12/2012	Sulfate	51.7	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	10/2/2012	Sulfate	48.3	mg/L	0.220	050400041203	39.5462000	-81.5121000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	7/5/2012	Sulfate	148	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	8/20/2012	Sulfate	174	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/4/2012	Sulfate	136	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/12/2012	Sulfate	159	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	10/2/2012	Sulfate	189	mg/L	0.100	050400041203	39.5680000	-81.5134000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	7/5/2012	Sulfate	53	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	8/20/2012	Sulfate	46.8	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/4/2012	Sulfate	44.7	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/12/2012	Sulfate	46.7	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	10/2/2012	Sulfate	42.5	mg/L	0.080	050400041201	39.5415000	-81.5466000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/5/2012	Sulfate	104	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/18/2012	Sulfate	72.3	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	8/20/2012	Sulfate	105	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/4/2012	Sulfate	94.6	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/12/2012	Sulfate	100	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	10/2/2012	Sulfate	97.7	mg/L	4.490	050400041201	39.5928000	-81.5328000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	7/5/2012	Sulfate	56.7	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	8/20/2012	Sulfate	53.2	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/4/2012	Sulfate	38.5	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/12/2012	Sulfate	49	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	10/2/2012	Sulfate	50.3	mg/L	0.070	050400041201	39.5710000	-81.5474000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	8/20/2012	Sulfate	68.6	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/4/2012	Sulfate	66.2	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/12/2012	Sulfate	65	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	10/2/2012	Sulfate	64.7	mg/L	0.010	050400041201	39.5832000	-81.5450000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	2/7/2012	Sulfate	70.6	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	3/27/2012	Sulfate	65.8	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	4/24/2012	Sulfate	86.4	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	5/21/2012	Sulfate	81.6	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/5/2012	Sulfate	67.3	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/18/2012	Sulfate	56.4	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	8/9/2012	Sulfate	58.3	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/4/2012	Sulfate	54.8	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/12/2012	Sulfate	61.8	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	10/2/2012	Sulfate	56.5	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/5/2012	Sulfate	76.1	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/18/2012	Sulfate	48.4	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	8/9/2012	Sulfate	52.1	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/4/2012	Sulfate	46.9	mg/L	0.110	050400041203	39.5222000	-81.4845000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/12/2012	Sulfate	55.5	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	10/2/2012	Sulfate	59.6	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/5/2012	Sulfate	110	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/18/2012	Sulfate	121	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	8/9/2012	Sulfate	128	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/4/2012	Sulfate	148	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/12/2012	Sulfate	125	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	10/2/2012	Sulfate	36.6	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/5/2012	Sulfate	28.8	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/18/2012	Sulfate	36.8	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	8/9/2012	Sulfate	59.3	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/4/2012	Sulfate	65	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/12/2012	Sulfate	91.5	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	10/2/2012	Sulfate	42.4	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/5/2012	Sulfate	110	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/18/2012	Sulfate	125	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	8/20/2012	Sulfate	121	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/4/2012	Sulfate	144	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/12/2012	Sulfate	130	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	10/2/2012	Sulfate	106	mg/L	0.180	050400041201	39.5522000	-81.5569000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	TKN	0.33	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/18/2012	TKN	0.1	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	8/9/2012	TKN	0.1	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	TKN	0.1	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/12/2012	TKN	0.1	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	TKN	0.25	mg/L	0.480	050400041204	39.4628000	-81.4950000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	2/7/2012	TKN	0.25	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	3/27/2012	TKN	0.47	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	4/24/2012	TKN	0.28	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	5/21/2012	TKN	0.78	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/5/2012	TKN	0.41	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/18/2012	TKN	0.57	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	8/9/2012	TKN	0.27	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/4/2012	TKN	0.42	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/12/2012	TKN	0.1	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	10/2/2012	TKN	0.3	mg/L	4.250	050400041202	39.4963000	-81.5273000
301749	BIG RUN AT CR 56 BIG RUN ROAD	2/7/2012	TKN	0.29	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	3/27/2012	TKN	0.26	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	4/24/2012	TKN	0.28	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	5/21/2012	TKN	0.6	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/5/2012	TKN	0.24	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/18/2012	TKN	0.1	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	8/9/2012	TKN	0.1	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/4/2012	TKN	0.1	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/12/2012	TKN	0.1	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	10/2/2012	TKN	0.1	mg/L	2.320	050400041201	39.5704000	-81.5452000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	8/20/2012	TKN	0.1	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/4/2012	TKN	0.1	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/13/2012	TKN	0.1	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	10/2/2012	TKN	0.1	mg/L	0.730	050400041204	39.4339000	-81.4799000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	8/20/2012	TKN	0.49	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/4/2012	TKN	0.33	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/13/2012	TKN	0.4	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	10/2/2012	TKN	0.32	mg/L	0.330	050400041204	39.4607000	-81.4616000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/5/2012	TKN	0.1	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/18/2012	TKN	0.25	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	8/20/2012	TKN	0.1	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/4/2012	TKN	0.1	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/13/2012	TKN	0.21	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	10/2/2012	TKN	0.1	mg/L	0.200	050400041204	39.4603000	-81.4937000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	8/20/2012	TKN	0.28	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/4/2012	TKN	0.1	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/13/2012	TKN	0.25	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	10/2/2012	TKN	0.25	mg/L	0.200	050400041204	39.4834000	-81.5022000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	TKN	0.41	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	8/20/2012	TKN	0.1	mg/L	6.540	050400041202	39.4893000	-81.5614000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	TKN	0.1	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/13/2012	TKN	0.53	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	TKN	0.3	mg/L	6.540	050400041202	39.4893000	-81.5614000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	7/5/2012	TKN	0.27	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	8/20/2012	TKN	0.1	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/4/2012	TKN	0.34	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/12/2012	TKN	0.38	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	10/2/2012	TKN	0.49	mg/L	0.140	050400041203	39.4880000	-81.4562000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/5/2012	TKN	0.1	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/18/2012	TKN	0.25	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	8/20/2012	TKN	0.1	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/4/2012	TKN	0.1	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/12/2012	TKN	0.1	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	10/2/2012	TKN	0.1	mg/L	0.220	050400041203	39.5462000	-81.5121000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	7/5/2012	TKN	0.22	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	8/20/2012	TKN	0.1	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/4/2012	TKN	0.1	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/12/2012	TKN	0.1	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	10/2/2012	TKN	0.29	mg/L	0.100	050400041203	39.5680000	-81.5134000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	7/5/2012	TKN	0.31	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	8/20/2012	TKN	0.1	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/4/2012	TKN	0.1	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/12/2012	TKN	0.23	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	10/2/2012	TKN	0.26	mg/L	0.080	050400041201	39.5415000	-81.5466000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/5/2012	TKN	0.54	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/18/2012	TKN	0.1	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	8/20/2012	TKN	0.1	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/4/2012	TKN	0.1	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/12/2012	TKN	0.1	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	10/2/2012	TKN	0.39	mg/L	4.490	050400041201	39.5928000	-81.5328000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	7/5/2012	TKN	0.1	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	8/20/2012	TKN	0.1	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/4/2012	TKN	0.1	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/12/2012	TKN	0.1	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	10/2/2012	TKN	0.1	mg/L	0.070	050400041201	39.5710000	-81.5474000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	8/20/2012	TKN	0.1	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/4/2012	TKN	0.1	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/12/2012	