SUPPLEMENTAL

RECORD OF DECISION

for the

Ballville Dam Project

Final Supplemental Environmental Impact Statement

U.S. Fish and Wildlife Service

February 2017

Table of Contents

Introduction 1

Purpose and Need 1

Project Area 2

Alternatives 3

Public Involvement 8

Service Decision 10

Environmentally Preferred Alternative 10

Signature 11

Literature Cited 12

Appendix A. Public Comments on the Final SEIS

Appendix B. Response to Comments Received on the Final SEIS

Appendix C. December 22, 2016 Letter from the City of Fremont

Introduction

This Supplemental Record of Decision (Supplemental ROD) was prepared by the U.S. Fish and Wildlife Service (Service) in compliance with to the National Environmental Policy Act of 1969, as amended (NEPA). The purpose of this Supplemental ROD is to document the decision of the Service in response to the proposed removal of the Ballville Dam under the auspices of the Great Lakes Restoration Initiative (GLRI) through the Great Lakes Fish and Wildlife Restoration Act (Act)(16 U.S.C. 941 §4321 et seq.). The Service has based its decision on the analysis completed in the Draft Environmental Impact Statement (DEIS) released on January 24, 2014 (79 FR 4354), the Final Environmental Impact Statement (FEIS) released on August 1, 2014 (79 FR 44856), the Draft Supplemental Environmental Impact Statement (Draft SEIS) released on February 26, 2016 (91 FR 9877), and the Final Supplemental Environmental Impact Statement (Final SEIS) released on October 28, 2016 (81 FR 75142).

This Supplemental ROD: (1) documents the Service's decision and presents the rationale for the decision; (2) identifies the alternatives considered in the Final EIS and Final SEIS in reaching the decision; and (3) states whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted, and if not, why they were not (40 CFR§ 1505.2).

Documents used in the preparation of this Supplemental ROD include the following:

- Draft Environmental Impact Statement for the Ballville Dam Project (DEIS) and appendices (Service 2014),
- Final Environmental Impact Statement for the Ballville Dam Project (FEIS) and appendices (Service 2014a),
- Programmatic Agreement (PA) (Service 2014b),
- Draft Supplemental Environmental Impact Statement (Draft SEIS) (Service 2016), and
- Final Supplemental Environmental Impact Statement (Final SEIS) and appendices (Service 2016a).

All of these documents are incorporated by reference.

Purpose and Need

The purposes for the issuance of federal funds are to restore natural hydrological processes over a 40 mile (64.4 kilometer) stretch of the Sandusky River, re-open fish passage to 22 miles (35.4 kilometers) of new habitat, restore flow conditions for fish access to new habitat above the impoundment, and improve overall conditions for native fish communities in the Sandusky River system both upstream and downstream of the Ballville Dam, restoring self-sustaining fish resources. These actions would support the goals of the Act and the GLRI.

Issuance of federal funds address the following needs related to the current conditions of the Sandusky River:

- Restore and expand upon self-sustaining fishery resources within the lower Sandusky River by providing fish passage in the Sandusky River at the Ballville Dam impoundment site in both the upstream and downstream directions.

- Restore system connectivity and natural hydrologic processes between the impounded area upstream of Ballville Dam and the lower Sandusky River, which would restore riverine fish and wildlife habitat, resulting in a net gain in the amount of free-flowing riverine habitat.

Meeting the needs listed above would likely address conditions or objectives of agreements currently in place between the City and other local, state, and federal agencies. Those may include, but are not limited to:

- Eliminating flood risks to the City of Fremont.

- Eliminating liabilities associated with the current safety conditions of the Ballville Dam including potential threats to private properties both upstream and downstream of Ballville Dam.

- Managing downstream movement of stored impoundment sediments.

- Achieving Aquatic Life Habitat Use-Attainment (as defined by OEPA in §3745-1-07 of Ohio Administrative Code) for the lower Sandusky River.

- Improving and increasing aquatic habitat availability in the lower Sandusky River downstream of the Ballville Dam site.

Project Area

The Ballville Dam was built on the Sandusky River between 1911 and 1913 in Ballville Township, approximately 1.5 miles (2.4 kilometers) upstream of the City and approximately 18 river miles (29 kilometers) upstream of Lake Erie. The dam is approximately 407 feet (124.1 meters) long and 34.4 feet (10.5 meters) high. It is composed of left and right spillways on either side of a non-overflow section. The non-overflow section has a penstock, six sluice gates, and a water intake. Additionally, a concrete seawall extends approximately 702 feet (214 meters) upstream from the left abutment. The impounded section of the Sandusky River extends upstream from the dam approximately 2.1 miles (3.4 kilometers) and the surface area is approximately 89.3 acres (36.1 hectares) (ODNR 1981). Various private residences are located with views of the impoundment in several locations. The City's new raw water intake is located approximately 6,000 feet (1,828.8 meters) upstream of the dam and the new raw water reservoir is to the west of the intake. This reservoir became operational in February 2013. The upper extent of the impoundment is located near the Tindall Bridge where Rice Road crosses the Sandusky River.

Alternatives

Thirteen conceptual alternatives were identified during preparation of the DEIS, FEIS, Draft SEIS, and Final SEIS. Nine of those alternatives were eliminated from further analysis because they did not meet the stated goals and objectives of the Service or the Applicant, were thought to heighten flood risks for the local community, or were economically infeasible. The nine alternatives considered but not analyzed in detail include the following: (1) Dam Removal without installation of ice management system; (2) Dam Removal with Active River Ice Management; (3) Rehabilitate Dam, Hydroelectric Generation; (4) Rehabilitate Dam, Use as Flood Control Structure; (5) Dam Removal with Impoundment Dredging; (6) Rehabilitate Dam, Reconfigure Gates for Fish Passage; (7) Rehabilitate Dam, Fish Stocking, Catch and Release; (8) Dam Removal with By-Pass Channel and Impoundment Excavation; and (9) Dam Removal with Sediment Excavation and Beneficial Reuse of Sediments

Four alternatives were carried forward and analyzed in the DEIS, EIS, Draft SEIS, and Final SEIS. Each of these alternatives is described fully in Chapter 3 of the Final SEIS.

Additionally, between the publication of the Draft SEIS and the publication of the Final SEIS, the City constructed the Ice Control Structure (ICS). This was completed from September through October 2016 using their own funding under a separate 404 permit approved by the U.S. Army Corps of Engineers (USACE). The Service has continued to work closely with the City of Fremont (City) on this component of the project to understand its relationship to the Ballville Dam Project as a whole however the Service was not involved with ICS permitting or installation. Planning for the ICS was included in the EIS and SEIS documents for completeness and is again included here to depict the complete suite of actions.

Following is a brief description of the no action as well as the three action alternatives.

Proposed Action – Incremental Dam Removal with Ice Control Structure

The Proposed Action is "Incremental Dam Removal with Ice Control Structure." Removal of the Ballville Dam, and Tucker Dam if needed, over a multi-event period lasting approximately two years would meet the purpose and need for the project. It would provide fish passage in both directions, restore system connectivity and natural hydrologic processes in the lower Sandusky River, manage sediment loads, as well as eliminate the liabilities associated with maintaining the existing structure and achieve biological use attainment for this section of the Sandusky River. The Proposed Action is divided into three phases with each phase having multiple objectives for meeting dam removal goals. In summary, the phases are as follows:

- Phase 1A – Construct access to south abutment
    - Trackhoes and work trucks would be the primary equipment used on the temporary access road. The access road and work pad would be in place for Phase 1B after which it would be restored to its previous condition during Phase 3, including loosening soil and re-planting.

- Phase 1B – Notch Spillway and Impoundment Drawdown
    - Upon completion of Phase 1A, a trackhoe with a mounted impact hammer would be used to notch the dam in order to lower the pool incrementally. The notch would be approximately 20 feet (6.1 meters) wide and result in an immediate drawdown of the impoundment by lowering part of the south spillway elevation from roughly 625 feet to 615 feet (190.5 to 187.5 meters).
- Phase 2A – Sediment Stabilization
    - As a result of Phase 1, approximately 20 acres (8.1 hectares) of sediment currently inundated by the impoundment would be exposed. Stabilization measures would be implemented to reduce potential mobility of the fine-grained sediment. An approved mixture of seed, included containerized trees in some areas, would be broadcast across the exposed surface then mulched to prevent sediment erosion and seed desiccation.
- Phase 2B – Construct Access Ramp Below Dam
    - Access for equipment to remove the dam would be from County Road 501 and from the American Electric Power (AEP) storage yard adjacent to the dam. Once access to the river is established, a temporary work ramp would be constructed to allow access for equipment to reach the top of the south spillway. The ramp would be approximately 250 feet (76.2 meters) in length and rise in elevation from 602 feet (183.5 meters) to 620 feet (189 meters) at the dam. As demolition of the south spillway and non-overflow portion of the dam occur, the temporary work ramp would be lowered.
- Phase 2C – Construct Ice Control Structures (Completed September – October 2016)
    - Access for construction of the ICS would be via the access road of Phase 2B. Construction of the ICS would be located 175 feet (53.3 meters) downstream of, and parallel to, the dam. The ICS consists of 15 piers spaced 21 feet (6.4 meters) apart on centers. Each pier would be constructed in three parts: drilling, reinforcement placement, and concrete placement by tremie method (pumping from the bottom up). During the 50 to 75 year service life of the ICS, various maintenance activities would be required to extend each pier's service years. Periodic removal of debris that may accumulate on the structure may be necessary.
- Phase 2D – Remove Dam
    - Demolition of the dam would be accomplished by a trackhoe accessing the top of the dam and enlarging the original notch from the access ramp. The bottom elevation of the notch would be lowered from elevation 615 feet to 610 feet (187.5 to 185.9 meters), allowing for additional impoundment drawdown to occur while the trackhoe demolishes the top of the remaining south spillway. The Ballville Dam structure is constructed of approximately 15,000 cubic yards (CY) of reinforced concrete consisting of clean concrete materials made from sand and gravel river materials and steel rebar. During demolition, the contractor would be instructed to only use unreinforced concrete in the designated disposal areas. Approximately 1,900 CY of clean concrete rubble fill from the demolition would

remain in the two concrete disposal areas (scour holes) in order to level the river bed.

