

PRE-APPLICATION DOCUMENT

OHIO EDISON GORGE DAM METRO HYDROELECTRIC PROJECT AKRON, OHIO 44310

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EXECUTIVE SUMMARY

Metro Hydroelectric Company, LLC, proposes to restore electrical generation at the existing Ohio Edison Gorge Dam on the Cuyahoga River in Akron, Ohio. The project will generate “green energy” for up to 2,000 homes and use existing facilities to minimize or eliminate additional environmental impacts. MHC proposes to use the Integrated Licensing Process (18 *Code of Federal Regulations* Part 5 Subsection 5.6) and presents a preliminary schedule for the process.

This document is the Preliminary Application Document (PAD) that is one of the first steps in applying for a Federal Energy Regulatory Commission license for this proposed project. The PAD provides intended recipients with information that will promote and focus issue identification and the development of study plans relevant to the proposed project site. The PAD also presents preliminary plans for the project, reviews available information on resources in the project area, identifies resources that may require additional information for a basis for licensing, identifies potential studies to provide this information, identifies known or potential impacts, and suggests potential measures to protect, mitigate, or enhance resources.

The project will make use of the existing Ohio Edison Gorge Dam (also known as the Gorge Dam). The dam is presently and will continue to be owned by First Energy. Proposed project facilities and components include a new powerhouse, new turbines, access road, new penstock, refurbished intake structure, and new transmission lines. Existing facilities will be used as much as possible. The project will use “run-of-the-river” operations and provide minimum flows over the spillway and to the river. Some of the river flow will be diverted for power generation and will be returned to the river about 600 feet downstream of the dam. The remainder of the flow will continue over the dam spillway.

The PAD identifies potential impacts on resources, measures proposed to mitigate potential impacts and issues that require additional consultation or studies/information gathering.

The resources that will not be significantly affected based on current information are:

- Geology
- Water quality (dissolved oxygen concentrations)
- Wildlife
- Wetland, riparian and littoral habitat
- Known occurrences of rare, threatened and endangered species
- Recreation (other than kayaking)

- Land use
- Cultural resources (pending FERC consultation with the SHPO)
- Tribal resources

Resources that will potentially benefit if this project is implemented are:

- Water quantity (impoundment water levels)
- Aesthetics
- Socio-economics

Resources that could be adversely affected if appropriate measures are not incorporated into project plans and operations are:

- Soil
- Water quantity (diversion of portion of flow from 600 feet of river)
- Water quality (indirect effects of CSO)
- Fish and aquatic resources
- Botanical resources
- Potential habitat for threatened and endangered species
- Recreation (possibly kayaking)
- Aesthetic resources

Measures proposed to mitigate potential impacts are as follows:

- Appropriate permitting and controls to mitigate soil erosion and sedimentation will be implemented during construction;
- A site-specific definition of run-of-the-river operations and compliance standards for water levels in the impoundment will be identified;
- Appropriate minimum spillway flows to protect aquatic resources and aesthetics between the dam and powerhouse;
- Run-of-the-river operating mode will minimize impacts of water level fluctuations;
- Fish screens to minimize the potential impingement and entrainment of fish;
- Nest boxes to enhance wildlife habitat;

- Planting and landscaping to mitigate impacts on botanical resources and aesthetics;
- Scheduling of relevant construction to avoid impacts to Indiana Bat;
- Scheduling spillway releases for kayakers; and
- Selecting the design and colors of buildings to minimize aesthetic impacts.

Some of the identified issues can be addressed through consultation with resource agencies and other parties. Other issues will require site specific studies or information gathering. The issues that can be addressed through consultation are:

1. A site-specific definition of run-of-the-river operations and compliance standards for water levels in the impoundment need to be identified;
2. Appropriate permitting and controls to mitigate soil erosion and sedimentation need to be identified (normally done through the construction permitting process);
3. The design of fish screens needs to be specified;
4. There is an opportunity to enhance wildlife resources by providing nest boxes. The specifications for nest boxes need to be determined;
5. The project will disturb a small area of vegetation and replanting/landscaping needs to be specified;
6. The means to avoid adverse impacts to Indiana Bats (such as timing of construction) need to be identified;
7. Consultation with the State Historic Preservation Office needs to be completed after this preliminary application document is submitted.

Issues that require site specific studies or additional information gathering are:

1. Soils are unstable and there may be geotechnical issues;
2. The extent of sedimentation near the intake is not known;
3. Combined sewer discharges from local municipalities may adversely affect water quality in the river between the dam and powerhouse;
4. The project will reduce flows and may affect aquatic habitat in a short (600 feet) section of the river;
5. The absence of wetlands in the project area needs to be confirmed;
6. The project area has potential habitat for two protected plant species; and
7. The project may reduce flow available to kayakers in a 600-foot section of the river.

Potential studies or information gathering associated with identified issues are:

1. Project construction plans should be evaluated by a geotechnical engineer and appropriate recommendations regarding slope stability should be incorporated into project plans;
2. A bathymetric study of the impoundment near the intake is needed to determine the extent of sedimentation and to support intake design and permitting.
3. A study is needed to identify minimum spillway flows to protect aquatic resources between the dam and powerhouse;
4. A study of CSO discharges in relation to river flow between the dam and powerhouse is needed to evaluate impacts of the CSO discharges on water quality;
5. A wetland delineation in the project area needs to be completed;
6. Surveys for the Northern Monkshood and Northern Wood-reed need to be completed in the project area;
7. The need for, safety of, frequency, and the flows of extra spillway releases for kayakers needs to be determined.

1. INTRODUCTION

Metro Hydroelectric Company, LLC, (MHC) proposes to restore electrical generation at the existing Ohio Edison Gorge Dam on the Cuyahoga River in Akron, Ohio. Figure 1 illustrates the location of the proposed project. The Federal Energy Regulatory Commission (FERC) issued a preliminary permit to MHC for this project. The permit is presented in Appendix A.

1.1 PURPOSE

The purpose of this Preliminary Application Document (PAD) is to provide intended recipients with information that will promote and focus issue identification and the development of study plans relevant to the Proposed Project site. The purpose of the project itself is to generate “green energy” for up to 2,000 homes while using existing facilities to minimize or eliminate additional environmental impacts.

1.2 PROCESS PLAN AND SCHEDULE

MHC plans to use the Integrated Licensing Process for this project. The regulations are in 18 (CFR) Part 5. The purpose of the integrated licensing process is to provide an efficient and timely licensing process that ensures appropriate resources protections through better coordination of the FERC’s processes with those of Federal and state agencies and Indian tribes that have authority to condition FERC licenses (19 CFR 5.1 (e)).

The process provides several opportunities for input from the public, local, state and federal government agencies, tribes and other interested groups. Basic steps in the Integrated Licensing Process are:

1. Preparation of the Notification of Intent and Preliminary Application Document (this document)
2. Development of Study Plans
3. Completion of Studies
4. Preliminary Licensing Proposal
5. Initial License Proposal
6. Final License Application
7. Environmental Assessment and License Order

Each of these steps provides for input from agencies and the public. This process is illustrated in Figure 2. Figure 3 presents a schedule for pre-application activities. The initial steps include the Notification of Intent (Appendix A), the Preliminary Application Document (this document), a tribal consultation meeting, the FERC-issued Notice of Commencement of Proceeding and Scoping Document 1 (SD1), and a Scoping Meeting/Site Visit.

The contents of the Preliminary Application Document (PAD) are specified in FERC's regulations for the Integrated Licensing Process. Table 1 lists these FERC regulations and the corresponding sections of this Preliminary Application Document.

1.3 PROTOCOL FOR DISTRIBUTION

The PAD and other milestone documents will be posted on Advanced Hydro Solution's website (www.advancedhydrosolutions.com). MHC will provide written notifications when milestone documents are posted on the website according to the schedule that will be specified in Figure 3. MHC will provide hard copies of the NOI and PAD to all agencies identified in the regulations at 18 Code of Federal Regulations Section 5.2. MHC will also provide hard copies of the NOI and a CD containing the PAD to all other parties listed in Appendix B. MHC will have a copy of the NOI and PAD available for review in their office and in the Public Library located on Smith Street in Fairlawn, Ohio. MHC will provide a hard copy of the NOI and PAD to any interested party for a nominal charge of \$45 plus \$5 for shipping.

The names of potentially affected government entities, including counties; cities and towns; irrigation district, drainage district, or similar-purpose political subdivisions; every other affected political subdivision in the general area; and affected Native American tribes are listed below. Addresses are presented in the attached Distribution List (Appendix B).

The proposed Project is located in Summit County, on property owned and administered by the Metro Parks Serving Summit County. The addresses of Summit County and Metro Parks are also included in the Distribution List.

The project is located within fifteen miles of nine cities or towns with populations greater than 5,000 people. These towns and cities are listed below. Addresses of these cities or towns are listed in the attached Distribution List.

- Akron
- Cuyahoga Falls
- Kent
- Barberton
- Fairlawn
- Stow
- Aurora
- Canal Fulton

According to the U.S. Army Corps of Engineers, there are no irrigation districts, drainage districts or similar special-purpose political subdivisions that would be interested in or affected by the Project. Other political subdivisions in the general area of the project include the Northwest Ohio Four County Regional Planning and Development Organization (NEFCO). NEFCO is a Clean Water Act Section 208 Area Wide Planning Agency. The address for NEFCO is the Distribution List.

The Native American Consultation Database maintained by the National Park Service identifies five tribes associated with Summit County, Ohio. The five tribes identified are listed below. Contact information is included in the attached Distribution List.

- Delaware Nation, Oklahoma
- Forest County Potawatomi Community, Wisconsin
- Hannahville Indian Community, Michigan
- Ottawa Tribe of Oklahoma
- Wyandotte Nation, Oklahoma

In accordance with 18 CFR 5.5 (c), the Notice of Intent (NOI) and this Preliminary Application Document (PAD) are being distributed to all appropriate federal, state, and interstate resource agencies, Native American tribes, local governments, and members of the public likely to be interested the proposed project. Specifically, the NOI is being distributed to all affected governmental units already identified in this PAD, as well as all parties who commented on the previously submitted Preliminary Permit Application. Parties who commented on the Preliminary Permit Application include:

- The Ohio Department of Natural Resources
- The Ohio Environmental Protection Agency
- The Army Corps of Engineers
- Friends of the Crooked River
- Ohio Environmental Council
- American Whitewater
- Department of the Interior
- Northeast Ohio Watershed Council
- American Rivers

2. PROJECT LOCATION, FACILITIES, AND OPERATIONS

The project location is as follows:

State: Ohio
County: Summit
City: Akron
River: Cuyahoga River

The proposed project is located in the Gorge Metro Park Serving Summit County, which is between the cities of Akron and Cuyahoga Falls. An easement allows the proposed use; this easement is presented in Appendix E.