TKN	0.1	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	10/2/2012	TKN	0.1	mg/L	0.010	050400041201	39.5832000	-81.5450000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	2/7/2012	TKN	0.1	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	3/27/2012	TKN	0.23	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	4/24/2012	TKN	0.33	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	5/21/2012	TKN	0.1	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/5/2012	TKN	0.25	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/18/2012	TKN	0.1	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	8/9/2012	TKN	0.1	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/4/2012	TKN	0.1	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/12/2012	TKN	0.1	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	10/2/2012	TKN	0.21	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/5/2012	TKN	0.37	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/18/2012	TKN	0.1	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	8/9/2012	TKN	0.1	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/4/2012	TKN	0.1	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/12/2012	TKN	0.1	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	10/2/2012	TKN	0.1	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/5/2012	TKN	0.69	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/18/2012	TKN	0.49	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	8/9/2012	TKN	0.44	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/4/2012	TKN	0.51	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/12/2012	TKN	0.42	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	10/2/2012	TKN	0.1	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/5/2012	TKN	0.95	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/18/2012	TKN	0.81	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	8/9/2012	TKN	0.46	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/4/2012	TKN	0.33	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/12/2012	TKN	0.44	mg/L	0.300	050400041204	39.4150000	-81.4481000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	10/2/2012	TKN	0.36	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/5/2012	TKN	0.74	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/18/2012	TKN	0.52	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	8/20/2012	TKN	0.31	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/4/2012	TKN	0.46	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/12/2012	TKN	0.56	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	10/2/2012	TKN	0.61	mg/L	0.180	050400041201	39.5522000	-81.5569000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Total Dissolved Solids	326	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/18/2012	Total Dissolved Solids	300	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	8/9/2012	Total Dissolved Solids	282	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Total Dissolved Solids	276	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/12/2012	Total Dissolved Solids	322	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Total Dissolved Solids	316	mg/L	0.480	050400041204	39.4628000	-81.4950000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	2/7/2012	Total Dissolved Solids	184	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	3/27/2012	Total Dissolved Solids	182	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	4/24/2012	Total Dissolved Solids	230	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	5/21/2012	Total Dissolved Solids	218	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/5/2012	Total Dissolved Solids	316	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/18/2012	Total Dissolved Solids	252	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	8/9/2012	Total Dissolved Solids	254	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/4/2012	Total Dissolved Solids	200	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/12/2012	Total Dissolved Solids	312	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	10/2/2012	Total Dissolved Solids	252	mg/L	4.250	050400041202	39.4963000	-81.5273000
301749	BIG RUN AT CR 56 BIG RUN ROAD	2/7/2012	Total Dissolved Solids	298	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	3/27/2012	Total Dissolved Solids	276	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	4/24/2012	Total Dissolved Solids	304	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	5/21/2012	Total Dissolved Solids	328	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/5/2012	Total Dissolved Solids	316	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/18/2012	Total Dissolved Solids	350	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	8/9/2012	Total Dissolved Solids	330	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/4/2012	Total Dissolved Solids	280	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/12/2012	Total Dissolved Solids	312	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	10/2/2012	Total Dissolved Solids	330	mg/L	2.320	050400041201	39.5704000	-81.5452000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	8/20/2012	Total Dissolved Solids	254	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/4/2012	Total Dissolved Solids	218	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/13/2012	Total Dissolved Solids	228	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	10/2/2012	Total Dissolved Solids	236	mg/L	0.730	050400041204	39.4339000	-81.4799000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	8/20/2012	Total Dissolved Solids	296	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/4/2012	Total Dissolved Solids	282	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/13/2012	Total Dissolved Solids	304	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	10/2/2012	Total Dissolved Solids	318	mg/L	0.330	050400041204	39.4607000	-81.4616000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/5/2012	Total Dissolved Solids	350	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/18/2012	Total Dissolved Solids	296	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	8/20/2012	Total Dissolved Solids	320	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/4/2012	Total Dissolved Solids	294	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/13/2012	Total Dissolved Solids	316	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	10/2/2012	Total Dissolved Solids	338	mg/L	0.200	050400041204	39.4603000	-81.4937000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	8/20/2012	Total Dissolved Solids	338	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/4/2012	Total Dissolved Solids	268	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/13/2012	Total Dissolved Solids	282	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	10/2/2012	Total Dissolved Solids	324	mg/L	0.200	050400041204	39.4834000	-81.5022000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Total Dissolved Solids	292	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	8/20/2012	Total Dissolved Solids	268	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Total Dissolved Solids	232	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/13/2012	Total Dissolved Solids	252	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Total Dissolved Solids	274	mg/L	6.540	050400041202	39.4893000	-81.5614000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	7/5/2012	Total Dissolved Solids	480	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	8/20/2012	Total Dissolved Solids	474	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/4/2012	Total Dissolved Solids	378	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/12/2012	Total Dissolved Solids	412	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	10/2/2012	Total Dissolved Solids	534	mg/L	0.140	050400041203	39.4880000	-81.4562000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/5/2012	Total Dissolved Solids	300	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/18/2012	Total Dissolved Solids	322	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	8/20/2012	Total Dissolved Solids	316	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/4/2012	Total Dissolved Solids	280	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/12/2012	Total Dissolved Solids	274	mg/L	0.220	050400041203	39.5462000	-81.5121000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	10/2/2012	Total Dissolved Solids	318	mg/L	0.220	050400041203	39.5462000	-81.5121000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	7/5/2012	Total Dissolved Solids	440	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	8/20/2012	Total Dissolved Solids	486	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/4/2012	Total Dissolved Solids	410	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/12/2012	Total Dissolved Solids	412	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	10/2/2012	Total Dissolved Solids	512	mg/L	0.100	050400041203	39.5680000	-81.5134000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	7/5/2012	Total Dissolved Solids	342	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	8/20/2012	Total Dissolved Solids	328	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/4/2012	Total Dissolved Solids	294	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/12/2012	Total Dissolved Solids	292	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	10/2/2012	Total Dissolved Solids	332	mg/L	0.080	050400041201	39.5415000	-81.5466000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/5/2012	Total Dissolved Solids	378	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/18/2012	Total Dissolved Solids	370	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	8/20/2012	Total Dissolved Solids	336	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/4/2012	Total Dissolved Solids	366	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/12/2012	Total Dissolved Solids	348	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	10/2/2012	Total Dissolved Solids	400	mg/L	4.490	050400041201	39.5928000	-81.5328000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	7/5/2012	Total Dissolved Solids	272	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	8/20/2012	Total Dissolved Solids	418	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/4/2012	Total Dissolved Solids	226	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/12/2012	Total Dissolved Solids	240	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	10/2/2012	Total Dissolved Solids	276	mg/L	0.070	050400041201	39.5710000	-81.5474000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	8/20/2012	Total Dissolved Solids	370	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/4/2012	Total Dissolved Solids	330	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/12/2012	Total Dissolved Solids	312	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	10/2/2012	Total Dissolved Solids	332	mg/L	0.010	050400041201	39.5832000	-81.5450000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	2/7/2012	Total Dissolved Solids	294	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	3/27/2012	Total Dissolved Solids	288	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	4/24/2012	Total Dissolved Solids	328	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	5/21/2012	Total Dissolved Solids	320	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/5/2012	Total Dissolved Solids	332	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/18/2012	