- Phase 2E – Channel Restoration
    - Restoration of the project area would include approximately 28,000 CY of fill consisting of offsite rock and soil materials as well as some concrete rubble from the demolished dam and leftover access ramp. This material would be used for grading of the new bank benches. The proposed channel grading will consist of (1) placement of fill downstream of the current dam location, and (2) fill cut upstream of the current dam location. Without this grading the river could potentially flank the ICS rendering it ineffective. While it is expected that the river would naturally grade, there may be need to grade a channel lead starting approximately 300 feet (91.4 meters) upstream of the dam. Information regarding in-kind wetland mitigation is discussed in the planting plan and a commitment to reforest the site by planting bare root saplings and containerized trees is made. As restoration is being completed, removal of the remaining temporary ramp from Phase 2B would occur.
- Phase 3A – Monitor Channel Restoration and Water Supply Intake
    - As Phase 2D is being completed, monitoring of the City's reservoir intake, approximately 1.5 river miles (2.4 river kilometers) upstream of the dam, would occur to ensure that, during the lowering of the impoundment, no sediment blockage occurs due to instability of upstream banks. Similarly, stability of River Road would be monitored (just southwest of the intersection of River Road and Buckland Avenue) to ensure that no impacts to infrastructure occur as a result of the pool drawdown. If stabilization is necessary, appropriate measures would be implemented to safeguard both the intake and roadway.
- Phase 3B – Remove any Remaining Dam Material and Modify Seawall
    - After Phase 3A, any material stockpiled in the staging area or along the access road would be removed from the site. The seawall would be reduced in height, mechanically, to grade while keeping the below-grade portion in place. Approximately 195 CY of concrete would be removed and disposed of appropriately.
- Phase 3C – Remove Tucker Dam – if necessary
    - Removal of Ballville Dam and pool is expected to expose the Tucker Dam, if present, either whole or in part. The initial notch of the dam in Phase 1B would lower the impoundment to the point where evidence regarding whether the dam may still be in place and its potential to impact the success of the Proposed Action could be determined. If the Tucker Dam is intact and requires action, the Programmatic Agreement between the Service, Consulting Parties, and the OHPO provides guidance for removal based on its disposition.
- Phase 3D – Monitoring and Adaptive Management
    - The final phase of the project would occur for multiple years post-removal and would involve monitoring and adaptive management. Monitoring of wetland formation, areas of erosion and deposition, water quality, fish diversity and

movement, and mussel relocations would occur to document ecological impacts of dam removal as well as compliance with Section 10/404/401 permits from the USACE and Ohio Environmental Protection Agency (OEPA). Adaptive management could include shaping the floodplain topography to promote the formation of fringe wetlands and/or floodplain wetlands, addressing rilling or gully formation on exposed sediments upstream of the dam, excavation near the reservoir intake to improve flow, or other adaptive actions to address erosion or habitat enhancements as upstream river conditions change.

Total Estimated Cost for the Proposed Alternative is $6.28 Million.

Alternative 1 – No Action Alternative

Under this alternative, federal funding would not be provided to remove the structure. Instead, it is expected that the Ballville Dam would remain in place and require extensive rehabilitation to be compliant with ODNR dam safety standards. The ARCADIS (2005) investigation report provided findings regarding methods and cost estimates to rehabilitate the Ballville Dam. In November 2013, Mannik and Smith Group (MSG) provided an investigation report that updated the findings and cost estimates for rehabilitation of the Ballville Dam based on the 2005 ARCADIS report. Rehabilitation would include repairing the sluice gates, repairing concrete deterioration, sea wall fortification, and development of operations manuals for the rehabilitated structure.

Repair and maintenance of Ballville Dam do not meet the purpose and need for the project. This alternative would correct the progressive deterioration of the dam and associated seawall to comply with state-mandated dam safety requirements however it would not provide fish passage, restore system connectivity or natural hydrologic processes in the lower Sandusky River, or eliminate the liabilities associated with maintaining the existing structure in perpetuity.

Total estimated cost for the No Action Alternative is $8.9 - $10.7 Million.

Alternative 2 – Rehabilitate Dam, Install Fish Passage Structure

Under this alternative, rehabilitation and continued maintenance of Ballville Dam would be required, bringing it into compliance with relevant safety and operation standards, as described in Alternative 1. Additionally a fish elevator structure would be constructed to allow for upstream movements of native fish species. The objective of a fish elevator system would be to provide for upstream passage of fish that are commercially and ecologically important in the Sandusky River. Attraction flow would be necessary to guide fish into the trap entrance at the base of the fish elevator. Modifications of the downstream channel may be appropriate to guide fish to the fish elevator facility if it is deemed necessary based on post project monitoring and passage success. Exclusion of undesirable species would be part of fish elevator operation at Ballville Dam. Removal and disposal of any upstream migrating invasive species such as Asian Carp and Sea Lamprey, if present, would be required at the fish elevator system on Ballville

Dam. Additionally, the fishpass outlet would be located upstream from the north spillway and built to ensure fish can successfully move upstream from the fishpass outlet with minimal risk of being swept downstream and over the spillway.

A fish elevator structure would provide for potential movement of fish upstream of the existing Ballville Dam, and maintain the historical nature of Ballville Dam, but it does not meet the need for restoring system connectivity and natural hydrologic processes both below and immediately above the dam in the Sandusky River Watershed. Thus, federal funding would not be provided to assist in the construction of this alternative. While this alternative does not meet all aspects of the purpose and need for the project, it does provide a reasonable alternative for consideration.

Total estimated cost for the Rehabilitate Dam, Install Fish Passage Structure Alternative is $16.8 - $18.6 Million.

Alternative 3 – Dam Removal with Ice Control Structure

Alternative 3 is similar to the Proposed Alternative, but activities would be divided into only two phases with each phase having multiple objectives for meeting dam removal goals. In summary, the phases are (1) ice control structure construction, dam removal and restoration; and (2) seawall modification and restoration of impoundment area. This alternative would occur over approximately 1 year 6 months and allow less time for sediment stabilization because the dam would be breached and within one week full removal of the dam would occur.

Removal of the Ballville Dam, and Tucker Dam if needed, during a single event would meet the purpose and need for the project. It would provide fish passage in both directions, restore system connectivity and natural hydrologic processes in the lower Sandusky River, help achieve aquatic life habitat use-attainment, as well as eliminate the liabilities associated with the existing structure. In summary, the phases are similar in nature to the Proposed Action, however some key differences are south abutment access work and the initial notch construction. The phases included in this alternative are as follows:

- Phase 1A – Construct Access Ramp Below Dam
- Phase 1B – Construct Ice Control Structures (Completed September – October 2016)
- Phase 1C – Remove Dam
- Phase 1D – Channel Restoration
- Phase 2A – Monitoring Channel Restoration and Water Supply Intake
- Phase 2B – Remove any Remaining Dam Material and Modify Seawall
- Phase 2C – Remove Tucker Dam – if necessary
- Phase 2D – Monitoring and Adaptive Management

Total estimated cost for the Dam Removal with Ice Control Structure Alternative is $6.28 Million.

Public Involvement

Public scoping for the EIS was first initiated in the form of an Notice of Intent (NOI) to conduct a 30-day scoping period for a NEPA decision on the proposed Ballville Dam project and request for comments, published in the Federal Register on October 21, 2011 (75 FR 4840-4842). A public scoping meeting was held in the City of Fremont on October 27, 2011 from 7:00pm to 9:00pm. The meeting included a presentation about the project as well as a question and answer session with members of the Service, ODNR, the City, and Stantec. The Service also conducted outreach by press releases and public notification to inform interested parties or those potentially affected by the Proposed Action and to request comments on the scope of the NEPA analysis. Comments were collected at that meeting, through U.S .mail, by phone, and through the email address Ballvilledam@fws.gov. Although the formal comment period ended November 21, 2011, comments continued to be received. A total of 13 written or verbal comments were submitted during the scoping meeting and comment period identifying issues and concerns about the Proposed Action and the preparation of the DEIS. Comments were received via phone, voicemail, electronic mail, and hardcopy mail and are indexed and summarized in Appendix B of the DEIS and FEIS. These comments were carefully reviewed and categorized into the issues that informed the analysis for the DEIS.