2.1 NAME AND ADDRESS

This Pre-Application Document is being submitted on behalf of Metro Hydroelectric Company, LLC, located at 150 North Miller Road, Suite 450 C, Fairlawn, Ohio 44333. M. Clifford Phillips is the authorized agent for MHC. Mr. Phillips telephone number is (330) 869-8451, his fax number is (330) 869-8453, and his email is Cliff.Phillips@advancedhydrosolutions.com.

2.2 MAPS

Figure 1 is a site location and vicinity map. Figure 4 is a preliminary map of the project area. Figure 5 is a map of the existing and proposed project facilities. Photographs of the existing structures and the project area are presented in Appendix C.

2.3 DESCRIPTION OF EXISTING AND PROPOSED PROJECT FACILITIES AND COMPONENTS

The project will make use of the Ohio Edison Gorge Dam and intake structure. The dam is presently and will continue to be owned by First Energy. Proposed new project facilities and components include a new powerhouse, new turbines, new penstock, extended access road and new transmission lines.

2.3.1 Structures

Figure 5 illustrates existing and proposed facilities. An aerial photograph of the project area is presented in Appendix C. The project will use the existing Ohio Edison Gorge Dam, which was built in 1912. The dam was extensively rehabilitated in the 1980s. The dam is made of concrete. The dam and spillway do not have gates or other means to regulate flow over the spillway or water levels in the impoundment. The original powerhouse and

penstock were removed in the 1950s, but the concrete saddles for the penstock are still in place. The overall length of the dam is 429 feet. The south wall of approximately 90 feet contains the head gate and existing 90-inch diameter penstock opening. The spillway is 121 feet long with a spillway crest elevation of 910.0 feet above mean sea level. The north side of the dam is 218 feet long. The dam is 47 feet high.

The existing intake will be repaired and fitted with new head gate valve, fish and debris screens.

Approximately 550 feet of the new penstock will be installed in the existing cradles. Approximately 100 feet of new penstock will be installed on new cradles. The penstock will have a diameter of approximately 90 inches. The cradles will be rehabilitated as necessary to support the replacement penstock, and new cradles will be installed for the new location of the penstock.

2.3.2 Impoundment

According to a bathymetric map of the impoundment generated by the Northern Ohio Traction and Light Company in 1918 (shortly after the dam was built), the surface area of the impoundment is about 40.95 acres and the mean depth is about 20.8 feet. The volume of water in the impoundment is approximately 37,200,000 cubic feet (estimated to the top of the spillway) and the shoreline is approximately 15,000 feet long. The elevation of the top of the spillway is 910.0 feet above mean sea level; this is the minimum impoundment elevation. The maximum elevation presently varies with river flow.

2.3.3 Powerhouse and Turbines

Figure 5 illustrates the proposed facilities. A new powerhouse housing up to three cross flow turbines will be constructed (the previous powerhouse no longer exists). The turbines will have individual controls to maximize energy production during periods of low flow. The combined nominal capacity will be up to 2.4 MW. The powerhouse will be approximately 50 feet long, 45 feet wide and 30 feet high. The specific design and materials for the powerhouse have not been determined. The proposed powerhouse will include a new tailrace discharge works consisting of an exhaust apron. The diverted water will be returned to the river about 600 feet downstream of the dam. The existing access road to the dam will be extended to the new powerhouse.

The proposed locations of the powerhouse and access road will be determined after a topographic survey of the project area is completed.

2.3.4 Transmission Lines

A new 12.5 kV transmission line will be constructed between the new powerhouse and an existing substation approximately one-half mile from the powerhouse, or to one of the towers for the existing transmission line. The new transmission line will follow the route of an existing transmission line except for approximately 350 feet between the new powerhouse and the existing transmission line. Figure 5 illustrates the proposed location of the existing and new transmission lines. The project plans to use the existing power poles as much as possible.

2.3.5 Energy Projection

The proposed project will have a total nominal capacity of 2.4 MW, a capacity factor of 55%, and a net annual generation between 10,000 and 12,000 MW hours. The expected annual average generation of the Project is 10,300 MWH. Figure 6 presents the estimated average monthly energy production.

2.4 DESCRIPTION OF PROJECT OPERATIONS

The project proposes nominal run-of-the-river operations and to provide a minimum flow of 25 cfs over the spillway, if available. The minimum flow required for the turbines is 33 cfs. The entire flow will pass over the spillway if the river flow is less than 58 cfs (minimum capacity of the turbines plus minimum flow over spillway) and no electricity will be generated. Flow above approximately 25 cfs and less than the maximum capacity of the turbines (500 cfs) will be diverted from the river. This diverted flow will go through the fish screens at the intake structure, through the penstock, through the turbines and then will be returned to the river approximately 600 feet downstream from the dam. Flows in excess of 525 cfs, the minimum flow for the spillway plus 500 cfs, the maximum capacity of the turbines), will be allowed to flow over the spillway. This operating mode will provide flow to all portions of the river, including the 600 feet between the dam and the discharge from the powerhouse at all times unless there is no flow in the river.

To summarize these flows:

- River flow less than 58 cfs: all flow will go over the spillway.
- River flow from 25 to 525 cfs will be diverted to turbines and will be returned to the river about 600 feet downstream of the dam. A minimum of 25 cfs will still flow over spillway.
- River flow greater than 525 cfs will go over the spillway.

Impoundment elevations will be used to determine project operations and compliance with run-of-the-river operations.

3. DESCRIPTION OF EXISTING ENVIRONMENT

3.1 EXISTING ENVIRONMENT

Figure 4 illustrates the project area and significant features of the area. Figure 5 is a map of existing and proposed project facilities.

Summit County falls within a physiographic region in Ohio formed by glaciers and ancient streams known as the Glaciated Appalachian Plateau. The region lacks the rugged quality of unglaciated landscapes and is less hilly. Glaciation created bogs, kettle lakes, and numerous small hills of sand and gravel called “kames” within the region¹.

3.1.1 River Basin Description

Figure 7 is a map of the Cuyahoga River Basin². The Cuyahoga River originates in Geauga County in the extreme northern part of the Akron-Canton Interlobate Plateau. From its headwaters area, the river flows southwestward in a relatively long, narrow basin toward Akron. Downstream of Cuyahoga Falls, the river turns abruptly northward and flows in a wide, deep pre-glacial valley to Cleveland and its mouth in Lake Erie. The peculiar shape of the basin with its long eastern arm is the result of drainage changes brought about by glaciation. The drainage area is approximately 811 square miles.

The basin includes large urban areas associated with Akron and Cleveland, agricultural areas, and extensive recreational areas, included the Cuyahoga Valley National Park. The river is an “area of concern” defined by the International Joint Commission due to various use impairments. Most of these use impairments are in downstream portions of the river and none are in the project area. A remedial action plan has been prepared to address these use impairments.

Table 2 identifies the name, location and size of dams on the mainstream of the Cuyahoga River. The Canal Diversion Dam is being evaluated for removal. The river was recently re-routed around the Kent City dam. The Monroe Falls dam was recently lowered several feet and a fish passage facility was installed. None of the dams

¹ The Ohio Department of Natural Resources Division of Natural Areas and Preserves has identified five distinct physiographic regions in the State of Ohio and has made a map of these regions available on their website (<http://www.dnr.state.oh.us/dnap/physiographic.htm>). The map identified Summit County as being within the Glaciated Appalachian Plateau and provided details regarding this region (e.g. the quality of the landscape) as described in the text.

² A map is available showing the outline of the basin and flow paths of the main watercourses at <http://www.dnr.state.oh.us/water/pubs/reports/Bulletin47.pdf>

except Monroe Falls has a fish passage facility. Some of the dams have portage facilities for small boats, but the three dams in Cuyahoga Falls, including the Ohio Edison Gorge Dam, do not.

3.1.2 Geology and Soils

The Cuyahoga Formation consists of interbedded sandstones, siltstones, and shales that represent deltaic to fluvial sediments deposited in a rapidly fluctuating, shoreline environment. There are three members of the Cuyahoga Formation. The oldest unit is the Orangeville Shale, which is overlain by the Sharpsville Sandstone and the Meadville Shale.

3.1.2.1 Geological Features

The Cuyahoga formation underlies the project area. The Cuyahoga formation is exposed and visible in the Gorge Metro Park. The narrow gorge is cut into the overlying Sharon Conglomerate of Pennsylvanian age with Meadville shale, Sharpsville sandstone and shale, and Orangeville shale set at river level³.

Drift thickness, a measure of the thickness of unconsolidated materials overlaying solid bedrock, generally ranges between 21 feet and 80 feet in thickness in Summit County⁴. The drift is quite thin in the project area due to the bedrock exposures and steep slopes in the gorge.

3.1.2.2 Soils

Most of the Cuyahoga River Basin is situated within the Glaciated Allegheny Plateau where most soils are very deep to bedrock. However, soils in the project area are thin because of steep slopes in the gorge. The two soil types in the project area are Berks Channery silt loam and Dekalb sandy loam. The Berks soil occurs in the relatively flat areas along the river downstream of the dam. The Dekalb soils occur on the steep slopes on either side of the gorge. Both soils have steep (25 to 70%) slopes and are highly erodible.

3.1.2.3 Shorelines and Stream Banks

The stream banks in the project area are generally quite steep and in places there are low (approximately 5 to 15 feet) cliffs (Figures 4 and 5). Most areas are well vegetated. Some soil erosion is evident along paths in the park

³ The bedrock stratigraphy of Summit County is available as Table 10, starting on page 25, of the Water Resources Section's Ground Water Pollution Potential Report No. 49 available through the Ohio Department Of Natural Resources Division Of Water at the following web address: http://www.dnr.state.oh.us/water/gwppmaps/PDF_GISMap_wReport/Summit_PP_report_wMap.pdf

⁴ A shaded drift-thickness map of Ohio, generated by subtracting bedrock-surface elevations from land-surface elevations, is presented in <http://www.dnr.state.oh.us/geosurvey/pdf/sg3map.pdf>.

on the north side of the river and in one gully on the south side of the river downstream of the dam. The erosion in these areas is primarily due to heavy use by pedestrians, trail maintenance and trail construction. The locations of these erosion sites, which are quite small, are shown on Figure 4. Some historic slumping of soil and rock is evident on the north side of the river in the park; this is natural and is related to the steep slopes in the area. There is no evidence that existing project facilities are causing erosion, slumping, or instability of the banks.