Total Dissolved Solids	330	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	8/9/2012	Total Dissolved Solids	292	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/4/2012	Total Dissolved Solids	314	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/12/2012	Total Dissolved Solids	822	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	10/2/2012	Total Dissolved Solids	356	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/5/2012	Total Dissolved Solids	350	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/18/2012	Total Dissolved Solids	348	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	8/9/2012	Total Dissolved Solids	266	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/4/2012	Total Dissolved Solids	272	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/12/2012	Total Dissolved Solids	398	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	10/2/2012	Total Dissolved Solids	358	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/5/2012	Total Dissolved Solids	470	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/18/2012	Total Dissolved Solids	454	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	8/9/2012	Total Dissolved Solids	494	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/4/2012	Total Dissolved Solids	488	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/12/2012	Total Dissolved Solids	414	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	10/2/2012	Total Dissolved Solids	246	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/5/2012	Total Dissolved Solids	400	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/18/2012	Total Dissolved Solids	228	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	8/9/2012	Total Dissolved Solids	386	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/4/2012	Total Dissolved Solids	304	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/12/2012	Total Dissolved Solids	248	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	10/2/2012	Total Dissolved Solids	234	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/5/2012	Total Dissolved Solids	442	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/18/2012	Total Dissolved Solids	476	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	8/20/2012	Total Dissolved Solids	490	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/4/2012	Total Dissolved Solids	474	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/12/2012	Total Dissolved Solids	420	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	10/2/2012	Total Dissolved Solids	434	mg/L	0.180	050400041201	39.5522000	-81.5569000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Total Phosphorus	0.027	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/18/2012	Total Phosphorus	0.03	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	8/9/2012	Total Phosphorus	0.025	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Total Phosphorus	0.027	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/12/2012	Total Phosphorus	0.032	mg/L	0.480	050400041204	39.4628000	-81.4950000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/4/2012	Total Phosphorus	0.179	mg/L	0.180	050400041201	39.5522000	-81.5569000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
301748	RAINBOW CREEK AT CR 79 HUCK RD.	2/7/2012	Total Phosphorus	0.012	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	3/27/2012	Total Phosphorus	0.02	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	4/24/2012	Total Phosphorus	0.016	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	5/21/2012	Total Phosphorus	0.026	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/5/2012	Total Phosphorus	0.02	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/18/2012	Total Phosphorus	0.047	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	8/9/2012	Total Phosphorus	0.021	mg/L	4.250	050400041202	39.4963000	-81.5273000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/12/2012	Total Phosphorus	0.056	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	10/2/2012	Total Phosphorus	0.056	mg/L	0.180	050400041201	39.5522000	-81.5569000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	10/2/2012	Total Phosphorus	0.045	mg/L	4.250	050400041202	39.4963000	-81.5273000
301749	BIG RUN AT CR 56 BIG RUN ROAD	2/7/2012	Total Phosphorus	0.005	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	3/27/2012	Total Phosphorus	0.005	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	4/24/2012	Total Phosphorus	0.012	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	5/21/2012	Total Phosphorus	0.019	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/5/2012	Total Phosphorus	0.005	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/18/2012	Total Phosphorus	0.017	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	8/9/2012	Total Phosphorus	0.005	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/4/2012	Total Phosphorus	0.045	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/12/2012	Total Phosphorus	0.021	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	10/2/2012	Total Phosphorus	0.022	mg/L	2.320	050400041201	39.5704000	-81.5452000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	8/20/2012	Total Phosphorus	0.024	mg/L	0.730	050400041204	39.4339000	-81.4799000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/4/2012	Total Phosphorus	0.754	mg/L	0.350	050400041203	39.5339000	-81.5165000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Total Phosphorus	0.085	mg/L	0.480	050400041204	39.4628000	-81.4950000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	10/2/2012	Total Phosphorus	0.034	mg/L	0.730	050400041204	39.4339000	-81.4799000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/5/2012	Total Phosphorus	0.074	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/18/2012	Total Phosphorus	0.124	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	8/9/2012	Total Phosphorus	0.067	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/4/2012	Total Phosphorus	0.073	mg/L	0.300	050400041204	39.4150000	-81.4481000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/5/2012	Total Phosphorus	0.025	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/18/2012	Total Phosphorus	0.033	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	8/20/2012	Total Phosphorus	0.018	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/4/2012	Total Phosphorus	0.031	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/13/2012	Total Phosphorus	0.031	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	10/2/2012	Total Phosphorus	0.03	mg/L	0.200	050400041204	39.4603000	-81.4937000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/12/2012	Total Phosphorus	0.114	mg/L	0.300	050400041204	39.4150000	-81.4481000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/4/2012	Total Phosphorus	0.041	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/13/2012	Total Phosphorus	0.034	mg/L	0.200	050400041204	39.4834000	-81.5022000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	10/2/2012	Total Phosphorus	0.11	mg/L	0.300	050400041204	39.4150000	-81.4481000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Total Phosphorus	0.028	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	8/20/2012	Total Phosphorus	0.03	mg/L	6.540	050400041202	39.4893000	-81.5614000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/4/2012	Total Phosphorus	0.066	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/13/2012	Total Phosphorus	0.155	mg/L	0.730	050400041204	39.4339000	-81.4799000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Total Phosphorus	0.028	mg/L	6.540	050400041202	39.4893000	-81.5614000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	7/5/2012	Total Phosphorus	0.043	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	8/20/2012	Total Phosphorus	0.026	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/4/2012	Total Phosphorus	0.07	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/12/2012	Total Phosphorus	0.021	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	10/2/2012	Total Phosphorus	0.076	mg/L	0.140	050400041203	39.4880000	-81.4562000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/5/2012	Total Phosphorus	0.046	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/18/2012	Total Phosphorus	0.033	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	8/20/2012	Total Phosphorus	0.016	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/4/2012	Total Phosphorus	0.012	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/12/2012	Total Phosphorus	0.015	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	10/2/2012	Total Phosphorus	0.021	mg/L	0.220	050400041203	39.5462000	-81.5121000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	7/5/2012	Total Phosphorus	0.021	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	8/20/2012	Total Phosphorus	0.016	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/4/2012	Total Phosphorus	0.025	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/12/2012	Total Phosphorus	0.015	mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	10/2/2012	Total Phosphorus	0.042	mg/L	0.100	050400041203	39.5680000	-81.5134000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	7/5/2012	Total Phosphorus	0.018	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	8/20/2012	Total Phosphorus	0.013	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/4/2012	Total Phosphorus	0.018	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/12/2012	Total Phosphorus	0.067	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	10/2/2012	Total Phosphorus	0.015	mg/L	0.080	050400041201	39.5415000	-81.5466000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/5/2012	Total Phosphorus	0.024	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/18/2012	Total Phosphorus	0.023	mg/L	4.490	050400041201	39.5928000	-81.5328000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	8/20/2012	Total Phosphorus	0.01	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/4/2012	Total Phosphorus	0.016	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/12/2012	Total Phosphorus	0.018	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	10/2/2012	Total Phosphorus	0.025	mg/L	4.490	050400041201	39.5928000	-81.5328000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	7/5/2012	Total Phosphorus	0.016	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	8/20/2012	Total Phosphorus	0.005	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/4/2012	Total Phosphorus	0.005	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/12/2012	Total Phosphorus	0.012	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	10/2/2012	Total Phosphorus	0.022	mg/L	0.070	050400041201	39.5710000	-81.5474000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	8/20/2012	Total Phosphorus	0.017	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/4/2012	Total Phosphorus	0.017	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/12/2012	Total Phosphorus	0.02	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	10/2/2012	Total Phosphorus	0.02	mg/L	0.010	050400041201	39.5832000	-81.5450000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	2/7/2012	Total Phosphorus	0.005	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	3/27/2012	Total Phosphorus	0.012	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	4/24/2012	Total Phosphorus	0.012	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	5/21/2012	Total Phosphorus	0.015	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/5/2012	Total Phosphorus	0.015	