Following the public scoping meeting, the Service sent invitations to potential "Cooperating Agencies" to formally provide input and direction into the project. Partners with a jurisdiction by law or by special expertise in the project were invited to sign a Memorandum of Understanding (MOU) with the Service officially naming them as "Cooperating Agencies" in the project. Those partners invited were the City of Fremont, USACE, ODNR, OEPA, and Ballville Township. Of those, the City, USACE, ODNR, and Ballville Township signed onto an MOU to assist in reviewing draft documents to ensure all parties have an opportunity to assist in project development, working towards the most complete and thorough analysis possible. The Service also sent consultation letters to the six tribal nations identified through the Native American Graves Protection and Repatriation Act (NAGPRA) database (http://grants.cr.nps.gov/nacd/index.cfm) to ensure they also had an opportunity to provide input and comment on the project.

During FEIS development, the Service consulted with the Ohio Historic Preservation Office (OHPO) in conjunction with obligations to fulfill requirements under NEPA, Section 106 of the National Historic Preservation Act (NHPA). The Service sent invitations to potential "Consulting Parties" to provide their input into the NHPA Section 106 components of the project. Partners with a jurisdiction by law or by special expertise in the project were invited. Those partners were the City of Fremont, USACE, ODNR, OEPA, and Ballville Township. The Service also invited two organizations identified as potential "Concurring Parties" to participate in the NHPA Section 106 process and provide their input. The organizations were the Sandusky County Historical Society, and the Rutherford B. Hayes Presidential Center. Both the Consulting and Concurring Parties, under these cultural statutes and regulations, were contacted by letter, follow-up phone calls, and emails. Personal meetings were conducted in order to provide information about the proposed Project and to seek additional input regarding the identification and evaluation of

archaeological and historic resources. A Programmatic Agreement between the OHPO, Service, City of Fremont, USACE, ODNR, and OEPA was developed to address mitigation necessary to record the importance of the Ballville Dam and other historical features.

A Notice of Availability of the DEIS was published in the Federal Register (Service - 79 FR 4354; U.S. EPA - 79 FR 4158), on January 27, 2014 and January 24, 2014, respectively, opening a 60 day public comment period. A public meeting was held in Fremont on February 19, 2014, to provide information on the project, answer questions, and accept public comments. During the comment period on the DEIS, comments were received from 29 individuals, organizations, and agencies, addressing a number of topics including impacts to wetlands, city water supply, ice control structures, sediment disposition, and other topics. The public comments and associated responses are available in Appendix B2 of the FEIS.

A Notice of Availability of the FEIS was published in the Federal Register (Service - 79 FR 44856; U.S. EPA - 79 FR 44769) on August 1, 2014, opening a 30 day public review and comment period. During the review and comment period on the FEIS, comments were received from 28 individuals, organizations, and agencies, addressing a number of topics including impacts to wetlands, city water supply, ice control structures, sediment disposition and phosphorus loading, and other topics. Comments and the Service response on the FEIS are provided in Appendix A of the ROD.

On July 7, 2015, the Sierra Club filed suit in District Court alleging that the City, the Service, and USACE (as the cooperating agency) failed to "lawfully consider and mitigate the environmental harm that the release of the massive quantity of contaminated sediment that has grown behind the dam for over a century will cause downstream to the Sandusky River, Sandusky Bay and Lake Erie following the dam's removal in the manner approved in the EIS and, further," failed to "lawfully consider reasonable alternatives to addressing this sediment in a more environmentally protective manner." Concurrently, the USACE determined that further testing of the sediments impounded by Ballville Dam would be required to complete the Section 404 permitting process. The Service determined that this additional sediment data would add significant new information that could inform our understanding of the impacts of the Proposed Alternative on the environment in the area (Figure 1-1 of the SEIS). As such, the Service worked closely with USACE, ODNR, and the City to develop the plan to complete the testing, reevaluate the potential impacts based on the analytical results, and incorporate it into our decision making process through the completion of a Draft and then Final SEIS.

On February 26, 2016, the Service published the Notice of Availability of the Draft SEIS in the Federal Register (FR 81 9877), opening a 45-day public comment period. Comments were received from individuals, organizations, and agencies, addressing a number of topics. Public comments and responses are available in Appendix B1 and Appendix B2 of the Final SEIS.

On October 28, 2016, the Service published the Notice of Availability of the Final Supplemental Environmental Impact Statement (Final SEIS) released on October 28, 2016 (81 FR 75142). Comments were received from individuals, organizations, and agencies, addressing a number of

topics. Public comments and responses are available Appendices A and B of this Supplemental ROD.

Service Decision

The Service's decision is to adopt the Proposed Alternative. The Proposed Alternative best fulfills the agency's statutory mission and responsibilities while meeting the purpose and need. This decision is also based on the review of the alternatives and their environmental consequences described in the DEIS, FEIS, Draft SEIS, and Final SEIS, indicating the following.

1) Implementation of the Proposed Action would restore natural hydrological processes, reopen fish passage, restore flow conditions, and improve overall conditions for native fish communities in the Sandusky River system both upstream and downstream of the Ballville Dam, restoring self-sustaining fish resources.

2) Implementation of the Proposed Action would also ameliorate flood risks to the City of Fremont; eliminate liabilities associated with the current safety conditions of the Ballville Dam, manage the downstream movement of stored impoundment sediments; and restore Aquatic Life Habitat Use-Attainment for the lower Sandusky River.

3) All of the Mitigation Measures associated with the Proposed Action and itemized in FEIS Table 6-2 will be implemented to ensure protection of various resources. This includes protection of state and federally-listed species such as the Indiana bat and Northern long-eared bat via implementation of tree clearing timeframes or surveys and avoidance measures if the timeframes cannot be followed. Tree clearing that is proposed outside of the timeframes will be coordinated with ODNR.

Environmentally Preferred Alternative

Regulations under NEPA require federal agencies to specify "the alternative or alternatives which were considered to be environmentally preferable" (40 CFR 1505.2(b)). Based on the description of the alternatives considered in detail in the Final SEIS and this Supplemental ROD, we have determined that Proposed Action "Incremental Dam Removal with Ice Control Structure" would cause the least damage to the biological environment and is therefore the environmentally preferred alternative for this proposed Federal action. The Proposed Action addresses many complexities related to this project including, restoring system connectivity and natural hydrologic processes while minimizing impacts due to sediment transport, wetlands, and fish and wildlife habitat shifts.

The Proposed Action differs significantly from Alternative 3 "Dam Removal with Ice Control Structure" in terms of expected environmental impact in that the Proposed Action would occur over a longer time interval, utilizing an initial "notch" to allow the incremental release of sediment and providing the opportunity to work towards sediment stabilization through seeding and planting. This would allow the anticipated impacts to the ecosystem from sediment transport to occur on a scale of months instead of weeks, and give the river more time to adjust to the

restored hydrologic connection. Ideally this method of dam removal will reduce the overall sediment release and most importantly any impacts to downstream habitat and populations.

Signature

ACTING Thomas O. Melius
Regional Director, Region 3

2/2/17
Date

Literature Cited

ARCADIS. 2005. Ballville Dam Investigation Report. Report prepared for City of Fremont and Ohio Dept. of Natural Resources, Division of Water.

ODNR. 1981. Phase I Inspection Report National Program of Inspection of Non-federal Dams - Ballville Dam. Report prepared for U.S. Army Corps of Engineers Pittsburg District, Federal Inventory No. OH-809, Ohio File No. 1231-003. 9 pp, plus appendices.

U.S. Fish and Wildlife Service (Service)

-2014. Ballville Dam Project, Sandusky County, Ohio, Draft Environmental Impact Statement, January 2014. 255 pp + append.

-2014a. Ballville Dam Project, Sandusky County, Ohio, Final Environmental Impact Statement, August 2014. 282 pp + append.

-2014b. PROGRAMMATIC AGREEMENT (PA) among The U.S. Fish and Wildlife Service (USFWS), The Ohio Historic Preservation Office (OHPO), The Ohio Department of Natural Resources (ODNR), The Ohio Environmental Protection Agency (OEPA), The U.S. Army Corps of Engineers (USACE), and The City of Fremont (City), Regarding The Proposed Sandusky River Fish Passage Project (Project), Ballville Township, Sandusky County, Ohio. 16 pp.

-2016. Ballville Dam Project, Sandusky County, Ohio, Draft Supplemental Environmental Impact Statement, February 2016. 137 pp.

-2016a. Ballville Dam Project, Sandusky County, Ohio, Final Supplemental Environmental Impact Statement, October 2016. 139 pp + append.