3.1.3 Water Resources

The City of Cuyahoga Falls obtains their water supply from well fields located in sand and gravel deposits along the upper Cuyahoga. The Cuyahoga River and its watershed is also the primary drinking water source for the City of Akron. The City of Akron operates four reservoirs for domestic and industrial water supply: the LaDue and East Branch Reservoirs (Geauga County), Lake Rockwell, and the Mogadore Reservoir (Portage County).

3.1.3.1 Drainage Area

Figure 7 is a map of the Cuyahoga drainage basin. The Cuyahoga River watershed drains approximately 2,100 square kilometers (about 811 square miles) in northern Ohio⁵. At Akron, the Little Cuyahoga joins the Cuyahoga River contributing 62 square miles of drainage area and flows into Lake Erie. The flow characteristics at station #04206000, the Portage, Ohio USGS Gauge, include a drainage area of approximately 404 square miles⁶. The "Old Portage Station" is the closest USGS station to the project site. This gage is downstream of the dam.

The upstream drainage area at the Ohio Edison Gorge Dam is approximately 334 square miles. The dam is at river mile 44.56, measured from the mouth of the Cuyahoga River at Lake Erie.

3.1.3.2 Flow and Flow Duration

The flow characteristics at The Old Portage Gauge include a discharge equaled or exceeded: 10% of the time = 1040 cfs, 50% of the time = 270 cfs, or 90% of the time = 79 cfs, and a 7-day / 2-yr low flow of 74 cfs. Mean annual flow of 14.9 inches per unit area (about 444 cfs, using 404 sq mi as the basin area relative to the Old Portage Gauge) for the Cuyahoga River at Old Portage excludes water diverted from Lake Rockwell for use at Akron and returned downstream of Old Portage. This diversion is partly offset by canal diversions from the Portage Lakes into the

⁵ This watershed drainage area was obtained via project details provided by Ohio State University Assistant Professor Lance Williams as part of the Ohio Sea Grant Project Reporting System for Project Progress and Completion Reports available at <http://www.sg.ohio-state.edu/Project/projlist.asp> under project number R/ER-68-PD.

⁶ This drainage area was obtained from page 83 of Bulletin 47 of the *Basin Descriptions and Flow Characteristics of Ohio Streams (2002)*. This document was written by Michael C. Schiefer with the Ohio Department of Natural Resources Division of Water and is available at <http://www.dnr.state.oh.us/water/pubs/reports/Bulletin47.pdf>

Cuyahoga River. On balance, mean annual flow at Old Portage without the diversions would be closer to 17 inches per unit area (506 cfs). Base flows at Old Portage are largely a function of releases from Lake Rockwell and flows from Congress Lake Outlet and the Little Cuyahoga River.

The 10-percent duration flows of streams in the Cuyahoga River Basin are at the high end of the range for streams in Ohio. This indicates that although significant storage exists in the basin, it is limited as far as attenuation of larger floods. Relatively low 2-year recurrence interval flood-peak discharges characteristic of the streams in the basin indicate that basin storage provides some attenuation of flood flows⁷.

Figure 8 presents mean annual flows for the period of record. Monthly flow duration curves for the project are presented in Appendix D. The flow duration curves are based on the most recent 21 years of data, rather than from all years on record. The flow data older than 21 years are not representative of current conditions due to flow alteration and extensive development in the drainage basin (see Figure 8).

3.1.3.3 Existing and Proposed Uses of Project Waters

Clean Water Act regulations specify designated uses for surface water bodies in Ohio. Designated uses of the Cuyahoga River in the project area are: state resource water, warmwater habitat, agricultural water supply, industrial water supply, and primary contact recreation⁸.

Warmwater habitats are capable of supporting and maintaining a community of warmwater aquatic organisms as defined in rule 3745-1-07 of the Ohio Administrative Code. Agricultural water supplies are suitable for irrigation and livestock watering without treatment. Industrial water supplies are suitable for commercial and industrial uses, with or without treatment. Primary contact recreation waters are suitable for full-body contact recreation during the recreation season (e.g. swimming, canoeing, etc) with minimal threat to public health because of the water quality⁹. The Metro Parks Serving Summit County do not allow swimming in the Gorge Park.

⁷ Content obtained from page 82 of the document at <http://www.dnr.state.oh.us/water/pubs/reports/Bulletin47.pdf> - additional information on this document is provided in the previous footnote.

⁸ Use designations for the project area were obtained from Table 26-2 on page 3 of Appendix K of the Ohio Environmental Protection Agency's report, Total Maximum Daily Loads for the Lower Cuyahoga River (September 2003) available at <http://www.epa.state.oh.us/dsw/tmdl/CuyahogaRiverLowerTMDL.html>. The Water Body Segment used in the determination was the segment from the Edison dam (RM44.6) to North Main St. in Akron (RM 43.9).

⁹ The Ohio Administrative Code includes chapters relevant to the Ohio Environmental Protection Agency Division of Surface Water. OAC Chapter 3745-1 includes Rule 3745-1-07 Water Use Designations and Statewide Criteria, from which the water use definitions in this text were obtained. The rule is available for review at <http://www.epa.state.oh.us/dsw/rules/01-07.pdf>

Other uses of Cuyahoga River water in and near the project area include upstream use for public water supplies (see Section 3.1.4), recreational uses such as kayaking and fishing, and a downstream national park. The river is also used for wastewater disposal. Most of this is treated wastewater discharged pursuant to NPDES permits. The Fishcreek Wastewater Treatment Plant discharges to the river a few miles upstream of the dam, and there are several other wastewater treatment plants further upstream.

There are also several combined sewer overflow (CSO) outfalls that discharge untreated sewage directly to the river in the project area when rain causes sewers to overflow. One of these CSOs discharges to the river between the dam and the proposed powerhouse, which is the part of the river from which flow will be partially diverted for power generation.

There is an inactive coal-fired power plant owned by First Energy located near the proposed project on the impoundment. In the past this used the impoundment as a source of cooling water and discharged cooling water back to the impoundment. It is possible the plant could be re-activated in the future and this use of impoundment water would resume. Such a use would be subject to permit and other requirements in effect at the time the water use and discharge resumed.

3.1.3.4 Impacts on Water Use and Water Rights

The project will not have a significant impact on water use and water rights. The project will divert a portion of the river flow from about 600 feet of the river. The water will be returned to the river immediately downstream of the proposed powerhouse. The right to use this water is provided by the easements (the original and current easements are in Appendix E). The affected portion of the river is entirely within the project area and the area covered by the easement. Run-of-the-river operations are proposed to avoid affecting riparian water rights downstream of the project. The project will use water only for generation of electricity. The project will not involve consumptive use of water or diversion of water from the Cuyahoga River drainage basin or from the Great Lakes Basin.

3.1.3.5 Water Quality Standards

Water quality standards for the State of Ohio applicable to the project area are provided in Table 3. These are federally-approved water quality standards pursuant to the federal Clean Water Act.

The overall water quality of the Cuyahoga River has improved in recent years due to aggressive controls and limitations placed on point sources such as publicly-owned wastewater treatment plants, combined sewer outfalls (CSOs), industrial discharges, and the remediation of hazardous waste sites. Nevertheless, the natural erosion of riverbanks, industrial and urban land use, and other non-point sources of pollution continue to contribute to increased sediment loads, turbidity, low dissolved oxygen, and increased temperatures of the river water. These continued

impacts combined with a lack of suitable riparian habitat have adverse effects on larval fish survival and migration in addition to the overall degradation of fish populations in the river. Recreational activities such as swimming in the river have generally been discouraged as a result of health risks incurred by directly contacting water contaminated by the introduction of storm water discharges, CSOs, and incompletely disinfected wastewater from upstream urban areas¹⁰.

There are several combined sewer overflows in Gorge Metro Park. Odors and visual evidence observed during a site visit in December 2004 indicated these had recently conveyed untreated sewage to the river. Table 3 also compares the most recent (August 2001) available water quality data for locations upstream and downstream of the dam to applicable water quality standards. All of the water quality standards for this part of the Cuyahoga River were met with the exception of manganese. Manganese concentrations exceeded the standard for drinking water both upstream and downstream of the dam. However, the drinking water standard does not apply here since this section of the Cuyahoga River is not a drinking water source. The OEPA, which provided the water quality data, also provided river miles for the sample locations (identified on Figure 4, the Project Area Map). The information corresponding to sampling locations in Figure 4 and presented in Table 3 was identified as the closest available information relative to the dam and the project area.

The Ohio Environmental Protection Agency Division of Surface Water prepared The Lower Cuyahoga River Watershed Total Maximum Daily Load (TMDL) report¹¹. The U.S. EPA approved the TMDL report on September 26, 2003. TMDLs represent loads of pollutants that a water body can accept without causing established water quality standards to be exceeded. The TMDL report identifies use impairments in the Cuyahoga River near the Ohio Edison Gorge Dam. The remainder of this section is summarized from the report.

Biological index scores (a measure of the quality of macro-invertebrates such as aquatic insects in the river) decreased from Lake Rockwell to the City of Akron, an area upstream of the dam. Organic enrichment, nutrient enrichment, low dissolved oxygen, flow alteration (upstream dams and diversions), and habitat modification associated with reservoir releases were considered the primary cause of these impairments. Again, this affected area is upstream of the impoundment and affects water quality at the Ohio Edison Gorge Dam, though it is not caused by the dam.

¹⁰ Text adapted from Page 33 of the draft document Cuyahoga River Environmental Restoration: Conceptual Designs for the Improvement of Larval Fish Populations by the US Army Corps of Engineers - Buffalo District available at <http://www.cuyahogariverrap.org/CuyahogaRive401rpt.pdf>

¹¹ The Lower Cuyahoga River TMDL report is available at the following web address: <http://www.epa.state.oh.us/dsw/tmdl/CuyahogaRiverLowerTMDL.html>

Further downstream, the TMDL report notes that biological communities improved and met state biological criteria in the turbulent, free-flowing reach between the Ohio Edison Gorge Dam and the Little Cuyahoga River (about 3.5 miles downstream of the proposed project). The City of Akron has combined sewer outfalls that discharge into the river between the dam and the limit of the project area. The CSOs discharge to the river following as little as 0.1 inch of rain per hour. These CSO discharges contribute to water quality problems in the river, including discoloration, odor, debris and litter, dissolved oxygen depletion, biological impairment, high bacteria levels, and exceedances of water quality standards.

Fish communities downstream of Akron to Cleveland are impaired and are classified as poor or very poor by the TMDL report. Macro-invertebrate communities are said in the report to be in fair to very poor condition downstream of the Akron Wastewater Treatment Plant (which is downstream of the Ohio Edison Gorge Dam), but they are said to gradually improve and reach very good to exceptional quality upstream of Cleveland.