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/18/2012	Total Phosphorus	0.015	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	8/9/2012	Total Phosphorus	0.024	mg/L	0.350	050400041203	39.5339000	-81.5165000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/4/2012	Total Phosphorus	0.119	mg/L	4.250	050400041202	39.4963000	-81.5273000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/12/2012	Total Phosphorus	0.013	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	10/2/2012	Total Phosphorus	0.023	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/5/2012	Total Phosphorus	0.013	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/18/2012	Total Phosphorus	0.045	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	8/9/2012	Total Phosphorus	0.026	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/4/2012	Total Phosphorus	0.027	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/12/2012	Total Phosphorus	0.029	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	10/2/2012	Total Phosphorus	0.032	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/5/2012	Total Phosphorus	0.032	mg/L	0.120	050400041202	39.4944000	-81.4911000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/12/2012	Total Phosphorus	0.083	mg/L	4.250	050400041202	39.4963000	-81.5273000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	8/9/2012	Total Phosphorus	0.033	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/4/2012	Total Phosphorus	0.022	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/18/2012	Total Phosphorus	0.053	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	10/2/2012	Total Phosphorus	0.043	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/12/2012	Total Phosphorus	0.068	mg/L	0.120	050400041202	39.4944000	-81.4911000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Total Phosphorus	0.097	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/13/2012	Total Phosphorus	0.101	mg/L	6.540	050400041202	39.4893000	-81.5614000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	8/20/2012	Total Phosphorus	0.095	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	10/2/2012	Total Phosphorus	0.061	mg/L	0.200	050400041204	39.4834000	-81.5022000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	8/20/2012	Total Phosphorus	0.071	mg/L	0.330	050400041204	39.4607000	-81.4616000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/5/2012	Total Phosphorus	0.043	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/18/2012	Total Phosphorus	0.038	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	8/20/2012	Total Phosphorus	0.03	mg/L	0.180	050400041201	39.5522000	-81.5569000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/4/2012	Total Phosphorus	0.115	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/13/2012	Total Phosphorus	0.093	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	10/2/2012	Total Phosphorus	0.13	mg/L	0.330	050400041204	39.4607000	-81.4616000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Total Suspended Solids	14	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/18/2012	Total Suspended Solids		mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	8/9/2012	Total Suspended Solids	30	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Total Suspended Solids	2.5	mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/12/2012	Total Suspended Solids		mg/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Total Suspended Solids	2.5	mg/L	0.480	050400041204	39.4628000	-81.4950000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	2/7/2012	Total Suspended Solids	2.5	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	3/27/2012	Total Suspended Solids	2.5	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	4/24/2012	Total Suspended Solids	2.5	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	5/21/2012	Total Suspended Solids	2.5	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/5/2012	Total Suspended Solids	12	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/18/2012	Total Suspended Solids	16	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	8/9/2012	Total Suspended Solids	10	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/4/2012	Total Suspended Solids	55	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/12/2012	Total Suspended Solids	2.5	mg/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	10/2/2012	Total Suspended Solids		mg/L	4.250	050400041202	39.4963000	-81.5273000
301749	BIG RUN AT CR 56 BIG RUN ROAD	2/7/2012	Total Suspended Solids	2.5	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	3/27/2012	Total Suspended Solids		mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	4/24/2012	Total Suspended Solids	2.5	mg/L	2.320	050400041201	39.5704000	-81.5452000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
301749	BIG RUN AT CR 56 BIG RUN ROAD	5/21/2012	Total Suspended Solids	2.5	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/5/2012	Total Suspended Solids		mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/18/2012	Total Suspended Solids	16	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	8/9/2012	Total Suspended Solids	2.5	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/4/2012	Total Suspended Solids		mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/12/2012	Total Suspended Solids	2.5	mg/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	10/2/2012	Total Suspended Solids	2.5	mg/L	2.320	050400041201	39.5704000	-81.5452000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	8/20/2012	Total Suspended Solids		mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/4/2012	Total Suspended Solids	2.5	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/13/2012	Total Suspended Solids	2.5	mg/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	10/2/2012	Total Suspended Solids	2.5	mg/L	0.730	050400041204	39.4339000	-81.4799000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	8/20/2012	Total Suspended Solids		mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/4/2012	Total Suspended Solids	13	mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/13/2012	Total Suspended Solids		mg/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	10/2/2012	Total Suspended Solids	2.5	mg/L	0.330	050400041204	39.4607000	-81.4616000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/5/2012	Total Suspended Solids	11	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/18/2012	Total Suspended Solids	2.5	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	8/20/2012	Total Suspended Solids	2.5	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/4/2012	Total Suspended Solids	2.5	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/13/2012	Total Suspended Solids	2.5	mg/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	10/2/2012	Total Suspended Solids	2.5	mg/L	0.200	050400041204	39.4603000	-81.4937000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	8/20/2012	Total Suspended Solids	50	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/4/2012	Total Suspended Solids	11	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/13/2012	Total Suspended Solids	2.5	mg/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	10/2/2012	Total Suspended Solids	10	mg/L	0.200	050400041204	39.4834000	-81.5022000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Total Suspended Solids		mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	8/20/2012	Total Suspended Solids	67	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Total Suspended Solids	227	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/13/2012	Total Suspended Solids	138	mg/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Total Suspended Solids	41	mg/L	6.540	050400041202	39.4893000	-81.5614000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	7/5/2012	Total Suspended Solids	2.5	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	8/20/2012	Total Suspended Solids		mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/4/2012	Total Suspended Solids	2.5	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/12/2012	Total Suspended Solids	2.5	mg/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	10/2/2012	Total Suspended Solids	2.5	mg/L	0.140	050400041203	39.4880000	-81.4562000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/5/2012	Total Suspended Solids	41	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/18/2012	Total Suspended Solids	16	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	8/20/2012	Total Suspended Solids		mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/4/2012	Total Suspended Solids	2.5	mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/12/2012	Total Suspended Solids		mg/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	10/2/2012	Total Suspended Solids	2.5	mg/L	0.220	050400041203	39.5462000	-81.5121000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	7/5/2012	Total Suspended Solids		mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	8/20/2012	Total Suspended Solids		mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/4/2012	Total Suspended Solids		mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/12/2012	Total Suspended Solids		mg/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	10/2/2012	Total Suspended Solids	18	mg/L	0.100	050400041203	39.5680000	-81.5134000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	7/5/2012	Total Suspended Solids		mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	8/20/2012	Total Suspended Solids	2.5	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/4/2012	Total Suspended Solids	2.5	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/12/2012	Total Suspended Solids	2.5	mg/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	10/2/2012	Total Suspended Solids		mg/L	0.080	050400041201	39.5415000	-81.5466000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/5/2012	Total Suspended Solids		mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/18/2012	Total Suspended Solids		mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	8/20/2012	Total Suspended Solids	2.5	mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/4/2012	Total Suspended Solids		mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/12/2012	Total Suspended Solids		mg/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	10/2/2012	Total Suspended Solids	2.5	mg/L	4.490	050400041201	39.5928000	-81.5328000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	7/5/2012	Total Suspended Solids	2.5	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	8/20/2012	Total Suspended Solids	2.5	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/4/2012	Total Suspended Solids	2.5	mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/12/2012	Total Suspended Solids		mg/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	10/2/2012	Total Suspended Solids	2.5	mg/L	0.070	050400041201	39.5710000	-81.5474000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	8/20/2012	Total Suspended Solids		mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/4/2012	Total Suspended Solids	21	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/12/2012	Total Suspended Solids	18	mg/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	10/2/2012	Total Suspended Solids	2.5	mg/L	0.010	050400041201	39.5832000	-81.5450000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	2/7/2012	Total Suspended Solids	2.5	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	3/27/2012	Total Suspended Solids	2.5	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	