Ballville Dam Project

Final Supplemental Environmental Impact Statement (SEIS):

Appendix A – Public Comments

Final SEIS Comments Received

November 22, 2016

Re: Final Supplemental Environmental Impact Statement (FSEIS)
Ballville Dam Project

Dear Brian Elkington,

I have read the Final Supplemental Environmental Impact Statement and want you to know that the HAB's in the Sandusky River in the impoundment area behind the Ballville Dam this summer were frequent in outburst and at times severe. My understanding is this situation was even worse in the Sandusky Bay. All of this happened to the river and bay, during a summer where the Lake Erie HAB problems were very slight.

Despite this situation with the river and bay, the FSEIS continues to insist that the material behind the dam be released into the waterway. This is not right. The material should be removed before the dam is taken down.

My understanding is the nitrogen and phosphorous release will cause some increase to the "dead zone" in the lake. No increase should be permitted.

Also, I have fished in this waterway and the release of material will cover the walleye beds in the bay. Again, please review your work on this matter and remove the silt and sediment before the dam is taken down.

Sincerely,

Kathie Collins

KATHIE COLLINS

[redacted]

November 22, 2016

Mr. Brian Elkington
US Fish and Wildlife Service, Fisheries
5600 American Boulevard West, Suite 990
Bloomington, Mn 55437-1458

Ballville Dam Project: Comments to Final Supplemental Environmental Impact Study (FSEIS)

Dear Sir:

I am not happy with the FSEIS's handling of the impoundment sediment issue. I am a Fremont City Councilman and boater for 25 years in the Sandusky River and Bay.

The impoundment material ought to be removed before the dam is taken down. The Sandusky Walleye stock is important to our area. Most of the spawning occurs in the Bay. The Bay is so silted up now that navigating that body of water for the first time can be very risky. More work needs to be done on how the release of the silt will affect the Walleye spawning beds in the bay and boater navigational use.

Further, Stantec's figures for removing the silt have been ridiculously high and now Stantec has purchased and owns MWH the contractor for the project. Needless to say, nothing has changed with the new estimates for silt and sediment removal. Please discard those numbers and start over with independent cost estimates that are in line with industry averages. Otherwise, you are doing a disservice to this project and our community.

Sincerely,

Mike Koebel

Mike Koebel

[redacted]

RANDY ROHM, PhD
[redacted]

November 22, 2016

Mr. Brian Elkington,
US Fish and Wildlife Service, Fisheries,
5600 American Boulevard West, Suite 990,
Bloomington, Mn 55437-1458

Re: Comments to the Ballville Dam Final Supplemental Environmental Impact Study (FSEIS)

Dear Mr. Elkington:

I have reviewed the above document and I am not pleased with the decision of the FSEIS to continue to accept Stantec's estimate of the material impounded behind the Ballville Dam.

In my comments to the SEIS, I too, made an estimate of the impounded material behind the dam. My estimate looked at the situation from a different point of view—applying my experience in working with large closed water hydration systems, and the rates of sedimentation that occur in such systems. Applying that basic formula to the present problem, my estimate was 1,470,997 cys of material behind the dam, as outlined in my letter of April 2, 2016.

I stand by my belief that this figure may be more accurate than the other two estimates: one, it is very close to Dr. Evans' 2002 estimate of 1.3 M cy and it also logically seems to account for additional sedimentation during the last 16 years. Many comments were made to the SEIS from those who live on the impound pool testifying to witnessing the increase in sedimentation from their own property. This should not be discounted.

Finally, I have studied this project for years. Stantec's cost estimate for silt and sediment removal when compared to industry standards is in my view obscene and even borders on the bizarre. For that reason alone, it's numbers should be discounted or independently double-checked. Everyone knows, that the release of this material is a high- risk gamble to the city and environment.

If there is 60% or more material behind the dam than what is accounted for, then serious unexpected impacts to the environment will occur.

Sincerely,

Randy Rohm

November 23, 2014

Mr. Brian Elkington
US Fish and Wildlife Service, Fisheries
5600 American Boulevard West, Suite 990
Bloomington, MN 55437-1458

Re: Ballville Dam Project, FSEIS Comments

Dear Mr. Elkington,

I have read the Final Supplemental Environmental Comments and am shocked that you give no credit to those who testify that the impoundment area behind the dam is still filling up with silt. As I previously stated, my house abuts the river. I have lived in this house for the last 10 years. When I moved in, six to seven feet of a rock formation on my property was exposed above the silt/sediment level, now that has been reduced to three to four feet of exposure due to increased sedimentation **which is still continuing today**!

Stantec's estimate of sediment, 830,000 cubic yards denies the continued sedimentation of the impoundment area. That estimate is far lower than Dr. Evan's 1.3 M cubic yards, made 11 years ago. Stantec's original estimates for the clean up of the material behind the dam $80 per cubic yard has been totally discredited by comments made by the SEIS and to the SEIS.

Please give some credibility to taxpayers who have been witnessing this continued buildup of sediment and order a neutral study of the amount of impoundment silt.

Sincerely,

Tom Appleby [redacted]

November 14, 2016

Brian Elkington
US Fish and Wildlife Service
Midwest Region Regional Office – Fisheries
5600 American Boulevard West
Bloomington, MN 55437

Mr. Elkington,

Thank you for the extremely comprehensive study presented in the Supplemental Environmental Impact Statement regarding the Ballville Dam Project. The unparalleled panel of experts have removed any shred of doubt about the removal of the Ballville Dam.

Our organization fully supported the removal of the Ballville Dam in the first Environmental Impact Statement and the Supplemental Statement absolutely re-enforces our support.

Incremental Dam Removal with Ice Control Structure completely outweighs any other alternative. It stands alone, backed by the supplemental sediment sampling, which states the removal of the Ballville Dam would not cause environmental effects on the Sandusky River, Sandusky Bay and Lake Erie. A prudent observer simple cannot refute the findings of the esteemed experts who compiled this statement.

The supplemental statement has re-confirmed and enhanced the data from the sediment studies. It is now time to move forward without any more delays. The thought of removal of the sediment above the dam has been deemed irrelevant with the new study. Additionally, the millions of dollars needed to remove the sediment has absolutely no funding.

Finally, we all need to remember that the Ballville Dam is an extreme safety risk that continues to worsen over time.

The removal of the Ballville dam is simply the right thing to do, all pluses and no negatives. Anything other than the Incremental Dam Removal with the Ice Control Structures is completely without merit.

Thank you.

Capt Dave Spangler

Capt. Dave Spangler
Vice President
Lake Erie Charter Boat Association

Ballville Dam, FW3 <ballvilledam@fws.gov>

Re: PUBLIC COMMENT ON FEDERAL REGISTER DAMS CAN FURNISH ELECTRICITY

1 message

Jean Public <jeanpublic1@yahoo.com> Sat, Oct 29, 2016 at 2:18 PM
Reply-To: Jean Public <jeanpublic1@yahoo.com>
To: "BALLVILLEDAM@FWS.GOV" <BALLVILLEDAM@fws.gov>, "JESSIE_HOGREFE@FWS.GOV" <JESSIE_HOGREFE@fws.gov>, "INFO@TAXPAYER.NET" <INFO@taxpayer.net>, "MEDIA@CAGW.ORG" <MEDIA@cagw.org>, "INFO@NJTAXES.ORG" <INFO@njtaxes.org>, "INFONJ@AFPHQ.ORG" <INFONJ@afphq.org>
Cc: "YOURVIEWS@APP.COM" <YOURVIEWS@app.com>, "VICEPRESIDENT@WHITEHOUSE.GOV" <VICEPRESIDENT@whitehouse.gov>, "AMERICANVOICES@MAIL.HOUSE.GOV" <AMERICANVOICES@mail.house.gov>

I SEE NO RASON WHY THIS IS A FINANCIAL RESPONSIBLITY OF THE US GOVT. THIS IS AN OHIO RIVER. THE LOCALS HAVE DETERMINED THEY DO NOT WANT THIS DAM ANY MORE INSTEAD OF KEEPINT IT UP FOR ITS HYDROLOGICAL ELECTRICA POWER CAPABILITIES SO IT SHOULD BE THEIR FINANCIAL RESPONSIBILITY IF THEY WANT TO TAKE IT DOWN. I DO NOT BELIEVE FOR ONE MOMENT THAT THIS POLLUTED RIVER WILL SEE FISH STREAMING UPSTREAM IN ANY GREAT NUMBERS TO MAKE THIS A REAL FISH HABITAT. SO MUCH OF OUR AMERICAN LAND HAS BEEN SO POLLUTED AND CONTAMINATD FOR SUCH A LONG TIME AND OUR CLIMATE SO ALTERED THAT NATURAL SPECIES CANNOT LIVE THER ANYMORE. THE PROFIT MAKING PUBLIC HAS SEEN TO THAT. THOSE FISH ARE GONE. THIS IS NOTHING BUT A FINANCIAL DISASTER THAT THIS NATION HAS NO RESPONSIBLITY FOR. THE US FWS DEPT SHOULD NOT PUT FORTH A PENNY TO PAY FOR THIS AT ALL. THIS IS NOT A NATIONAL RESPONSIBLITY AT ALL. AND THE FISH WILL NEVER COME BACK TO THIS STREAM. THAT IS PIE IN THE SKY. THIS AGENCY IS JUST LOOKING TO GLOM AMERICAN TAXPAYERS TO GET MORE AND MORE AND MORE MONEY ALL OF THE TIME. AND THEN THEY OVERSPEND IOT AND WASTE OUR TAX DOLALRS. DENY THIS APPLICATION FOR MONIES TO THIS EFFORT. DENYH THIS SPENDING BY THIS NATION. THIS CMMENT IS FOR THE PUBLIC RECORD. PLEASE RECEIPT. JEAN PUBLIEE JEANPUBLIC1@YAHOO.COM

Federal Register Volume 81, Number 209 (Friday, October 28, 2016)]
[Notices]
[Pages 75142-75143]
From the Federal Register Online via the Government Publishing Office
[www.gpo.gov]
[FR Doc No: 2016-26101]

==========

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

[FWS-R3-FHC-2016-N108; FXFR13340300000-145-FF03F00000]

Fisheries and Habitat Conservation; Final Supplemental Environmental Impact Statement for the Ballville Dam Project on the Sandusky River, Sandusky County, Ohio

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice of availability; request for comments.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), announce the availability of a final supplemental environmental impact statement (SEIS) that has been prepared to evaluate the Ballville Dam Project, in Sandusky County, Ohio, in accordance with the requirements of the National Environmental Policy Act (NEPA). We are also requesting public comments.