The TMDL report recommends that removal of the Ohio Edison Gorge Dam be evaluated. However, First Energy, which owns the dam, has no plans to remove it and has discussed the issue with the Ohio Environmental Protection Agency (OEPA). First Energy has informed the OEPA that the dam is necessary for their business, and it is their view that there would be very major impacts associated with removal of the dam. The impoundment created by the dam may also have use as a source of cooling water should First Energy's inactive power plant located next to the impoundment be reactivated in the future. The TMDL report also recommends implementation of combined sewer overflow control programs to address oxygen demanding substances, bacteria, and nutrient problems. Current storm water regulations pursuant to the Clean Water Act provide a regulatory basis for controlling combined sewer overflows.

Other relevant recommendations of the TMDL report are the removal of the Canal Diversion Dam, evaluation of all other dams for removal, land use planning, wetland protection, riparian protection and discharge permit limits. The Canal Diversion Dam is located about 25 miles downstream of the Ohio Edison Gorge Dam and has a head of approximately 20 feet. The Canal Diversion Dam is being evaluated for removal and an Environmental Impact Statement is being prepared (Steve Tuckerman, OEPA, personal communication). The Cuyahoga River was recently (completion expected in Spring 2005) rerouted around the Kent City Dam, which is about 20 miles upstream of the Ohio Edison Gorge Dam. The Monroe Falls dam, which is located about 5 miles upstream of the Ohio Edison Gorge Dam, was recently lowered from approximately 14 feet to 11.5 feet. OEPA also expects to evaluate removal of the Sheraton and LeFever Dams, which are located about 1.5 miles upstream of the Ohio Edison Gorge Dam (Steve Tuckerman, OEPA, personal communication). Table 1 summarizes the locations and head of these dams. None of these dams are in the project area or are directly related to this project.

Figure 9 presents dissolved oxygen and temperature data collected by the Ohio EPA upstream and downstream of the dam. The dam has little impact on temperature, but dissolved oxygen concentrations are higher downstream of the dam than in the impoundment. This is probably because the water gains oxygen as it falls over the spillway and mixes with air. The oxygen data for the impoundment shows some variation on a daily basis; this is probably related to photosynthetic production of oxygen by plants in the impoundment. The oxygen data below the dam shows very little change during the day, probably because the physical mixing of water with air as it spills over the dam is the main factor in determining dissolved oxygen concentrations below the dam.

3.1.3.6 Sediments

The OEPA collected sediment samples from the impoundment most recently in 1990 (Appendix I). These samples were analyzed for pesticides, polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals and some other inorganic chemicals. Concentrations of some pesticides, PCBs, SVOCs and metals were elevated, but were not unusually high for a stream in an urban industrial area. The presence of these chemicals in sediments is probably related to past releases from industrial facilities and non-point urban runoff.

Bathymetric data for the impoundment are present in Appendix I. These data are from 1912 and more recent data are not available.

3.1.3.7 Impoundment Physical Data

According to a bathymetric map (Appendix I) of the impoundment generated by the Northern Ohio Traction and Light Company in 1918 (shortly after the Ohio Edison Gorge Dam was built), the surface area of the impoundment is about 40.95 acres and the mean depth is about 20.8 feet. The volume of water in the impoundment is approximately 37,200,000 cubic feet (estimated to the top of the spillway) and the shoreline is approximately 15,000 feet long.

The residence time in the impoundment is approximately 32 hours. The residence time in the impoundment is the impoundment volume divided by the average river flow. The average river flow was derived from the most recent 21 years of data, rather than from all years on record. Flow data for the most recent 21 years were used because water use and development in the basin during that time is expected to be more representative of current conditions. The annual flow data for the Cuyahoga River at the station nearest the dam, the Portage gauge, shows trends in river flow over the period of record.

3.1.3.8 Downstream Gradients Affected by Proposed Project

The Cuyahoga River from the Ohio Edison Gorge Dam to the Cascade Valley Metro Park (Lower Gorge) has an average gradient of 50 feet per mile¹². The project will not change the existing downstream gradient.

3.1.3.9 Floodplains

The project area outside of the river and impoundment is not within the 100-year floodplain identified on Federal Emergency Management Agency Flood Rate Insurance Maps.

3.1.4 Fish and Aquatic Resources

The OEPA monitors fish populations and fish tissues (for contamination) near the dam, using an "Index of Biotic Integrity" to evaluate different fish populations statewide. The OEPA also monitors populations of benthic macro-invertebrates (mussels, snails, aquatic insects, etc.) near the dam, and evaluates these data with an "Invertebrate Community Index." The following subsections include information obtained from the OEPA Division of Water.

The Monroe Falls dam is the only dam on the Cuyahoga River with fish passage facilities (Steve Tuckerman, OEPA, Personal Communication).

3.1.4.1 Existing Fish and Aquatic Communities

Steelhead, a species introduced to the Great Lakes for sport fishing, have been observed in the river downstream of the dam (Clifford Phillips, MHC, personal communication). Steelhead are not stocked in the Cuyahoga River, but do stray into the river from Lake Erie. The Canal Diversion Dam, located about 25 miles downstream of the Ohio Edison Gorge Dam, is a barrier to steelhead and other anadromous fish (fish that swim up rivers to spawn); however some steelhead are able to pass that dam.

The OEPA Division of Water provided recent fish survey data for the Cuyahoga River near the dam. These data are presented in Table 4. Bluntnose minnow, common carp, hybrid sunfish, other sunfish and largemouth bass are common in the impoundment. Central stoneroller and common shiner are common downstream of the impoundment.

The OEPA's Index of Biotic Integrity (IBI) uses fish species as indicators of the quality of the aquatic community of a stream compared to that of a relatively undisturbed stream with similar geographical and climatic conditions. The IBI uses fish species, the number of species, trophic (position on the food web) status of the species, and abundance.

¹² Gradient obtained via Cuyahoga River information page at www.americanwhitewater.org/rivers/id/1467

The IBI is a numerical score ranging from 12 (poor) to 60 (high quality). In 1996 the IBI of the Cuyahoga River upstream of the dam (river mile 46.00) was 28. The dam is at river mile 44.56. The IBI downstream of the dam (river mile 44.0) was 32 to 38. The slightly higher IBI downstream of the dam may be related to higher oxygen concentrations and better substrate conditions than in the impoundment. It is also probable that carp present in the impoundment adversely affect the IBI, as carp tend to stir up sediments, increase turbidity, and degrade habitat quality for other fish species.

Other species present in the Cuyahoga River from the Ohio Edison Gorge Dam to Lake Erie are the White Sucker, Common Carp, Largemouth Bass, Brown Bullhead and the Yellow Bullhead¹³. A fish-consumption advisory is in place for carp, white sucker and brown bullheads from the area near the dam. The advisory directs individuals to limit consumption of these fish to one meal or fewer per month due to contamination with mercury and PCBs. The advisory regarding mercury applies statewide and is not unique to this part of the Cuyahoga River.

The OEPA's Invertebrate Community Index (ICI) is similar to the IBI and compares several measures of the quality of the benthic macro-invertebrates to a relatively undisturbed reference stream. The ICI ranges from a low of 0 (very poor) to a high of 60 (excellent). The ICI was 34 and 32 in 1996 and 2000, respectively, upstream of the dam. The ICI was 38 and 36 in 1991 and 1996, respectively, downstream of the dam. The slightly higher ICI downstream of the dam is consistent with the IBI and water quality data.

3.1.4.2 Essential Fish Habitat

No essential fish habitat has been designated for rivers in the state of Ohio¹⁴. The impoundment has steep banks and lacks significant fish spawning habitat such as shallow areas or riparian wetlands. The river immediately downstream of the dam (within about 100 feet of the dam) is probably also poor fish habitat because of the steep gradients and high water velocities. The river further downstream of the dam provides very good habitat for fish such as the central stoneroller that prefer rapid flow and gravel substrates.

The OEPA uses the "Qualitative Habitat Evaluation Index" to assess physical characteristics of streams, including substrates, in-stream cover, channel morphology, riparian zone, pool quality, and riffle quality. The QHEI ranges

¹³ This list of common species was inferred from the Ohio Department of Health consumption advisory table on page 7 of the Appendices to the Year 2000 Ohio Water Resource Inventory produced by the Ohio Environmental Protection Agency and made available at http://www.epa.state.oh.us/dsw/documents/Ohio305b2000_app.pdf

¹⁴ The National Oceanic and Atmospheric Administration (NOAA) Fisheries and eight fishery management councils worked to describe and identify Essential Fish Habitats (EFHs) in the United States. The map on NOAA's EFH website (http://www.nmfs.noaa.gov/habitat/habitatprotection/efh_designations.htm) indicates that no Midwestern (Ohio included) fishery management councils were involved in the project.

from 0 to 100, with 100 being the best score. The QHEI of the Cuyahoga River upstream of the dam was 67 in 1996. The QHEI was 76 downstream of the dam in 1996. This index indicates the habitat is physically of better quality downstream of the dam than it is in the impoundment.

3.1.4.3 Temporal and Spatial Distribution of Fish and Aquatic Communities

Information on the temporal and spatial distribution of fish and aquatic communities can be useful in planning the design and operation of hydroelectric projects to minimize impacts on these resources. Such information is not available for this part of the Cuyahoga River, however, one temporal assumption is that most fish are quite inactive in the winter months and are most active in the spring and early summer spawning periods.

3.1.5 Wildlife and Botanical Resources

Detailed inventories of wildlife and plants in the project area and Gorge Metro Park are not available (Mike Johnson, Metro Park naturalist). However, wildlife and botanical resources and invasive species observed during a December 4, 2004 site visit in the project vicinity are identified in the subsections that follow. This information is general in nature and is not intended to be a detailed inventory.

3.1.5.1 Upland Habitats

The main habitats in the park and project area are upland forest, urban park, and disturbed areas under electrical transmission lines. Wooded urban park areas are primarily located on the north side of the river, while the south side of the river downstream of the Ohio Edison Gorge Dam contains some disturbed areas under electrical transmission lines. This latter area also contains the road to the dam and a path for the park.

The wooded areas, in general, are relatively undisturbed and support a mix of trees. Much of the parkland on the north side of the river both up and downstream of the dam and on the south side of the river downstream of the dam is wooded. The gorge provides a moister, cooler habitat than surrounding areas. This local climate supports trees such as hemlock and yellow birch that are typically located further to the north.