4/24/2012	Total Suspended Solids	2.5	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	5/21/2012	Total Suspended Solids	2.5	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/5/2012	Total Suspended Solids	2.5	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/18/2012	Total Suspended Solids	2.5	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	8/9/2012	Total Suspended Solids	30	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/4/2012	Total Suspended Solids	2.5	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/12/2012	Total Suspended Solids		mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	10/2/2012	Total Suspended Solids	2.5	mg/L	0.350	050400041203	39.5339000	-81.5165000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/5/2012	Total Suspended Solids	2.5	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/18/2012	Total Suspended Solids	22	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	8/9/2012	Total Suspended Solids	11	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/4/2012	Total Suspended Solids		mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/12/2012	Total Suspended Solids	11	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	10/2/2012	Total Suspended Solids	2.5	mg/L	0.110	050400041203	39.5222000	-81.4845000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/5/2012	Total Suspended Solids	14	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/18/2012	Total Suspended Solids	16	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	8/9/2012	Total Suspended Solids	15	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/4/2012	Total Suspended Solids	19	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/12/2012	Total Suspended Solids	2.5	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	10/2/2012	Total Suspended Solids	2.5	mg/L	0.120	050400041202	39.4944000	-81.4911000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/5/2012	Total Suspended Solids	2.5	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/18/2012	Total Suspended Solids	10	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	8/9/2012	Total Suspended Solids		mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/4/2012	Total Suspended Solids	20	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/12/2012	Total Suspended Solids	63	mg/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	10/2/2012	Total Suspended Solids		mg/L	0.300	050400041204	39.4150000	-81.4481000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/5/2012	Total Suspended Solids	15	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/18/2012	Total Suspended Solids	13	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	8/20/2012	Total Suspended Solids	19	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/4/2012	Total Suspended Solids	13	mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/12/2012	Total Suspended Solids		mg/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	10/2/2012	Total Suspended Solids	38	mg/L	0.180	050400041201	39.5522000	-81.5569000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Zinc	5	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	7/18/2012	Zinc	5	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	8/9/2012	Zinc	5	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Zinc	5	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	9/12/2012	Zinc	5	ug/L	0.480	050400041204	39.4628000	-81.4950000
301742	DEVOL RUN NEAR DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Zinc	5	ug/L	0.480	050400041204	39.4628000	-81.4950000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	2/7/2012	Zinc	5	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	3/27/2012	Zinc	5	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	4/24/2012	Zinc	5	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	5/21/2012	Zinc	5	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/5/2012	Zinc	5	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	7/18/2012	Zinc	5	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	8/9/2012	Zinc	5	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/4/2012	Zinc	13	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	9/12/2012	Zinc	10	ug/L	4.250	050400041202	39.4963000	-81.5273000
301748	RAINBOW CREEK AT CR 79 HUCK RD.	10/2/2012	Zinc	5	ug/L	4.250	050400041202	39.4963000	-81.5273000
301749	BIG RUN AT CR 56 BIG RUN ROAD	2/7/2012	Zinc	5	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	3/27/2012	Zinc	5	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	4/24/2012	Zinc	5	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	5/21/2012	Zinc	5	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/5/2012	Zinc	5	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	7/18/2012	Zinc	5	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	8/9/2012	Zinc	5	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/4/2012	Zinc	5	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	9/12/2012	Zinc	5	ug/L	2.320	050400041201	39.5704000	-81.5452000
301749	BIG RUN AT CR 56 BIG RUN ROAD	10/2/2012	Zinc	5	ug/L	2.320	050400041201	39.5704000	-81.5452000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	8/20/2012	Zinc	5	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/4/2012	Zinc	5	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	9/13/2012	Zinc	5	ug/L	0.730	050400041204	39.4339000	-81.4799000
301994	INDIAN RUN NEAR MARIETTA @ INDIAN RUN RD.	10/2/2012	Zinc	5	ug/L	0.730	050400041204	39.4339000	-81.4799000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	8/20/2012	Zinc	5	ug/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/4/2012	Zinc	5	ug/L	0.330	050400041204	39.4607000	-81.4616000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	9/13/2012	Zinc	5	ug/L	0.330	050400041204	39.4607000	-81.4616000
301995	TUPPER CREEK NEAR DEVOLA @ MILL GATE RD. (TWP. RD. 700)	10/2/2012	Zinc	5	ug/L	0.330	050400041204	39.4607000	-81.4616000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/5/2012	Zinc	5	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	7/18/2012	Zinc	5	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	8/20/2012	Zinc	5	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/4/2012	Zinc	5	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	9/13/2012	Zinc	5	ug/L	0.200	050400041204	39.4603000	-81.4937000
301996	BUCK CREEK NEAR DEVOL, NEAR MOUTH, ADJ. WATERFORD RD. (CR 4)	10/2/2012	Zinc	5	ug/L	0.200	050400041204	39.4603000	-81.4937000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	8/20/2012	Zinc	16	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/4/2012	Zinc	5	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	9/13/2012	Zinc	5	ug/L	0.200	050400041204	39.4834000	-81.5022000
301997	RUSSET RUN NEAR DEVOL, NEAR MOUTH, ADJ. RHODES RD (T.R. 163)	10/2/2012	Zinc	5	ug/L	0.200	050400041204	39.4834000	-81.5022000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	7/5/2012	Zinc	5	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	8/20/2012	Zinc	5	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/4/2012	Zinc	20	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	9/13/2012	Zinc	5	ug/L	6.540	050400041202	39.4893000	-81.5614000
301998	RAINBOW CREEK NW OF DEVOL @ WATERFORD RD. (CO. RD. 4)	10/2/2012	Zinc	5	ug/L	6.540	050400041202	39.4893000	-81.5614000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	7/5/2012	Zinc	5	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	8/20/2012	Zinc	5	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/4/2012	Zinc	5	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	9/12/2012	Zinc	5	ug/L	0.140	050400041203	39.4880000	-81.4562000
301999	MARSH RUN N OF DEVOL @ ST. RT. 60	10/2/2012	Zinc	5	ug/L	0.140	050400041203	39.4880000	-81.4562000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/5/2012	Zinc	5	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	7/18/2012	Zinc	5	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	8/20/2012	Zinc	5	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/4/2012	Zinc	5	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	9/12/2012	Zinc	5	ug/L	0.220	050400041203	39.5462000	-81.5121000
302000	RIGHT BRANCH CAT CREEK N OF LOWELL @ DIXON RIDGE RD (TR 115)	10/2/2012	Zinc	5	ug/L	0.220	050400041203	39.5462000	-81.5121000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	7/5/2012	Zinc	5	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	8/20/2012	Zinc	5	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/4/2012	Zinc	5	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	9/12/2012	Zinc	5	ug/L	0.100	050400041203	39.5680000	-81.5134000
302001	BEAR RUN N OF LOWELL, NEAR MOUTH, ADJ. PERRY RD (T.R. 154)	10/2/2012	Zinc	5	ug/L	0.100	050400041203	39.5680000	-81.5134000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	7/5/2012	Zinc	11	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	8/20/2012	Zinc	5	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/4/2012	Zinc	5	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	9/12/2012	Zinc	5	ug/L	0.080	050400041201	39.5415000	-81.5466000
302002	MASON RUN NW OF LOWELL @ ST. RT. 60	10/2/2012	Zinc	12	ug/L	0.080	050400041201	39.5415000	-81.5466000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/5/2012	Zinc	13	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	7/18/2012	Zinc	5	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	8/20/2012	Zinc	5	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/4/2012	Zinc	19	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	9/12/2012	Zinc	5	ug/L	4.490	050400041201	39.5928000	-81.5328000
302003	BIG RUN NE OF COAL RUN @ HAAS RUN (TWP. RD. 14)	10/2/2012	Zinc	5	ug/L	4.490	050400041201	39.5928000	-81.5328000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	7/5/2012	Zinc	10	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	8/20/2012	Zinc	5	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/4/2012	Zinc	5	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	9/12/2012	Zinc	5	ug/L	0.070	050400041201	39.5710000	-81.5474000
302004	STRAIGHT RUN E OF COAL RUN @ STRAIGHT RUN RD.	10/2/2012	Zinc	16	ug/L	0.070	050400041201	39.5710000	-81.5474000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	8/20/2012	Zinc	5	ug/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/4/2012	Zinc	5	ug/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	9/12/2012	Zinc	5	ug/L	0.010	050400041201	39.5832000	-81.5450000
302005	LITTLE COLD RUN NE OF COAL RUN @ MOUTH	10/2/2012	Zinc	5	ug/L	0.010	050400041201	39.5832000	-81.5450000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	2/7/2012	Zinc	5	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	3/27/2012	Zinc	5	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	4/24/2012	Zinc	5	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	5/21/2012	Zinc	5	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/5/2012	Zinc	5	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	7/18/2012	Zinc	5	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	8/9/2012	Zinc	5	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/4/2012	Zinc	5	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	9/12/2012	Zinc	5	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G07	CAT CREEK AT LOWELL @ ST. RT. 60	10/2/2012	Zinc	5	ug/L	0.350	050400041203	39.5339000	-81.5165000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/5/2012	Zinc	5	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	7/18/2012	Zinc	5	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	8/9/2012	Zinc	5	ug/L	0.110	050400041203	39.5222000	-81.4845000