DATES: Submitting Comments: We will consider all comments regarding the final SEIS received or postmarked by November 28, 2016 and respond to them as appropriate.

ADDRESSES: Submitting Comments: A hard copy of the draft SEIS and associated documents will be available for review at the Birchard Public Library, 423 Croghan Street, Fremont, Ohio 43420, as well as online at http://www.fws.gov/midwest/fisheries/ballville-dam.html.

You may submit comments on the final SEIS by any one of the following methods:

U.S. mail or hand-delivery: Jessica Hogrefe, U.S. Fish and Wildlife Service, Fisheries, 5600 American Boulevard West, Suite 990, Bloomington, MN 55437-1458.

Email: Ballvilledam@fws.gov.

Fax: (612) 713-5289 (Attention: Jessica Hogrefe).

FOR FURTHER INFORMATION CONTACT: Jessica Hogrefe, (612) 713-5102. Individuals who are hearing impaired or speech impaired may call the Federal Relay Service at (800) 877-8337 for TTY assistance.

SUPPLEMENTARY INFORMATION: We announce the availability of a final supplemental environmental impact statement (SEIS) that has been prepared to evaluate the Ballville Dam Project, in Sandusky County, Ohio, in accordance with the requirements of the National Environmental Policy Act (NEPA). We are also requesting public comments.

[[Page 75143]]

Background

Ballville Dam was built in 1913 for hydroelectric power generation. The City of Fremont purchased the dam in 1959 from the Ohio Power Company for the purpose of supplying water to the city. With the construction of a raw water reservoir, the dam is no longer required for this purpose. Moreover, in 2007, the Ohio Department of Natural Resources issued a Notice of Violation to the City, stating that the dam was being operated in violation of the law as a result of its deteriorated condition.

Ballville Dam is currently a complete barrier to upstream fish passage and impedes hydrologic processes. The purpose for the issuance of Federal funds and preparation of this final SEIS is to remove Ballville Dam and restore natural hydrological processes over a 40-mile stretch of the Sandusky River, reopen fish passage to 22 miles of additional habitat, restore flow conditions for fish access to habitat above the impoundment, and improve overall conditions for native fish communities in the Sandusky River system, restoring self-sustaining fish resources.

We published a final EIS in the Federal Register on August 1, 2014 (79 FR 44856), for the Ballville Dam Project that addressed the environmental, economic, cultural and historical, and safety issues associated with the proposed removal of the dam and a suite of alternatives. The final EIS analyzed four alternatives for the removal: (1) Proposed Action--Incremental Dam Removal with Ice Control Structure; (2) No Federal Action; (3) Fish Elevator Structure; and (4) Dam Removal with Ice Control Structure. The final EIS considered the direct, indirect, and cumulative effects of the alternatives, including any measures under the Proposed Action alternative intended to minimize and mitigate such impacts. The final EIS also identified additional alternatives that were considered, but were eliminated from consideration as detailed in Section 2.3 of the final EIS.

We further published a draft SEIS in the Federal Register on February 26, 2016 (81 FR 9877), that provided further discussion of the potential significant impacts of the proposed action and an analysis of reasonable alternatives to the proposed action, specifically within the context of additional information made available since completion of final EIS for this project. This additional information addressed estimates of total quantity of sediment impounded by Ballville Dam, the potential impacts of the proposed alternative on harmful algal blooms (HABs) in the Sandusky River and Lake Erie due to the proposed sediment release, the potential impacts of the proposed alternative on downstream habitats due to sediment release, the accuracy of cost estimates of sediment removal within the EIS, and evaluation of a bypass and excavation alternative provided in comments on the final EIS. Although we concluded that these topics were sufficiently addressed in the final EIS, we provided additional review and assessment in the draft SEIS to help further clarify the issues. To complete this aspect of the draft SEIS, we consulted subject matter experts to help review final EIS materials and clearly articulate our understanding of them. The resulting additional information and explanation was incorporated within the draft SEIS.

This final SEIS further incorporates information received during the public comment period for the draft SEIS, and finalizes the analyses and conclusions in the document.

Public Comments

Letters describing the proposed action and soliciting comments will be sent to appropriate Federal, State, and local agencies, and to private organizations and citizens who have previously expressed or are known to have interest in this proposal. To ensure that the full range of issues related to this proposed action are addressed and all significant issues identified, comments and suggestions are invited from all interested parties.

We request data, comments, new information, or suggestions from the public, concerned governmental agencies, the scientific community, tribes, industry, or any other interested party on this notice. We specifically request comments regarding the additional information and analyses presented in the final SEIS.

You may submit your comments and materials considering this notice by one of the methods listed in the ADDRESSES section.

Public Availability of Comments

All comments and materials we receive in response to this request will be available for public inspection, by appointment, during normal business hours at the address listed in the ADDRESSES section of this notice.

Before including your address, phone number, email address, or other personal identifying information in your comment, you should be aware that your entire comment--including your personal identifying information--may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

Authority

This notice is being furnished as provided for by NEPA and its implementing Regulations (40 CFR 1501.7 and 1508.22). The intent of the notice is to obtain suggestions and additional information from other agencies and the public on the final SEIS. Comments and participation in this process are solicited.

Todd Turner,
Assistant Regional Director, Fisheries, Midwest Region.
[FR Doc. 2016-26101 Filed 10-27-16; 8:45 am]
BILLING CODE P

Ballville Dam, FW3 <ballvilledam@fws.gov>

Fwd: EIS Supplemental Comment

1 message

Hogrefe, Jessica <jessica_hogrefe@fws.gov> Wed, Nov 2, 2016 at 4:34 PM
To: FW3 Ballville Dam <ballvilledam@fws.gov>

.....
Jessica Hogrefe
USFWS, Region 3
Fish & Aquatic Conservation Program
5600 American Blvd. West, Suite 990
Bloomington, MN 55437
Office: 612-713-5102
Cell: 651-262-8742
Email: Jessica_Hogrefe@fws.gov

---------- Forwarded message ----------
From: Katie Steiger-Meister <katie_steiger-meister@fws.gov>
Date: Wed, Nov 2, 2016 at 3:34 PM
Subject: Fwd: EIS Supplemental Comment
To: jessica_hogrefe@fws.gov

I think I was accidentally sent a public comment for Ballville. See below.

Kaitlin Steiger-Meister, Ph.D.
External Affairs
U.S. Fish and Wildlife Service

Office: 612-713-5317

Begin forwarded message:

From: greg capito <[redacted]>
Date: November 2, 2016 at 4:17:16 PM EDT
To: "Katie_Steiger-Meister@fws.gov" <Katie_Steiger-Meister@fws.gov>
Subject: EIS Supplemental Comment

The studies are complete and the dam should be removed ASAP. Further delay serves no useful purpose.

Greg Capito

From: **David Mosser**[redacted]
Subject: Comment on Final Supplemental EIS for Ballville Dam removal.
Date: November 4, 2016 at 12:55 PM
To: Ballville Dam, FW3 ballvilledam@fws.gov

DM

Once again the “save the dam folks”, whatever they call themselves today, have delayed progress on the Ballville Dam removal. It is time for the USACE to issue the need 404 permit. These people have no intention of quitting, and will pursue every legal avenue they can to delay the dam removal.The time has come to take this to court and get a judges decision. If they lose you know they will appeal it as long as they can.

It is clear that there will be no long term environmental impacts from sediment release when the dam is removed. The FSEIS stated that about 44% of the sediment will never move, and I suspect it will be more like 55%. It all depends upon high flow events. Much of the sediment is stabilized by mature trees and shrubs that have been growing for many years, and will not be easily moved even by high flow events. Erosion takes years and will not happen quickly. The Sierra Club greatly overestimates the environmental impacts. As long as they have big money funding them and their lawsuit, they will continue to beat the “environmental disaster drum”.
Common sense and facts dictate that the Sierra Club is wrong. I would like to see their donors list. I tried to find it online, but it is nowhere to be found.