Some common species observed in the area are:

White oak (*Quercus alba*)

Red Oak (*Q. rubra*)

Sugar maple (*Acer saccharum*)

American Beech (*Fagus grandifolia*)

Wild black cherry (*Prunus serotina*)

Hemlock (*Tsuga canadensis*)
Yellow birch (*Betula allegheniensis*)
Black locust (*Robinia pseudoacacia*)
Flowering dogwood (*Cornus florida*)
Butternut (*Jugulans cinerea*)
Poison ivy (*Toxicodendron radicans*)

The areas under electrical transmission lines are maintained by removing larger vegetation. These areas generally support invasive species such as:

Japanese knotweed (*Polygonum cuspidatum*)
Giant reed grass (*Phragmites australis*)
Horsetail (*Equisetum sp.*)
Staghorn sumac (*Rhus typhina*)
Blackberry (*Rubus allegheniensis*)

White-tailed deer are the most visible wild mammal in the Cuyahoga Valley National Park, which is about five miles northwest (and downstream) of the dam. Previous park studies have discovered 194 species of birds, 91 aquatic macroinvertebrates, 56 butterfly species, 43 fish, 32 mammals, 22 amphibians, and 20 species of reptiles¹⁵. Many of the same species probably live in the project area. Signs of beaver (girdled tree trunks and wood chips) were observed during the site visit on December 4, 2004. Deer are common in the park (Clifford Phillips, MHC, personal communication).

3.1.5.2 Temporal and Spatial Distribution of Important Species

There is no site-specific information on the temporal distribution of important animal species. However, the temporal distribution and activity of species in the area will be typical of the species and overall climate conditions. Most mammals will be fairly inactive or hibernate in the winter. Fish will be less active in winter months, and more active in the spring and early summer when reproduction occurs for most species. Reptiles and amphibians will be inactive in the winter, but some amphibians will be active in the early spring. Many bird species will leave the area in the fall winter to migrate south, and they will return in the spring. Most animals will be quite active in the late spring and early summer to mid summer when reproduction occurs.

¹⁵ This information was obtained from the US National Parks webpages devoted to the Cuyahoga Valley National Park. Specifically, the page detailing animals in the park: http://www.us-parks.com/cuyahoga_valley/animals.html

3.1.6 Wetlands, Riparian, and Littoral Habitat

Based on a December 2004 site visit, the banks along the river and impoundment in the project area are quite steep in most areas, and there is little or no riparian habitat or wetlands. A formal wetland delineation is not available. There are no wetland inventory maps for this area¹⁶.

3.1.6.1 Plant and Animal Species

There is no specific information on plants or animal species in riparian areas. Section 3.1.4 provides some general information.

3.1.6.2 Maps and acreage; Variability Related to Storage

Water levels in the impoundment are presently not managed and fluctuate according to river flow and the bathymetry of the impoundment. The dam does not have gates that could be used to manage water levels. The fluctuations in water levels are small due to the capacity and elevation of the spillway. The surface area of the impoundment varies little due to the steep banks and small variations in water level. The proposed run-of-the-river operating mode will cause similar or less variation in the surface area, elevation, and storage capacity of the impoundment.

3.1.7 Rare, Threatened, and Endangered Species

The Ohio Department of Natural Resources reviewed the Ohio Natural Heritage Database for the proposed project area (Figure 4) and the general area approximately two miles upstream and downstream of the dam. This database identifies rare species, protected species, and unique natural features and provides approximate locations for the known occurrences of these species. The database is based on field surveys in the park that included the project area. There are a number of rare, protected species or unique natural features identified in the general area. However, the proposed project facilities illustrated in Figure 5 will not affect any known locations of these species or features. The Ohio Natural Heritage Database review is presented in Appendix F.

Mike Johnson, staff naturalist for the Metro Parks Serving Summit County, identified several issues related to the Northern Monkshood, Northern Wood-reed, and the Indiana Bat, which are federally or state-protected species.

Much of the Gorge Metro Park, including the project area, is suitable habitat for the Northern Monkshood (*Aconitum noveboracense*). This is a federally-listed threatened plant. Monkshoods are known to exist within two miles of the Ohio Edison Gorge Dam, but they have not been identified in the project area itself. It is possible that this species

¹⁶ Zooming in on Ohio in the Wetlands Map for the Lower 48 States (available at <http://wetlandsfws.er.usgs.gov/wtlnds/launch.html>) reveals that no wetlands data is available for the part of Ohio in which the proposed project is located.

was present in the project area but was not observed during the survey. It may also have spread to the project area since the survey was conducted.

Northern Wood-reed (*Cinna latifolia*), a species of grass formerly thought to have been extirpated from Ohio, was recently found at a confidential location near Gorge Metro Park (not in the project area). The location is confidential to protect the species. This species is a state endangered species. Habitat for this plant includes wet woods and seeps, which exist in the Gorge Metro Park and in the project area.

The Indiana Bat (*Myotis sodalis*) was also recently found in a nearby park. It is suspected that the bats hibernate in caves about ten miles from the project area (Mike Johnson, Metro Parks Serving Summit County, personal communication). Indiana bats use limestone caves for winter hibernation. They forage in forested riparian areas. Gorge Metro Park provides good habitat for this species and it is possible they are present. The Indiana bat is a federally-listed endangered species. The proposed project will not affect any caves because they do not exist in the project area, but it will have a small impact on forested riparian habitat as it will involve removing trees for construction of the powerhouse and access road (approximately 3 acres will be affected).

Consultation with the U.S. Fish and Wildlife Service regarding the presence of threatened or endangered species has been initiated (see letter in Appendix G), but a response has not been received. The response will probably be similar to the information provided by the Ohio Natural Heritage Database discussed above.

3.1.8 Recreation and Land Use

Figure 4 shows the project area in relation to the Gorge Metro Park. Land use near the proposed project is heavily influenced by the cities of Akron and Cuyahoga Falls. Most of the remaining undeveloped land is confined to areas of steep terrain along the Cuyahoga River and the tributaries draining into it. Several parks are located in these undeveloped areas.

The land surrounding Gorge Metro Park is used for a mix of residential, commercial, and industrial purposes. Most areas around the top of the gorge are used for residential purposes (see photographs in Appendix C). There is a coal-fired power plant owned by First Edison on the south side of the impoundment to the east of Front Street. This plant is not presently operating. There are commercial areas south of the impoundment on Front Street. There are sanitary sewer lines along both sides of the river, and several combined sewer outfalls that discharge to the river in Gorge Metro Park.

The park system in the area of the Proposed Project includes the Metro Parks Serving Summit County. The Metro Parks contain 8,666 acres including 12 developed parks, 120 miles of trails including the 33-mile Bike and Hike Trail and 3 miles of the Ohio and Erie Canal Towpath Trail, the F.A. Seiberling Naturealm, and several large conservation

areas. The proposed project will be located within the Gorge Metro Park, one of the 12 developed parks in the Metro Parks Serving Summit County.

The Gorge Metro Park allows fishing only from a specially designated, handicap-accessible fishing pier on the impoundment. Fishing is not permitted from boats or from the banks. Additional recreational facilities provided by the park include hiking trails, parking for approximately 60 cars, pit toilets, a picnic area, an outdoor skating rink, and a picnic shelter. Swimming and boating is not allowed in the park, except for some kayaking. There is no portage for small boats around the dam. The two dams in Cuyahoga Falls upstream of the Ohio Edison Gorge dam do not have portage facilities (Table 2).

Kayaking requires a Special Use Permit from the park, and about 6 to 12 of these permits are issued annually. Kayak permits are generally issued in the spring (Mike Johnson, Metro Parks Serving Summit County). There is no designated access to the river for kayaking. The Ohio Department of Natural Resources considers the river immediately downstream of the dam as “runnable with considerable risk to equipment and life. There is no portage facility at the dam.

The Cascade Valley Metro Park is located nearby, downstream of the project. A new parking lot to improve access to the park and the Sackett Avenue Trailhead is being considered.

The Cuyahoga River is an American Heritage River under the American Heritage River Initiative, a federal initiative established to protect and restore environmental, cultural, historic, and economic resources to communities along some of the country’s most unique rivers.

The Cuyahoga Valley National Park is located about ten miles northwest of Akron along the Cuyahoga River. This park includes 22 miles of the river and approximately 33,000 acres. The National Park is not in the project area, but is a major recreational asset to northeast Ohio.

3.1.8.1 Recreational Use of Project Lands and Waters

The Gorge Metro Park supports a variety of recreational activities including hiking, jogging, biking, bird-watching, picnicking, fishing, cross country skiing, ice skating and kayaking. The park does not allow fishing, boating and swimming, or other recreational uses on the impoundment because it has steep banks that could be dangerous and are susceptible to erosion, and because of water quality concerns. As previously mentioned, fishing is allowed from a handicap-accessible fishing pier on the impoundment. There is an ice skating area in the park. Kayaking downstream of the dam requires a permit and is allowed on a limited basis. There are no improvements to the park to facilitate kayaking.

3.1.8.2 Existing Shoreline Buffer Zones

The cities of Akron and Cuyahoga falls do not have ordinances regarding shoreline buffer zones. The present shorelines in the project area are mostly undeveloped. The exceptions are the First Energy Power Plant, some park facilities, the dam itself, and the Front Street Bridge over the impoundment (see Figure 4).

3.1.8.3 Current and Future Recreation Needs

The Statewide Comprehensive Outdoor Recreation Plan and related plans are addressed in Section 4.3.

3.1.8.4 National or Wild and Scenic Rivers

The Cuyahoga River is not listed in the National Wild and Scenic Rivers System. A portion of the Upper Cuyahoga River upstream of State Route 14 in Portage County is a State Scenic River. This portion of the river is about ten miles northwest of the proposed project.

3.1.8.5 National Trails System and Wilderness Areas

There are no wilderness areas in the project area. The National Trails System has a designated trail in the State of Ohio, the North Country National Scenic Trail. The trail passes through the southern and western parts of the State of Ohio and is not in the project area.

The 1,300-mile long Buckeye Trail winds around Ohio, including a pass through Cuyahoga Valley National Park. The project area is approximately 4 miles from the closest part of the Buckeye Trail. There is an extensive trail system in the Cuyahoga Valley National Park, which is about five miles northwest of the project area.

These trails will not be affected by the proposed project, because they are not in the project area. However, the access road to the dam is used as a trail in Gorge Metro Park, and use of this trail may be limited for a short time during project construction.