Station	Station Name	Date	Parameter	Result	Units	River Mile	HUC 12	Lat	Long
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/4/2012	Zinc	5	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	9/12/2012	Zinc	5	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G08	BEAR CREEK SE OF LOWELL @ ST. RT. 60	10/2/2012	Zinc	5	ug/L	0.110	050400041203	39.5222000	-81.4845000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/5/2012	Zinc	5	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	7/18/2012	Zinc	5	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	8/9/2012	Zinc	5	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/4/2012	Zinc	5	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	9/12/2012	Zinc	5	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G09	RAINBOW CREEK AT WILLOW FARM, NEAR MOUTH @ TWP. RD. 32	10/2/2012	Zinc	5	ug/L	0.120	050400041202	39.4944000	-81.4911000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/5/2012	Zinc	5	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	7/18/2012	Zinc	5	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	8/9/2012	Zinc	24	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/4/2012	Zinc	14	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	9/12/2012	Zinc	5	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19G10	GOOSE RUN IN MARIETTA, NEAR INTERSECTION BUTLER AVE/4TH ST	10/2/2012	Zinc	15	ug/L	0.300	050400041204	39.4150000	-81.4481000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/5/2012	Zinc	18	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	7/18/2012	Zinc	5	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	8/20/2012	Zinc	5	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/4/2012	Zinc	5	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	9/12/2012	Zinc	5	ug/L	0.180	050400041201	39.5522000	-81.5569000
R19P06	BIG RUN SE OF COAL RUN @ ST. RT. 60	10/2/2012	Zinc	5	ug/L	0.180	050400041201	39.5522000	-81.5569000