Proceed with the Ballville Dam removal ASAP. They tried to fool the voters of Fremont, but it did not work.
I am a Fremont resident and believe the will of the people says get on with the Ballville Dam removal.

David Mosser, Fremont, Ohio

November 28, 2016

Brian Elkington
U.S. Fish and Wildlife Service Fisheries
5600 American Boulevard West, Suite 990,
Bloomington, MN 55437-1458

Transmitted by electronic mail to: Ballvilledam@fws.gov
and by fax to: (612) 713-5289 (Attention: Jessica Hogrefe).

RE: COMMENTS BY THE SIERRA CLUB ON THE FINAL SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT ("FSEIS") ON THE BALLVILLE DAM REMOVAL, FREMONT, OHIO

Dear Mr. Elkington:

Pursuant to the notice in the Federal Register published by the U.S. Fish and Wildlife Service ("FWS" or "Service") on October 28, 2016, 81 FR 75142-75143, announcing the availability of the FINAL SEIS for the Ballville Dam Removal on the Sandusky River in Ballville Township, Sandusky County, Ohio, the Sierra Club submits the following comments for consideration and response by the FWS.

The Sierra Club is the nation's oldest grassroots environmental nonprofit organization, with more than 630,000 members nationwide, including 18,459 in Ohio and 250 in Sandusky County where the Ballville Dam is located. The Sierra Club's mission is to explore, enjoy, and protect the wild places of the earth and educate and enlist humanity to protect and restore the quality of the natural and human environment. Since its founding over a century ago, Sierra Club has become a leader in working to preserve the quality of the nation's surface waters. The Sierra Club has 68 chapters and hundreds of local groups, one of which, the Western Lake Erie Section, includes Sandusky County and has approximately 1,300 members. Sierra Club members frequently visit the Sandusky River and its vicinity that will be impacted by the sediment discharged from the Ballville Dam impoundment. Sierra Club members use these waters for recreation, fishing and aesthetic enjoyment for which water quality is critical and these members will be harmed by the impacts of the sediment release on the Sandusky River, Sandusky Bay, and Lake Erie, in the manner proposed in the FSEIS.

The Sierra Club's comments on the FSEIS are as follows:

1) <u>Eutrophication in the Sandusky Bay (Chronic *Planktothrix* Bloom):</u>

The Sierra Club previously raised the issue of the lack of consideration of the adverse environmental impact that will be caused by the release of the nitrogen-based nutrient compounds currently stored within the Ballville Dam impoundment sediment that will contribute to the chronic and severe *Planktothrix* algal bloom infesting the Sandusky Bay if the Preferred Alternative is implemented, see Sierra Club Comments on Draft SEIS, no. 7 and 8. In response to these comments, this issue has not been given explicit consideration in the FEIS except for a single truncated paragraph on p. 5-7 (¶5) while, in the Response to Comments, it is simply lumped in with the Response to Comments primarily addressing the issue of Lake Erie Eutrophication in Comment 13 of Appx. B-1 with inadequate and, at best, the vaguest of consideration.

The Sierra Club concurs in the conclusion in the Response to Comment 13 that the available technical information establishes that the Sandusky Bay *Planktothrix* bloom is nitrogen limited. A portion of Dr. Johnson's response in Comment 13 generally supports the Club's concerns by stressing that the Sandusky Bay is "a surprisingly good filter for nutrients leaving [the Sandusky River] watershed," and that "the often dense *Planktothrix* bloom in Sandusky Bay takes up many of the soluble nutrients". However, Dr. Johnson's comments are focused on phosphorus issues regarding the western basin *Mycrocystis* bloom and do not directly address the impact of the nitrogen compounds from the impoundment on the Sandusky Bay's *Planktothrix* bloom.

Paragraph 5 on FSEIS p. 5-7 has only two relevant sentences to this topic from Dr. Chaffin that state: "River sediments have very low nitrogen to phosphorus ratios and in the nitrogen-limiting range. Planktothrix will not receive additional growth stimulus because the impounded sediments are too low in nitrogen." No supporting data is given for these broad conclusions and no methodology is cited to support how these conclusions were derived. A fundamental purpose of NEPA documents is to clearly state a reliable basis for determinations of environmental effect which these grossly conclusory sentences wholly fail to satisfy. Put bluntly, these unsupported conclusions are immaterial to NEPA.

The only portion of the Response to Comment 13 specific to nitrogen's effect on the *Planktothrix* in the Bay is also from Dr. Chaffin who states in just a single sentence that "the mass of nitrogen in the impounded sediment is very low compared to the Sandusky load and *likely in forms that are not usable* for algae, cyanobacteria, or other bacteria, hence the nitrogen released would not affect blooms in terms of biomass nor toxicity . . ." (emphasis added). Technical support for the reference to "usable form" is not specified, although there is a latter reference in Dr. Chaffin's response to Comment 14 to Wetzel, 2001 that may or may not be relevant to his answer in Comment 13. Thus, this response also fails to satisfy the legal standard for NEPA documents and is immaterial for the same reason stated in the prior paragraph.

Moreover, this conclusion on "unusable form of nitrogen" is contradicted by two specific studies of the Sandusky Bay's *Planktothrix* bloom that establish that *Planktothrix* is a very efficient scavenger of all forms of nitrogen present in the Bay, i.e., Davis et al, 2015, and Dr. Chaffin's own 2013 study with Bridgeman which concluded that while *Planktothrix* responds best to ammonium, nitrate and urea, all forms of bioavailable N are usable by it. In light of this common finding, both studies stress the need for regulators to address *all* forms of nitrogen to reduce HABs in Sandusky Bay. Thus, even if the most available form to *Planktothrix,* NH4^+1,

from the impoundment area were to be nitrified to NO3^- by the time it reaches the Bay, it would still be usable to the *Planktothrix.* Accordingly, this issue of "usable form" of the release of nitrogen from the impoundment area for *Planktothrix* has been addressed in an incomplete and confusing fashion that absolutely fails to constitute a hard look under NEPA.

Finally, and very surprisingly, Dr. Chaffin's reference to "useable" forms of nitrogen is made without apparent consideration of the nitrogen cycle. The nitrogen cycle is foundational science by which nitrogen is converted into various chemical forms as it circulates among the atmosphere and terrestrial and aquatic ecosystems. In this cycle, nitrogen in the physical environment is constantly being acted upon by a variety of organisms, primarily bacteria and other microbes, which converts the nitrogen into a variety of its biologically available forms through processes including fixation, ammonification, nitrification, and denitrification. Combining the known propensity of *Planktothrix* as a voracious scavenger of nitrogen with the basics of the nitrogen cycle establishes that the release of the nitrogen now stored within the Ballville Dam impoundment sediment into the Sandusky Bay will certainly contribute to increasing the *Planktothrix* mat with its resulting environmental impacts. Based on these considerations, the conclusion stated in the Response to Comment 13 that the impoundment's nitrogen supply can be blithely ignored due to a cryptic, unsupported notion of "useable form" is apparently false and deserves no consideration in a valid NEPA analysis of environmental impacts.

2) <u>Failure to Assess Physical Impact of Sediment Deposition on Sandusky Bay Spawning Grounds.</u>

The retention of the Ballville Dam's sediment within the Sandusky Bay described in Dr. Johnson's Responses to Comment 13 cited above opens the door to a new concern that, irrespective of the sediment's effect on the Bay's water chemistry noted in the previous comment, the physical deposition of this sediment sanctioned by the Preferred Alternative is a source of potential environmental harm to the Bay and especially to the important fish spawning beds there. A 2010 ODNR Report (Weimer), *Spawning Behavior of Lake Erie Walleye in the Sandusky River and Bay, 2006-2009*, (available at: https://wildlife.ohiodnr.gov/portals/wildlife/pdfs/walleyetelemetryfinalreport.pdf), cited in the FSEIS, see p. 7-7, concluded that a majority of the Sandusky stock walleye spawn in the Sandusky Bay despite its generally poor habitat conditions and that much of that poor condition is caused by excessive siltation. This conclusion about the special hazard of sediment within the Bay is consistent with Dr. Johnson's statements. Estimates included in the FEIS and FSEIS indicate that the sediment to be released from behind the Dam could more than double the average annual sediment flow of the Sandusky River. (See FSEIS, p. 5-3, that the mean annual suspended sediment load for the Sandusky River is 368,000 cubic yards ("CY"), less than half the estimated 840,000 CY of mobile sediment in the impoundment). Dr. Johnson's statements that most of the Ballville sediment will be retained in the Bay clearly raises the issue of potential environmental harm that this additional sediment will cause to the Bay's spawning grounds, the critical environmental importance of which is established in the 2010 Weimer Report. This issue has not been considered in the FEIS or FSEIS.