3.1.9 Aesthetic Resources

The area surrounding the project site (the municipalities of Cuyahoga Falls and Akron) is primarily urbanized and characterized by industry, commercial development, and high population densities. Residential development at the top of the Gorge limits the view for the public, but excellent visibility is afforded at the bridges crossing the gorge. From within the gorge and the Gorge Metro Park, the river, woods, cliffs and impoundment are an attractive contrast to the surrounding developed areas. The Gorge Metro Park is an important aesthetic asset to the surrounding

communities. The dam itself can be seen from a viewing area in the park (Figure 4 and Appendix C). Water spilling over the dam attracts people.

The proposed project is expected to have a small, but overall beneficial impact on the aesthetics of the area. The positive impacts will be associated with the removal of an experimental turbine and related equipment at the dam. This turbine and equipment are not enclosed and are not aesthetically consistent with the surroundings. The proposed facilities will be less obtrusive and will be designed to blend with the surroundings. The dam itself will not be significantly changed. The project will provide a minimum flow of 25 cfs to the dam's spillway when the river flow is sufficient. This will provide a minimum of approximately two inches of water over the spillway.

3.1.10 Cultural Resources

The Gorge Metro Park includes Chuckery Race, named for an incomplete water diversion planned in the 1800s. Chuckery Race is listed on the National Register of Historic Places. Chuckery Race is located several miles upstream of the project area. The project will not have any effects on Chuckery Race because it is not in the project area.

Mary Campbell "Cave" (actually a cliff with an overhang) is located in Gorge Park on the north side of the river (see Figure 4). The cave is not on the National Register of Historic Places, but there is a commemorative plaque at the cave and it is of historic interest. The project will not have any effects on the cave because it is not in the project area.

3.1.11 Socio-Economic Resources

Employment

According to the U.S. Census Bureau's 1997 Economic Census, the largest sectors providing full-time employment to citizens of Summit County are: manufacturing, retail trade, accommodation and food services, administrative and support, waste management, and remediation services. The April 2002 Ohio Bureau of Employment Services estimate for the unemployment rate in Summit County was 3.6%.

The unemployment rate for the City of Akron was 5.7% as of October 2002. The largest employers of full-time employees in Cuyahoga Falls included the General Hospital, the School District, GoJo Industries (Skin Care Products), and the City of Cuyahoga Falls itself. The rubber industry, area hospitals, and the University of Akron continue to be major employers in the City of Akron. The median income for a family in the City of Akron is approximately \$39,381. The median income for a family in Cuyahoga Falls is approximately \$52,300.

Population

The July 2003 Northeast Ohio Four County Regional Planning Organization census estimate for Akron puts the population at 212,215. The 2000 estimate for Cuyahoga Falls was 49,374.

Public Services (Police/ Fire And Rescue/ Education)¹⁷

The City of Akron Police Department had 485 staff members in 2003. The City of Cuyahoga Falls had 98 full-time police personnel, and 4 fire stations with 84 full-time fire personnel in 2004. The Akron Fire Department is budgeted for 386 uniformed employees, and has thirteen fire stations. The City of Akron's highway and water/sewer system contains 878 miles of streets and highways, 114 bridges, over 1055 miles of sewer lying beneath the City, and 1,010 miles of water lines. The water/sewer treatment plant, pumping stations, reservoirs, and other city-maintained equipment support the system.

3.1.12 Tribal Resources

The Native American Consultation Database maintained by the National Park Service identified five tribes associated with Summit County, Ohio. The five tribes identified are listed below. Contact information is included in the attached address list:

Delaware Nation, Oklahoma

Forest County Potawatomi Community, Wisconsin

Hannahville Indian Community, Michigan

Ottawa Tribe of Oklahoma

Wyandotte Nation, Oklahoma

The Delaware Nation and the Hannahville Indian Community responded to these consultations. They did not identify any concerns specific to the project area. Their responses are in Appendix G.

3.2 EXISTING DATA OR STUDIES

The Ohio Edison Gorge Dam has not been used for power generation since the 1950s. There are no existing studies specific to operations at this dam that are relevant to the proposed project. A bathymetric survey of the impoundment

¹⁷ Information for this section was obtained from the City of Akron 2003 Annual Police Department Report, the City of Cuyahoga Falls website (www.cityofcf.com), and the City of Akron's Citizens Handbook (<http://ci.akron.oh.us/asp/Handbook.asp>).

was completed in 1918; the survey is presented in Appendix I. There are, however, studies and data specific to the location of the project area; these are summarized in appropriate sections of this PAD.

3.3 KNOWN OR POTENTIAL ADVERSE IMPACTS

This section reviews each of the categories of resources described in Section 3.1, and evaluates known or potential impacts of the proposed project on these resources. This section also identifies resources for which insufficient information is available to evaluate potential impacts. The proposed project may have beneficial, adverse or no impacts on various resources. Table 5 summarizes these impacts.

Regulations for implementing the National Environmental Policy Act (NEPA) at 40 CFR 1508 require consideration of both context and intensity of the impacts in evaluating the significance of potential impacts. The significance of an action must be evaluated in the contexts of society as a whole, the affected region, the affected interests and the locality. The NEPA regulations identify general factors that are considered in evaluating the significance of an impact or potential impact:

- Impacts may be both beneficial and adverse;
- Degree to which the action affects public health and safety;
- Unique characteristics of the area;
- Controversy regarding the effects;
- Uncertainty of effects;
- Precedents that may be set;
- Relationship to other actions and cumulative impacts;
- Degree to which project may affect cultural resources;
- Degree to which the project may affect protected species or their habitat; and
- Whether action threatens a violation of federal, state, or local law.

3.3.1 River Basin and Cumulative Impacts

The Ohio Edison Gorge Dam has existed since 1912 and First Energy, which owns the dam, intends to maintain it. Restoration of hydroelectric generation as proposed will provide beneficial use of an existing dam. Restoration of hydroelectric generation will not significantly affect the river basin or contribute to cumulative impacts because the

river flow and fish passage will not change significantly. All of the additional impacts associated with restoration of hydroelectric generation will be limited to the project area.

3.3.2 Geology and Soils

The project may have a minor impact on bedrock at the powerhouse site. Some bedrock may have to be removed to construct the powerhouse. This is not a significant impact because the area will be quite small.

Construction of the project has the potential to cause soil erosion. Soils in the project area are prone to erosion, and the slopes are very steep in many areas. Impacts on soil are potentially significant because soil erosion could impact the river and there are federal and state regulations regarding non-point sources of pollution from construction sites.

3.3.3 Water Resources

This project will have an impact on the volume of water flowing through about 600 feet of the Cuyahoga River downstream of the dam. Some of the flow (33 to 500 cfs, which is operating range of the turbines) will be diverted from the river to the penstock, the powerhouse and then back to the river. The project proposes to provide a minimum flow of approximately 25 cfs over the spillway as mitigation for this impact.

The river water is oxygenated as it flows over the spillway. The turbines selected for this project will also add oxygen to the water, and will mitigate the potential for returning water low in dissolved oxygen to the river after it flows through the turbines. The turbine selection will maintain the beneficial impacts of the dam on oxygen concentrations in the river downstream of the dam.

The impoundment will continue to remove sediments from the water, although this benefit is not due to the proposed project and will not be affected by the proposed project.

The proposed project may have an indirect adverse impact on water quality. The project will reduce river flow to the area between the dam and the powerhouse and this will reduce the capacity of the part of the river to assimilate pollutants that discharge from the CSO in this area. This may not be significant since the CSO normally would only discharge when flows are high. The available information is not sufficient to evaluate the significance of this potential adverse effect.

3.3.4 Fish and Aquatic Resources

The selected turbines will maintain beneficial impacts of the dam on oxygen concentrations and fish and aquatic resources downstream of the dam.

This project has the potential to adversely affect fish populations by causing fish to be impinged on intake screens, or to be entrained into the turbines. Both impingement and entrainment can kill fish. Fish populations can be affected if sufficient numbers of fish are killed.

Smaller aquatic organisms, such as phytoplankton and zooplankton, will be entrained in the turbines. However, such small organisms are not subject to damage in the turbines because they are so small. They pass through without being struck by turbine blades. Some mortality can result to small organisms due to pressure changes, but this mortality is relatively small compared to the reproductive potential of plankton.

The project will not change upstream fish passage through the area, which will still be blocked by the dam. The falls that were located in the gorge before the dam was built probably also limited fish passage. There are other dams upstream and downstream of the Ohio Edison Gorge Dam that limit fish passage (Table 2).

The project has potential to decrease the area of habitat for fish and benthic macro-invertebrates in the short section of river between the powerhouse and the dam by decreasing flow to this area.

3.3.5 Wildlife and Botanical Resources

This project will require removal of approximately 3 acres of vegetation, including mature trees, for the construction of the powerhouse, access road, penstock and transmission line. This impact will be very small in relation to urbanization in the general area, and to the 144-acre Gorge Metro Park. The project will provide nest boxes to mitigate this loss of habitat and to enhance the existing habitat. This project will not have a significant impact on wildlife since it will not affect a significant area of wildlife habitat and will include measures to mitigate unavoidable impacts.

3.3.6 Wetland, Riparian and Littoral Habitat

This project will not affect known wetlands or littoral habitat. Wetlands are not present in the area of the project, based on available information. The potential impacts on wetlands are not significant because wetlands are not known to be present. Section 4.2 recommends a wetland delineation to confirm the absence of wetlands in the project area. The project includes run-of-the-river operations to maintain water levels in the impoundment at a fairly constant level. The major source of variation in water levels, which could affect littoral and riparian habitat in the impoundment, will be river flow, not plant operations. Construction of the tailrace for the powerhouse will affect only a very small area of riparian habitat; thus potential impacts on riparian areas will not be significant. Furthermore, the impact on littoral habitats will be very small due to measures (run-of-river operations) that will mitigate this potential impact.

3.3.7 Rare, Threatened and Endangered Species

This project will not affect any known occurrences of rare, threatened, or endangered species. It is possible, however, that protected species exist in the project area but have yet to be observed and recorded. Three species that may exist in the project area include the Northern Monkshood, Northern Wood-reed, and the Indiana Bat. The project may affect a small area (approximately three acres) of habitat for these species.

3.3.8 Recreation and Land Use

Public use of the access road to the dam may be restricted for short times during the six to seven month construction period for safety reasons. The project will not affect recreational facilities in the Gorge Metro Park or use of those facilities, with the exception of kayaking. The access road restriction will be temporary and of short duration, and is not a significant impact.

This project may have an adverse impact on kayaking because it will reduce the flow in about 600 feet of the river in an area considered favorable by kayakers. The park issued six special-use permits for kayaking in 2004. This will affect somewhat more than six people since the permits may be issued to small groups.

This project will not have any significant impact on land use. The dam and impoundment already exist. The additional structures are not significant in terms of overall land use. The proposed land uses are consistent with existing and historical uses in the project area. The project is too small to cause significant secondary changes in land use such as commercial or residential development.