APPENDIX II.C
Dam Inventory Sheets

Dam Inventory Sheet

Name: EGNOT DAM
File No: 9413-002
National #:
Reservoir:
Permit No.:
Class (Ht-Vol): EXEMPT (III - IV)

Owner Information

Owner: Donald Egnot
Owner Type: Private
Address:
Multi-Dams: -
Parcel No.:
City:
State:
Zip:
Contact:
Phone No.:

Location Information

County: Noble
Latitude Deg.: 39 **Min.:** 36 **Sec.:** 25
Township: Jackson
Longitude Deg.: 81 **Min.:** 28 **Sec.:** 53
Stream: Cat Creek
Nearest Affected Community: Honesty
Community's Distance from Dam (miles): 1.5
USGS Quad.: Lower Salem
USGS Basin No.: 05040004

Design/Construction Information

Designed By: Donald Egnot
Constructed By: Donald Egnot
Completed: 2011 **Plan Available:** **At:**
Failure/Incident/Breach:

Structure Information

Purpose: Water Supply, Private Recreation
Type of Impound.: Dam And Spillway
Type of Structure: Earthfill
Drainage Area (sq. miles): **or (acres):** 70

Embankment Data

Length (ft): 200
Upstream Slope: 1.5H:1V
Height (ft): 30
Downstream Slope: 3H:1V
Top Width (ft): 40
Volume of Fill (cub. yds.):

Spillway Outlet Works Data

Lake Drain: NONE
Principal: 24-INCH-DIA SMOOTH STEEL SLANT PIPE
Emergency: NONE
Maximum Spillway Discharge (cfs): **Design Flood:** **Flood Capacity:**

Dam Reservoir Data	Elevation (ft-MSL)*	Area (acres)	Storage (acre-feet)
Top of Dam:	930	1	10
Emergency Spillway:			
Principal Spillway:	927		
Streambed:	900		
Foundation:			

*Elevations are not necessarily related to a USGS benchmark

Inspection Information

Inspection History:
Phase I:
Other Visits: 3-31-2011RJT, MJH
Inspection Year: B

Operation Information/Remarks

Emergency Action Plan:
Format:
OMI:
Last Entry: 7/22/2011

Dam Inventory Sheet

Name: STRAHLER'S LAKE DAM
File No: 9414-003
National #: OH00087
Permit No.: EXEMPT
Reservoir:
Class (Ht-Vol): III (III - IV)

Owner Information

Owner: Jeremy A. Strahler
Owner Type: Private
Address: 405 Terrace Creek Court
Multi-Dams: -
Parcel No.:
City: Lebanon **State:** oh **Zip:** 45036
Contact: Jeremy Strahler **Phone No.:** 614/271-5408

Location Information

County: Washington **Latitude Deg.:** 39 **Min.:** 30 **Sec.:** 48
Township: Waterford **Longitude Deg.:** 81 **Min.:** 34 **Sec.:** 47
Stream: Tributary To Rainbow Creek
Nearest Affected Community: Unionville
Community's Distance from Dam (miles):
USGS Quad.: Lowell **USGS Basin No.:** 05040004

Design/Construction Information

Designed By: Usda, Scs
Constructed By:
Completed: 1966 **Plan Available:** YES **At:** DOW, in file
Failure/Incident/Breach:

Structure Information

Purpose: Recreation, Private
Type of Impound.: Dam And Spillway
Type of Structure: Earthfill
Drainage Area (sq. miles): 0.17 **or (acres):** 110

Embankment Data

Length (ft): 250 **Upstream Slope:** 3H:1V
Height (ft): 28.8 **Downstream Slope:** 2.5H:1V
Top Width (ft): 15 **Volume of Fill (cub. yds.):** 8090

Spillway Outlet Works Data

Lake Drain: NONE
Principal: 24-IN PIPE W/36-IN RISER
Emergency: 40-FT WIDE OPEN CHANNEL W/3H:1V SIDE SLOPES
Maximum Spillway Discharge (cfs): 426 **Design Flood:** 0.25 **Flood Capacity:** 0.25

Dam Reservoir Data

	Elevation (ft-MSL)*	Area (acres)	Storage (acre-feet)
Top of Dam:	803.4	3.2	26.7
Emergency Spillway:	801.8	2.8	21.9
Principal Spillway:	798	2	12.9
Streambed:	774.6		
Foundation:			

*Elevations are not necessarily related to a USGS benchmark

Inspection Information

Inspection History: 11/3/2008 JMW
1/13/1994 RAA
Phase I:
Other Visits:
Inspection Year: B

Operation Information/Remarks

email: jastrahler@gmail.com

Emergency Action Plan: No
Format:
OMI: No
Last Entry: 1/27/2011

Dam Inventory Sheet

Name: BARNES POND DAM
File No: 9414-002
National #: N/A
Reservoir:
Permit No.: EXEMPT
Class (Ht-Vol): EXEMPT (IV - IV)

Owner Information

Owner: Ed Barnes
Owner Type: Private
Address:
Multi-Dams: -
Parcel No.:
City:
State:
Zip:
Contact:
Phone No.:

Location Information

County: Washington
Latitude Deg.: 39 **Min.:** 31 **Sec.:** 6
Township: Waterford
Longitude Deg.: 81 **Min.:** 34 **Sec.:** 39
Stream: Tributary To Rainbow Creek
Nearest Affected Community:
Community's Distance from Dam (miles):
USGS Quad.: Lowell
USGS Basin No.: 05040004

Design/Construction Information

Designed By: Usda, Scs
Constructed By:
Completed:
Plan Available: YES **At:** USDA, SCS
Failure/Incident/Breach:

Structure Information

Purpose: Recreation, Private
Type of Impound.: Dam And Spillway
Type of Structure: Earthfill
Drainage Area (sq. miles): 0.05 **or (acres):** 30