The Sierra Club further notes that, in an apparent effort to play down this obvious impact of the Ballville sediment on the Bay, Dr. Chaffin provided a calculation in the Response to Comment 13 that all the Ballville sediment (840,000 CY) would cover the 45-square mile Sandusky Bay to a uniform depth of .22 inches. However, this calculation provides no predictive value on environmental impacts as the sediment would not deposit in such a hypothetical, uniform manner but would instead aggregate in specific areas due to multiple factors, including the action of currents, topography and particle suspension. If the resulting aggregation would coincide with the Bay's spawning areas, the harmful environmental impact could be significant and therefore must receive a hard look. To the Club's knowledge, no mapping of the spawning areas within the Bay exist which will be an important factor in making the requisite hard look at these potentially adverse environmental impacts.

3) Failure to Specify Basis for Conclusion on Status of River Bottom in Levee Area

The FSEIS's Response to Comments has addressed the Sierra Club's comments on the safety of the Fremont levee area fishing grounds (Comments 17, 18, 19) from sediment deposition and embeddedness with a general argument that the current conditions of the River bottom in the Fremont levee area demonstrate no sediment accumulation and the presence of only coarse grained, non-embedded substrate and that, therefore, sediment accumulation is unlikely in this area following demolition. The response to Comment 18 also speaks of an unquantified need to "replenish and restore" the integrity of the area. However, neither the FEIS nor this FSEIS specify any source material for these conclusory descriptions. Considering the strong reliance now placed onto these general descriptions, please provide a citation to all sources relied upon in the making of these claims in the Response to Comments and the specific information relied upon by the Service to support the accuracy and precise spatial extent of these claims about the Fremont levee area.

4) Timing of Dam Notching

On page 3-4 of the FSIS, the initial notching of the Dam is stated as occurring in "Approximately November, 2016." That date is evidently not achievable because the submission date for these comments on the FSEIS is November 28, 2016. Considering this timing, the Sierra Club is concerned that the initial notching might occur during the spring of 2017 when fish in the Fremont levee area would be spawning and that the release of sediment and resulting heightened TSS levels would have a heightened harmful environmental and economic impact by interfering with the spawning period. This period lasts until May 1 for walleye and through June for white bass. This is the period when fishing in the levee area peaks and which has built the Fremont levee area's reputation for excellent fishing. This peak fishing period is especially important for lower income families who rely on fishing during this period to supplement their diet.

Accordingly, please state whether the Service would permit the City of Fremont to undertake dam notching at any point during the spring or early summer spawning period and, if so, describe the Service's conclusions and methodologies in assessing the impact specific to the spring spawning season in the Levee area.

5) Unexplained Changes Altering the Sediment Reuse Proposal Raised by the Sierra Club

FSEIS Section 2.2.3, starting on page 2-6, describes as a potential alternative a variant of a proposal raised initially by the Sierra Club to beneficially reuse the nutrient-rich sediment behind the Ballville Dam by dewatering the impoundment through opening the Dam's gates and allowing the sediment to dewater and harden so that it could be removed with standard excavation equipment for commercial sale. This proposal was explicitly based on the past practice of the Dam's former owner, the Ohio Power Company, before its sale of the Dam to the City of Fremont in 1959, whereby the company would periodically dewater the impoundment in the manner described above and give the sediment away. Although the opening of the gates would cause a harmful release of sediment, the removal and beneficial reuse of a large amount of the impounded sediment was considered by the Sierra Club to be an environmental improvement over simply allowing the sediment to be released downstream with the minimal mitigation contained in the Preferred Alternative.

While the Club appreciates the efforts of the City of Fremont to explore this alternative, we note that the manner of sediment removal described in Section 2.2.3 is clearly different from, and considerably costlier than, what is described above based on the historic practice of the Ohio Power Company in dewatering and excavating the impoundment. The alternative examined in this section does not utilize the gates but uses the notching and staged demolition procedure of the Preferred Alternative to partially dewater the impoundment before excavation. Because this methodology does not allow the sediment to completely dewater and harden to the cement like consistency described by Sandusky County residents who personally witnessed the Ohio Power Company's past practice, the new variant is no longer premised on the excavation of the sediment with standard excavation equipment, but rather with far more expensive equipment specially designed to exert low pressure on the soggy, inadequately dewatered sediment. Due to the far higher expense involved than the costs associated with the Ohio Power Company's successful practices, this variant of the Club's alternative was rejected for detailed consideration as being too costly as it would cost an additional $7 to $10.5 million after commercial sale of the reclaimed sediment.

Considering this history, we believe NEPA requires the Service to specifically address why the more expensive variant was examined instead of basing the alternative on the successful historic practice of the Ohio Power Company. We note that Section 3.1.2.1 of the FEIS addressing "Lake Drain" under the No Action Alternative contains a reference to one of the gates being inoperable and the other leaking, but there is no effort to relate this information to the variant described in Section 2.2.3. Section 3.1.2.1 also refers to the use of coffer dams to minimize sediment release from the gates which would potentially improve on the methods previously used by the Ohio Power Company.

This concern is significant in its own right as the proper evaluation of an alternative that actually has an historic basis should receive detailed consideration under NEPA. The Service should also be aware that our concerns with this new cost estimate are greatly magnified by the fact that this consultant (MWH is now owned by Stantec) has previously supplied an enormously inflated estimate on the cost of dredging the impoundment in EIS Appx. A-2. The Sierra Club has specifically questioned Appx. A-2 at length (Draft SEIS Comment 18). However, the SEIS

makes no effort whatsoever to defend that inflated estimate (which was over twice as expensive as the alternative considered in Section 2.2.3 of the FSEIS) or respond to the Club's comment even though Appx. A-2 was the *only* cost estimate contained in the EIS.

The estimate in Appx. A-2 was so extreme that the Sierra Club explicitly expressed its belief in Comment 18 that the handling of the cost issues in the EIS established the predetermined nature of this environmental review to approve the basically uncontrolled release of the sediment from the impoundment. Nothing in the FSEIS responds to this concern which goes to the heart of the basic NEPA requirement of a fair and unbiased evaluation of alternatives. Failing to explain the basis for the variations contained in the alternative discussed in Section 2.2.3, when combined with the failure to defend the grossly inflated Appx. A-2, forms a pattern that reasonable persons cannot fail to miss about the manipulation of costs to predetermine the Preferred Alternative. The Sierra Club cannot emphasize enough to the Service the centrality of this cost issue and the danger the Club perceives in the manipulation of cost issues in this project to undermine NEPA requirements.

The Sierra Club appreciates this opportunity to comment on the Final Supplemental EIS for the Ballville Dam project and looks forward to reviewing the Service's responses to these comments.

Sincerely,

Richard C. Sahli
Attorney for the Sierra Club

JAMES R. SHERCK
[redacted]
November 25, 2016

BRIAN ELKINGTON/(Attention: Jessica Hogrefe)
Deputy Program Supervisor
Fisheries Program
Midwest Region
5600 American Blvd. West, Suite 990
Bloomington, MN 55437-1458

RE: MY RESPONSE TO THE FINAL SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT (FSEIS): BALLVILLE DAM PROJECT SANDUSKY COUNTY, OHIO

Dear Mr. Elkington and Ms. Hogrefe:

I remain very troubled by several aspects of the FSEIS's handling of critical environmental concerns. The FSEIS has once more failed to take a hard look at the damage that will be caused by the release of the impoundment material upon fish breeding grounds and upon water quality in the river, bay and lake. What is most disturbing is the FSEIS's continued failure to sensibly address the "shamefully high" monetary estimates associated with the removal of the impoundment material prior to the destruction of the dam. These inflated figures purely are designed to eliminate discussion of the option of sediment remediation.

Interestingly enough, the technique employed by the FSEIS in addressing citizen concerns now consists of bundling those questions together and generally addressing them in a combined answer format, rather than providing individual responses to those seeking input. This method of response allows for the FSEIS to simply avoid addressing embarrassing and damning comments that go directly to systemic problems associated with the study in the first place. For example, of the18 pages of comments I made to the Supplemental Draft Environmental Impact Statement, five pages were devoted to how the report was systemically flawed—from my perspective

fatally flawed. There is not one word of response to my observations relative to this issue.

A Failure to take a Hard Look at the Environmental Impact of the Sediment Release on the Fish Spawning Beds in the Sandusky Bay in Violation of NEPA.

"Walleye that spawn in the River and Bay are known as the Sandusky stock, and are believed to return to the Sandusky system annually to spawn, while spending the remainder of the year in the main lake." Weimer, Eric J., 2010, "Spawning Behavior of Lake Erie Walleye in the Sandusky River and Bay", Ohio 2006-09, p3.

This was a tagged walleye study funded by the ODNR. The study draws several surprising conclusions: 1) only 15% of the tagged walleye in the study ascended the Sandusky River to spawn 2) river walleye spawning is currently minor compared to bay spawning 3) river walleye do not extend far enough upstream to be impeded by the Ballville Dam 4) the majority remained in Sandusky Bay and presumably spawned there 5) relatively little is known about bay-spawning and future examination of the bay-spawning component is necessary 6) changes in the watershed's land use and "high levels of silt deposition in the bay" have resulted in a "92% reduction in spawning habitat in the bay from data collected in 1872 and 1905 (citing Thompson, A. 2009 "Walleye habitat use, spawning behavior, and egg deposition in Sandusky Bay, Lake Erie."