3.3.9 Aesthetic Resources

This project will result in overall improvements in the appearance of facilities at the dam. The ugly experimental turbine and related structures will be removed. New structures will be more aesthetically consistent with the surroundings and landscaping will minimize the impacts of these structures. The impacts of the project on the aesthetics of water spilling over the dam will be minimized by maintaining the minimum flow over the dam.

3.3.10 Cultural Resources

This project will not affect any known cultural resources because none are known to be present in the project area. The FERC will initiate consultation with the State Historic Preservation Office (SHPO), which may provide additional information regarding cultural resources in the project area and potential impacts to those resources.

3.3.11 Socio-Economic Resources

This project will have socio-economic benefits. This project will generate electrical energy for approximately 2,000 homes without burning fossil fuels, creating solid wastes, discharging wastewater, or resulting in air emissions. There will also be benefits associated with the distributed generation of electricity in the event of major power failures. The electricity generated by this facility could provide emergency power for the local community in such an event. Ultimately, the project will be helping to reduce the dependence on foreign fossil fuels.

MHC is a local company, so economic benefits will remain in the area.

3.3.12 Tribal Resources

The tribes that responded to the request for information did not identify any tribal resources specific to the project area. Both responding tribes requested to be notified if significant tribal resources were discovered. The letters from the tribes are provided in Appendix G.

3.4 PROTECTION OF, MITIGATING IMPACTS TO, OR ENHANCING RESOURCES

Section 3.3 identified resources that will not be affected significantly, resources that will benefit, and resources that could be adversely affected by the project if additional measures to protect resources, mitigate impacts, or to enhance resources are not incorporated into project plans and operations. This section provides a summary of and a response to areas identified in Section 3.3 as potentially requiring protection or mitigating action.

The resources that will not be significantly affected based on current information are:

- Geology
- Water quality (dissolved oxygen concentrations)
- Wildlife
- Wetland, riparian and littoral habitat
- Known occurrences of rare, threatened and endangered species
- Recreation (other than kayaking)
- Land use
- Cultural resources (pending FERC consultation with the SHPO)
- Tribal resources

Resources that will potentially benefit if this project is implemented are:

- Water quantity (impoundment water levels)
- Aesthetics
- Socio-economics

Resources that could be adversely affected if appropriate measures are not incorporated into project plans and operations are:

- Soil
- Water quantity (diversion of portion of flow from 600 feet of river)
- Water quality (indirect effects of CSO)
- Fish and aquatic resources
- Botanical resources
- Potential habitat for threatened and endangered species
- Recreation (possibly kayaking)
- Aesthetic resources

The following sections focus on each of these resources that could be adversely affected by the proposed project. The sections propose additional measures to protect resources, mitigate impacts, or enhance the resources (a summary is provided in Table 5). In some cases, additional studies are needed to allow better evaluation of potential impacts; these are identified in Section 4.

3.4.1 Geology and Soil

Minimizing the “footprint” of the project will mitigate soil impacts. This will be done by using existing facilities as much as possible and by implementing best management practices to prevent soil erosion and to control sedimentation. The project will use the existing access road, transmission line routes, dam and penstock cradles as much as possible. Soil disturbances will be mostly associated with construction of the powerhouse, the new penstock, and the access road to the powerhouse. Ohio state law and the Federal Clean Water Act both require National Pollutant Discharge Elimination System (NPDES) for construction activities. The project will obtain this permit, which will require prudent soil erosion and sedimentation control measures and inspections to ensure these measures are properly implemented and are effective.

Slope stability in the project area requires special consideration. The project will consult with geotechnical engineers to ensure that slope stability is assessed, and preventative measures are incorporated into project plans and the construction process.

3.4.2 Water Resources

The project proposes to use run-of-the-river operations defined by minimum impoundment elevations that consider the hydraulic capacities and the design of project facilities and the Ohio Edison Gorge Dam. This means that the inflow to the impoundment approximately equals the outflow at any time (accounting for travel time and channel morphology). The impoundment elevation limits will maintain approximate variations in flows entering and leaving the impoundment (these flows are not necessarily “natural” since there are other impoundments and flow regulation upstream of the dam). Run-of-the-river operation helps protect aquatic habitat in shallow areas by minimizing dewatering of these areas.

Site-specific impoundment elevation limits need to be developed. These elevations should recognize that the design of the facility somewhat limits the ability to regulate high water levels associated with high flows (the dam has no gates).

The project will divert a portion of the river flow past about 600 feet of the river, which will cause the flow in that section of the river to decrease. This may have adverse effects on the aquatic community in this section of the river. The minimum flow needed to protect these resources needs to be determined.

The crossflow turbines were selected in part to potentially add dissolved oxygen to the water. This will mitigate potentially adverse impacts of the project on dissolved oxygen concentrations downstream of the powerhouse. Crossflow turbines are similar to a paddle wheel in design. Unlike reaction turbines typically used in most hydroelectric projects in the United States, crossflow turbines provide a slow speed tumbling of water at atmospheric pressure. This tends to cool the water and add dissolved oxygen. Reaction turbines tend to heat the water and reduce oxygen concentrations. The project selected crossflow technology for these reasons.

3.4.3 Fish and Aquatic Resources

Most fish migrate to some degree. The Ohio Edison Gorge Dam prevents passage of migratory fish. Anadromous fish, like steelhead, are fish that swim up rivers to spawn. Steelhead are not stocked in the Cuyahoga river, but some do stray into the river for spawning. The Canal Diversion Dam, which is about 25 miles downstream of the Ohio Edison Gorge Dam, prevents passage of most steelhead. It is probable that the falls and rapids that exist near the Ohio Edison Gorge Dam before the dam was built also prevented, or at least minimized, upstream fish passage and the dam has probably had little impact on the upstream passage of fish. There are also two other dams within a few miles upstream of the Ohio Edison Gorge Dam that reduce passage of migratory fish.

Fish impingement can be effectively reduced to very low levels by design of intake screens to reduce the intake velocity. This is commonly done at larger power plants that use cooling water. This project will incorporate intake screens that minimize the intake velocity to mitigate impacts related to fish impingement.

Entrainment of fish can also be effectively reduced to very low levels by properly designing the mesh size of the intake screens. Such screens would prevent all but very small fish from being entrained. This specific design aspect of the screens needs to be determined.

3.4.4 Wildlife and Botanical Resources

Impacts to wildlife will not be significant because of the small size of the project and use of existing facilities. The project can enhance wildlife resources by providing nest structures for birds and other wildlife. The specifications for nest boxes can be developed in consultation with park staff.

The project will require the removal of about 3 acres of trees and other vegetation for construction of the powerhouse, access road, penstock, and transmission lines. However, the project will minimize the removal of vegetation by using existing facilities as much as possible and by keeping the footprint of the project as small as possible. Appropriate landscaping and planting native vegetation can also mitigate potentially negative effects from the removal of vegetation during construction activities. The project will work with park staff to identify appropriate landscaping and native species.

3.4.5 Wetland, Riparian, and Littoral Habitat

The project will not have a significant impact on wetlands, riparian, or littoral habitat based on current information. The evaluation regarding wetlands is based on a December 2004 site visit; wetlands were not observed in the project area. However, December is not the preferred time for formal wetland delineations because plants are not growing. A formal wetland delineation of the facility area (Figure 5) is needed to complete this evaluation relative to wetlands. The wetland delineation should be done during the growing season and should follow the methods outlined in the *Corps of Engineers Wetland Delineation Manual* (1987).

3.4.6 Rare, Threatened, and Endangered Species

Protected species are not known to occur in the project area, however surveys may have been incomplete or out of date. Therefore a survey for the Northern Monkshood and Northern Wood-reed is needed to better evaluate impacts on protected species in the project area. These surveys must be done at the appropriate times when these plants are visible and can be properly identified, and should be done using methods consistent with those of the Ohio Natural Features Inventory.

Impacts to the Indiana Bat, which may also be present in the project area, can be effectively mitigated by minimizing the removal of larger trees, and by removing these trees during times when they are not likely to be inhabited by the animal.

3.4.7 Recreation and Land Use

The project will not have a significant impact on land use because the change in land use will be in a small (3 acre) area.

The project will not affect recreational resources except possibly kayakers who use the river immediately downstream of the dam. The project will consider working with the park and local kayaking organizations to support scheduled, sponsored kayaking events. Timed releases of water over the spillway can provide periods of higher flows to kayakers. The need for these events, as well as their timing and frequency need to be determined. Furthermore, necessary measures that will ensure the safety of participants and park features and facilities during such events need to be determined.

Standard safety precautions to protect the public will be used during construction to mitigate impacts on public safety.

3.4.8 Aesthetic Resources

Removal of the experimental equipment will have beneficial impacts on aesthetics. The project will maintain a minimum flow over the spillway, which will minimize impacts on aesthetics associated with spilling water over the dam. Construction of the new powerhouse and penstock has potential to have negative impact on aesthetics of the area. Important considerations are landscaping, plantings and design and colors of the powerhouse. Landscaping and planting are also addressed in Section 3.4.5. The design and colors used for the powerhouse and penstock will be selected to have minimal impact on aesthetics of the area. The project can work with Metro Park staff to select the design and colors.

3.4.9 Cultural Resources

A consultation with the State Historic Preservation Office needs to be completed. Normal measures to protect cultural resources found during construction can be used to mitigate impacts to cultural resources that may be found during construction. Such measures would include the stoppage or relocation of work if human remains or artifacts were found. In the event of such a discovery, the State Historic Preservation Office would be notified in addition to Native American tribes as necessary.

3.4.9 Tribal Resources

Because contacted tribes were unaware of any tribal resources in the project area, no additional measures other than those in the Section 3.4.9 regarding cultural resources encountered during construction are needed.

4. PRELIMINARY ISSUES AND STUDIES LIST

This section identifies preliminary resource issues and studies that need to be addressed in subsequent phases of the Integrated Licensing Process for this project to restore generating capacity to the Ohio Edison Gorge Dam. Table 5 provides a summary of each resource, preliminary issues, and study needs.

Figure 2 provides a review of the Integrated Licensing Process regulations, including those relevant to study requests, and Appendix H provides suggestions for study requests that are intended to facilitate study plan development.