Embankment Data

Length (ft): 390
Upstream Slope: 3H:1V
Height (ft): 10
Downstream Slope: 2H:1V
Top Width (ft): 12
Volume of Fill (cub. yds.):

Spillway Outlet Works Data

Lake Drain:
Principal:
Emergency:
Maximum Spillway Discharge (cfs):
Design Flood:
Flood Capacity:

Dam Reservoir Data	Elevation (ft-MSL)*	Area (acres)	Storage (acre-feet)
Top of Dam:	861.4	3	14
Emergency Spillway:	859.4		
Principal Spillway:	857.4	2	7
Streambed:			
Foundation:			

*Elevations are not necessarily related to a USGS benchmark

Inspection Information

Inspection History:
Phase I:
Other Visits:
Inspection Year: B

Operation Information/Remarks

Emergency Action Plan: N/A
Format:
OMI:
Last Entry: 2/1/1991

Dam Inventory Sheet

Name: MUSKINGUM RIVER LOCK AND DAM NO. 3
File No: 9414-004
National #: OH00693
Reservoir: LOWELL NO. 3
Permit No.: N/A
Class (Ht-Vol): II (IV - II)

Owner Information

Owner: ODNR, Division of Parks & Recreation
Owner Type: Public, State
Address: 2045 Morse Road, Bldg. C
Multi-Dams: Yes: 60, Class I:39
Parcel No.:
City: Columbus **State:** OH **Zip:** 43229-6693
Contact: Mark West/Mike Jarvis **Phone No.:** 740/674-4794

Location Information

County: Washington **Latitude Deg.:** 39 **Min.:** 31 **Sec.:** 45
Township: Adams **Longitude Deg.:** 81 **Min.:** 31 **Sec.:** 0
Stream: Muskingum River
Nearest Affected Community: Lowell
Community's Distance from Dam (miles): 1.1
USGS Quad.: Lowell **USGS Basin No.:** 05040004

Design/Construction Information

Designed By: U.s. Army Corps Of Engineers
Constructed By:
Completed: 1841 **Plan Available:** YES **At:** ODNR, DIV OF ENGINEERING
Failure/Incident/Breach:

Structure Information

Purpose: Recreation, Public
Type of Impound.: [redacted] Channel Dam
Type of Structure: Timber Crib/concrete
Drainage Area (sq. miles): 7995 **or (acres):** 5116800

Embankment Data

Length (ft): 840 **Upstream Slope:** VERTICAL
Height (ft): 17.6 **Downstream Slope:** 3H:1V
Top Width (ft): 1 **Volume of Fill (cub. yds.):** 84000

Spillway Outlet Works Data

Lake Drain: NONE
Principal: OVERFLOW WEIR (DAM)
Emergency: NONE
Maximum Spillway Discharge (cfs): 23436 **Design Flood:** 0.50 **Flood Capacity:** 0.50

Dam Reservoir Data

	Elevation (ft-MSL)*	Area (acres)	Storage (acre-feet)
Top of Dam:	607.6	628	4492
Emergency Spillway:			
Principal Spillway:	607.6	628	4492
Streambed:	590		
Foundation:			

*Elevations are not necessarily related to a USGS benchmark

Inspection Information

Inspection History: 12/30/2008 MJH, 11/8/1999 JJH, 9/27/1989
Phase I:
Other Visits: 12/7/99*
Inspection Year: B

DNRP

Operation Information/Remarks

ORIGINALLY BUILT FOR NAVIGATION & WAS REBUILT IN 1889-1891 & 1919 BY U.S. ARMY CORPS OF ENGINEERS. LOCK GATES REPAIRED 1947-1948 *12/7/99 INSPECTION BY BOAT.

Emergency Action Plan: Not Approved
Yes
Format: EPP
ICODS
OMI: No
Last Entry: 2/6/2009

Dam Inventory Sheet

Name: MUSKINGUM RIVER LOCK AND DAM NO. 2
File No: 9313-002
National #: OH00692
Reservoir: DEVOLA NO. 2
Permit No.: N/A
Class (Ht-Vol): II (IV - II)

Owner Information

Owner: ODNR, Division of Parks & Recreation
Owner Type: Public, State
Address: 2045 Morse Road, Bldg. C
Multi-Dams: Yes: 60, Class I:39
Parcel No.:
City: Columbus **State:** OH **Zip:** 43229-6693
Contact: Mark West/Mike Jarvis **Phone No.:** 740/674-4794

Location Information

County: Washington **Latitude Deg.:** 39 **Min.:** 28 **Sec.:** 10
Township: Muskingum **Longitude Deg.:** 81 **Min.:** 29 **Sec.:** 30
Stream: Muskingum River
Nearest Affected Community: Devola
Community's Distance from Dam (miles): 1.1
USGS Quad.: Marietta **USGS Basin No.:** 05040004

Design/Construction Information

Designed By: U.s. Army Corps Of Engineers
Constructed By:
Completed: 1841 **Plan Available:** YES **At:** ODNR, DIV OF ENGINEERING
Failure/Incident/Breach:

Structure Information

Purpose: Recreation, Public
Type of Impound.: [redacted] Channel Dam
Type of Structure: Timber Crib/concrete
Drainage Area (sq. miles): 8029 **or (acres):** 5138560

Embankment Data

Length (ft): 587 **Upstream Slope:** VERTICAL
Height (ft): 17.5 **Downstream Slope:** 3H:1V
Top Width (ft): 1 **Volume of Fill (cub. yds.):** 50910

Spillway Outlet Works Data

Lake Drain: NONE
Principal: OVERFLOW WEIR (DAM)
Emergency: NONE
Maximum Spillway Discharge (cfs): 18197 **Design Flood:** 0.50 **Flood Capacity:** 0.50

Dam Reservoir Data

	Elevation (ft-MSL)*	Area (acres)	Storage (acre-feet)
Top of Dam:	593.5	301	3024
Emergency Spillway:			
Principal Spillway:	593.5	301	3024
Streambed:	576		
Foundation:			

*Elevations are not necessarily related to a USGS benchmark

Inspection Information

Inspection History: 12/30/2008 MJH, 11/8/1999 JJH, 9/27/1989
Phase I:
Other Visits:
Inspection Year: B

DNRP

Operation Information/Remarks

ORIGINALLY BUILT FOR NAVIGATION; REBUILT 1890-1892 AND 1915-1916 BY U.S. ARMY CORPS OF ENGINEERS. LOCK GATES REPAIRED 1947-1948.

Emergency Action Plan: Approved Yes **Format:** EPP ICODS **OMI:** No
Last Entry: 2/11/2011

Southern Watershed Action Plan
prepared by:

Jesse Daubert
Watershed Coordinator

Friends of Lower Muskingum River
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Watershed Management, Land Trust, Water Quality, Economic Development, Education, Recreation