4.1 ISSUES PERTAINING TO THE IDENTIFIED RESOURCES

Some of the identified issues can be addressed through consultation with resource agencies and other parties. Other issues will require site specific studies or information gathering. The issues that can be addressed through consultation are:

8. A site-specific definition of run-of-the-river operations and compliance standards for water levels in the impoundment need to be identified;
9. Appropriate permitting and controls to mitigate soil erosion and sedimentation need to be identified (normally done through the construction permitting process);
10. The design of fish screens needs to be specified;
11. There is an opportunity to enhance wildlife resources by providing nest boxes. The specifications for nest boxes need to be determined;
12. The project will disturb a small area of vegetation and replanting/landscaping needs to be specified;
13. The means to avoid adverse impacts to Indiana Bats (such as timing of construction) need to be identified;
14. Consultation with the State Historic Preservation Office needs to be completed after this preliminary application document is submitted.

Issues that require site specific studies or additional information gathering are:

8. Soils are unstable and there may be geotechnical issues;
9. The extent of sedimentation near the intake is not known;
10. Combined sewer discharges from local municipalities may adversely affect water quality in the river between the dam and powerhouse;

11. The project will reduce flows and may affect aquatic habitat in a short (600 feet) section of the river;
12. The absence of wetlands in the project area needs to be confirmed;
13. The project area has potential habitat for two protected plant species; and
14. The project may reduce flow available to kayakers in a 600-foot section of the river.

4.2 POTENTIAL STUDIES OR INFORMATION-GATHERING ASSOCIATED WITH IDENTIFIED ISSUES

Potential studies or information gathering associated with identified issues are:

8. Project construction plans should be evaluated by a geotechnical engineer and appropriate recommendations regarding slope stability should be incorporated into project plans;
9. A bathymetric study of the impoundment near the intake is needed to determine the extent of sedimentation and to support intake design and permitting.
10. A study is needed to identify minimum spillway flows to protect aquatic resources between the dam and powerhouse;
11. A study of CSO discharges in relation to river flow between the dam and powerhouse is needed to evaluate impacts of the CSO discharges on water quality;
12. A wetland delineation in the project area needs to be completed;
13. Surveys for the Northern Monkshood and Northern Wood-reed need to be completed in the project area;
14. The need for, safety of, frequency, and the flows of extra spillway releases for kayakers needs to be determined.

4.3 RELEVANT RESOURCE MANAGEMENT PLANS

The Ohio SCORP (Statewide Comprehensive Outdoor Recreation Plan)¹⁸ identifies existing resources and systems, outdoor recreation participation patterns and trends, issues and problems, and recommended solutions to these problems for the State of Ohio. However, the plan does not discuss the specific area of the proposed project.

The SCORP did mention the Ohio & Erie Canal National Heritage Corridor (OECNHC), designated in 1996 under the Omnibus parks legislation. The OECNHC is an area that stretches approximately 87 miles from Zoar in Tuscarawas County to Cleveland's lakefront. The OECNHC represents a new kind of park concept encompassing a mix of public

¹⁸ The 2003 Ohio Statewide Comprehensive Outdoor Recreation Plan (SCORP) produced by the Ohio Department of Natural Resources and referred to in this section is available at <http://www.ohiodnr.com/trailsfund/pdf/SCORP.pdf>

and private lands, buildings, resources, and communities. The intent of the designation is to help local entities protect and use historic, cultural, and recreational resources for community benefit while raising regional and natural awareness of their unique importance. The OECNHC includes the Cuyahoga Valley National Park, which is downstream from the project location.

The SCORP makes a general recommendation that recreation providers should promote the marking, modification, and/or removal of dams to enhance safety for water-based recreation users. Removal of the Ohio Edison Gorge Dam is not being considered, however, and the Metro Park does not allow boating or swimming in the impoundment, so this general recommendation in the SCORP does not directly apply to this project.

The OECNHC management plan was also reviewed during the preparation of this document. The management plan was developed to provide recommendations related to the conservation, funding, management, and development of the corridor. Again, there was no mention made of the project location.

The Ohio SCORP goes on to mention dams throughout Ohio in the context of the Army Corps of Engineers, which has constructed many multi-purpose reservoirs and lock and dam structures that were said to have greatly enhanced water-based recreation opportunities in the state. The primary purposes for these construction activities were noted to include flood control, hydropower, water supply, and environmental and outdoor recreation. On the topic of dams, the Ohio SCORP also spoke of low-head dams in the context of boating on rivers and streams, stating that more river and stream access is needed and that low-head dams are dangerous to boaters. It was also noted that boaters also want better facilities at existing access sites to rivers and streams.

Another report reviewed in the development of this document was the Boating on Ohio Waterways (BOW) Plan produced by the Ohio Department of Natural Resources in May 2004¹⁹. The BOW plan assessed boater wants and needs; the ease of boating access to Ohio lakes and rivers via launch ramps, marinas, and put-in areas; current regulations; and opportunities to create a more favorable boating environment. The BOW plan did not address the project location.

Yet another report considered for review during the development of this document was the Green River Basin Comprehensive Coordinated Joint Plan²⁰. This report focusing on the Green River Basin was geographically irrelevant to this project.

¹⁹ This May 2004 document is available online at the following address: <http://www.dnr.state.oh.us/watercraft/plan/default.htm>

²⁰ This 18-page document, produced by the Ohio River Basin Commission on October 21, 1976, concerned a different geographical area than that in which the proposed project exists.

5. SUMMARY OF CONTACTS AND REFERENCES

5.1 TELEPHONE AND EMAIL CONTACTS

- Mike Johnson, Natural Resources Manager for Metro Parks Serving Summit County, (330-634-0287). Botanical survey and protected species information.
- Dennis Mishne, Ohio Environmental Protection Agency, Water Division, (614-836-8775). Information regarding fish populations, benthic macro-invertebrates, fish tissue analyses, and sediment data.
- Marianne Silagy, Ohio Environmental Protection Agency, Water Division, (614-644-2891). Water chemistry data.
- Steve Tuckerman, Ohio Environmental Protection Agency, Water Division () Provided information on dams in the Cuyahoga River mainstream.
- _____, Ohio Department of Natural Resources, Division of Water, Dam Safety. (614-265-6731). Provided information on dams in the Cuyahoga River mainstream.

5.2 MEETINGS WITH INTERESTED PARTIES

Metro Parks Serving Summit County

- March 31, 2004. Meetings with park commissioners to explain the permit process and introduce the project. Park commissioners requested a 60-day extension to file comments on the Permit Application, which was granted.
- March 15, 2004. Meeting to introduce the project to park management.
- April 20, 2004. Meeting with park management to discuss plans to meet with the local agencies.
- November 22, 2004. Meeting with park management to explain the easement granted by Ohio Edison to the project and to discuss the proposed development process. Park management assigned an individual to work with the project team.
- Ohio EPA, May 4, 2004. Met with David Lee and Steve Tuckerman to present the project. Location, construction, and operation were discussed. A timetable was presented and discussed.

Ohio DNR- Fish and Wildlife Division

- May 5, 2004. Met with Phil Hillman to present the project. Location, construction, and operations were discussed.

Agencies, Public Interest Groups and Interested Parties

- April 12, 2005. Presentation by FERC and AHS to various agencies and interested parties regarding the Integrated Licensing Process.

Cuyahoga River Remedial Action Plan

- May 27, 2004. Presented the project to the board. Economics, location, construction, and operations were discussed.

5.3 INTERNET AND OTHER REFERENCES (BY SECTION OF REPORT)

Existing Environment

<http://www.dnr.state.oh.us/dnap/physiographic.htm>

Geology and Soils

http://www.dnr.state.oh.us/water/gwppmaps/PDF_GISMap_wReport/Summit_PP_report_wMap.pdf

<http://www.dnr.state.oh.us/geosurvey/pdf/sg3map.pdf>.

Drainage Area

<http://www.sg.ohio-state.edu/Project/Projectrept.cfm?ProjectNumber=R/ER-68-PD>

<http://www.dnr.state.oh.us/water/pubs/reports/Bulletin47.pdf>

Flow and Flow Duration

<http://www.dnr.state.oh.us/water/pubs/reports/Bulletin47.pdf>.

Existing and Proposed Uses of Project Waters

<http://www.epa.state.oh.us/dsw/tmdl/CuyahogaRiverLowerTMDL.html>

<http://www.epa.state.oh.us/dsw/rules/01-07.pdf>

Water Quality Standards

<http://www.cuyahogariverrap.org/CuyahogaRive401rpt.pdf>.

www.epa.state.oh.us/dsw/tmdl/CuyahogaRiverLowerTMDL.html

<http://www.epa.state.oh.us/dsw/wqs/Erieval10.pdf>

<http://www.epa.gov/ost/standards/wqslibrary/oh/oh-5-3745-1-07-wqs.pdf>

<http://www.epa.state.oh.us.dsw/rules/01-33.pdf>

Downstream Gradients Affected by Proposed Project

www.americanwhitewater.org/rivers/id/1467

Existing Fish and Aquatic Communities

http://www.epa.state.oh.us/dsw/documents/Ohio305b2000_app.pdf

Essential Fish Habitat

http://www.nmfs.noaa.gov/habitat/habitatprotection/efh_designations.htm

Upland Habitats

http://www.us-parks.com/cuyahoga_valley/environment.html

Wetlands

<http://wetlandsfws.er.usgs.gov/wtlnds/viewer.htm>

Socio-Economic Resources

www.cityofcf.com
<http://ci.akron.oh.us/asp/Handbook.asp>

River Basin Description

<http://www.dnr.state.oh.us/water/pubs/reports/Bulletin47.pdf>

Relevant Resource Management Plans

<http://www.ohiodnr.com/trailsfund/pdf/SCORP.pdf>
<http://www.dnr.state.oh.us/watercraft/plan/default.htm>

Ohio River Basin Commission. 1976. Green River Basin Comprehensive Coordinated Joint Plan. Cincinnati, Ohio. October 21, 1976. 18 pp. and appendices.

5.4 CONSULTATION LETTERS (SEE APPENDIX G)

5.3.1 Consultation letters received:

Hannahville Indian Community
Delaware Nation

5.3.2 Consultation letters sent:

U. S. Fish and Wildlife Service
Delaware Nation, Oklahoma

Forest County Potawatomi Community, Wisconsin

Hannahville Indian Community, Michigan

Ottawa Tribe of Oklahoma

Wyandotte Nation, Oklahoma

FIGURES

APPENDIX A

NOTICE OF INTENT AND PRELIMINARY PERMIT

APPENDIX B

DISTRIBUTION LIST

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PHOTOGRAPHS OF EXISTING STRUCTURES AND PROJECT AREA

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OHIO NATURAL HERITAGE DATABASE

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CORRESPONDENCE

APPENDIX H

SUGGESTED CONTENTS OF A STUDY REQUEST

APPENDIX I

SUPPORTING DOCUMENTS (COMPACT DISK)