The most shocking part of Weimer's study is found on page 24 of the report. There, he maps out "Potential walleye spawning locations in Sandusky Bay, Ohio, identified using radio telemetry." Put another way, it appears that no one has specifically identified the location of the actual spawning beds in Sandusky Bay! Based upon 40 to 50 transmission pickups from the tagged walleye scattered over half the bay during the spawning season, "potential walleye spawning locations" were identified by drawing large circles and ovals over tens of square miles of the bay's floor.

In my comments dated March 19, 2014 to the DEIS, I stated the following at page 4.

"Therefore the following course of action should be taken as to this issue: 1) an immediate study should be undertaken to perform a detailed mapping of all existing walleye spawning sites or sites conducive to walleye spawning in the lower portion of the Sandusky River and Sandusky Bay; 2) a detailed silt flow model, based on various weather conditions and current flows, should be made as to where the silt will flow and ultimately come to rest, based upon the percentage of probability; 3) that model should be superimposed over the spawning beds with expert review of the damage-specific silt loads will have on those beds."

The DEIS responded by saying, in essence, that I already had the maps of the spawning areas and knew where they were. The fact is there are no charts of the Sandusky Bay walleye spawning grounds. So how can a hard look or any look, for that matter, be given to the damage the silt will cause to these beds when only general guesses have been made as to their "potential" locations? The Weimer (2010) Study, p15, actually calls for further identification and evaluation of the Sandusky Bay spawning beds.

This has to be put in perspective. The silt behind the Ballville Dam got there because the river put it there. The dam functions as a catch basin for the material. If the dam is removed and the silt is not removed, then the silt will be carried by the river and deposited someplace else. The FSEIS suggests the silt will ultimately be deposited in the Sandusky Bay, which has also been referred to as a catch basin by experts the FSEIS relies upon.

It is ironic that the prime reason the Ballville Dam is being removed is to enhance the Sandusky Stock of walleye; all else is secondary. Volumes of publications and written communications bearing ODNR's insignia attest to this. Walleye is Ohio's money fish.

The Sandusky Bay has lost over 92% of its spawning habitat in the last century or so. How much of its remaining walleye spawning habitat, the specific location of which is unknown, unidentified and uncharted will be lost when impoundment silt settles out over these walleye beds in patterns, concentrations and depths that are unknown and unstudied?

If it cannot be determined that the existing walleye beds in the Sandusky Bay, where nearly all the Sandusky Stock spawn, will not be harmed by this release, then the recommend action by the FEIS cannot be supported. At the very least, the material behind the dam should be removed.

THE SYSTEMIC FAILURE OF THIS NEPA STUDY HAS SERIOUSLY COMPROMISED A FAIR CONSIDERATION OF BOTH THE QUANTITY OF SEDIMENT IMPOUNDED BY THE DAM AND THE FINANCIAL COSTS CONNECTED WITH THE REMOVAL OF THAT IMPOUNDMENT SEDIMENT. THESE TWO CENTRAL ISSUES WILL BE DISCUSSED TOGETHER AS THE ISSUES ARE FACTUALLY INTERTWINED.

Reliance on Inaccurate, Manufactured Cost Estimates to Avoid Consideration of Sediment Removal Options in Violation of NEPA.

Reliance on Inaccurate Determination of Total Sediment Quantity in the impoundment in Violation of NEPA.

Five pages of my comments to the SEIS were devoted to the SEIS's "Systemic Failure to Neutrally Evaluate." These comments were basically ignored. Rather than repeat them verbatim, I raise them again, at this time, in their entirety by reference (my comments pages 44-48, as published in the Final SEIS, APPENDIX B 2- Draft SEIS Comments Received, [pages 14-18 of my original letter].

To put my new remarks in context, I will, however, briefly summarize the comments I made in the SEIS:

1) In 2008, the City of Fremont and the ODNR entered into a contract to build both a reservoir and remove the Ballville Dam. This combined action was called "The Project." The ODNR would pay the City $5 M toward the reservoir cost if the city agreed to remove the Ballville Dam.
2) At this time, the scoping process of the NEPA had not begun and that scoping process did not begin until the reservoir project was well underway.
3) In 2008, Fremont City Council and the City of Fremont committed to remove the Ballville Dam for a payment of $5 M, all without any benefit of a NEPA study before embarking on this course.

4) Reams of documents and publications show that the ODNR has been the prime force for removing the Ballville Dam for the last 20 years. The ODNR believes the removal of the dam will increase Sandusky Walleye stock by opening new spawning beds upstream.
5) The seminal study of Sandusky Walleye Stock spawning by Eric J. Weimer (2010) stated that the Ballville Dam did not impede Walleye movement upstream. The conclusions of this report were then re-edited and softened when it became an issue in this case. The new report now says the Walleye would need "remedial" help to be transported upstream. There is no reference when the new version of the report or re-editing was made.
6) Despite Weimer, the SEIS continues to insist that Walleye will move to new spawning beds upstream, even though they will now have to swim through a debris dam created by a new Ice Control Structure and then after going through this physical barrier, they will have to swim through miles of white water rapids.
7) Through a public records request, an e-mail was uncovered suggesting that the city not use the Army Corp to do work on the NEPA study, but to hire a private engineering firm so that it could have more control of the project.
8) The City did just that and hired Stantec as the engineering firm which provided a $64M estimate to simply dredge impoundment material at $80 per cubic yard. This, in contrast to nationwide private company standards of $5.15 per cubic yard.
9) When confronted at the Ballville Dam Town Hall meeting (with all principals in this matter being present) in October 2014, about the high estimate, Stantec's representative responded that they cleaned up river silt and sediment on another project at a much higher cost. When pressed, Stantec refused to disclose the name of the other project.

In addition to the above-enumerated items, at the same Town Hall Meeting, the same Stantec representative was asked how the debris dam, which would form behind the ICS structure, would be cleaned up. His incredible response was it would not have to be cleaned up, it would just float away the next time there was high water.

It is this same firm, Stantec, that in 2011 provided an 840,000 cubic yard estimate of sediment material in the impoundment area, 35% less than Dr. Evan's 2002 estimate of 1.3 M cubic yards, even though nine years had

elapsed since the Evan's report and the impoundment area continues to fill up according to eyewitness reports of those whose property abuts the impoundment.

If anything, one could conclude that Evan's estimate of 1.3 M cubic yards would actually be low. In fact, Dr. Randy Rohm, in his comments to the SEIS, approached the issue from another direction and calculated the sediment at 1.47 M cubic yards based upon his 24 years experience in dealing with the rates of sedimentation in closed containment water systems.

The FSEIS acceptance of the Stantec report over Evans is blatantly suspect.

If the Evan's estimate is correct, then all the calculations concerning the consequences of releasing the impoundment material would be significantly understated. Such a result would make it much more burdensome for the City of Fremont and the ODNR to clear NEPA hurdles and complete their 2008 pre NEPA contract to remove the Ballville Dam for the payment of $5 M.

As bad as that would be, the more onerous problem for the City and the ODNR would be to remove the material behind the Ballville Dam, prior to its demolition. The surest way to make this problem go away would be to price that project so high as to take any discussion of removing the silt off the table.

That is exactly what happened here. Stantec's estimate of $64 M or $80 per cubic yard was beyond excessive. In response to intense comments on this issue, the SEIS then fell back on Dr. Evans 2002 estimate of $6.3 M to remove 350,000 cubic yards of silt. It made no effort to explain away Stantec's figures.

Even though the SEIS cited Dr. Evans estimate of $6.3 M, it concludes that the silt need not be removed because there will be "limited long term risk" of downstream impact. The SEIS concluded this even though it had not yet identified where the Sandusky Bay Walleye beds are located, nor has it any idea how much silt and sediment will cover these as of yet undiscovered spawning beds.

Finally, the City was presented with the option of simply excavating the silt by opening the dam's sluice gates and dewatering the reservoir in the

manner that the Ohio Power Company did when it owned the structure. The silt could then be sold to cover the cost or make a profit on the process.

In response, the City elected to once more get estimates from Stantec and Stantec's contractor MWH for this new proposal. The estimate, however, was not for opening the gates and dewatering the reservoir as the power company had done. Rather, the City thought it best to notch the dam and reseed the exposed area to firm it up so that specialized equipment could be brought in to excavate material that would not be particularly firm.

MWH, the contracting firm, arrived at a price of $50 per cubic yard to excavate and an additional $5 per cubic yard to transport the material to the nearby processor. This $55 per cubic yard figure (which does not include engineering, permitting, material processing, dewatering or other associated costs) is arguably somewhat less than Stantec's original $80 per cubic yard figure, but far in excess of Dr. Evans' estimate of $18 per cubic yard. And, nowhere close to the national private dredging average of $5.15 per cubic yard.

It is worth noting that at the beginning of this project, Stantec, the engineering firm, and MWH, the contractor, were separate companies. However, on May 6, 2016, Stantec bought out MWH. The companies are now the same. Not surprisingly so are the inflated estimates.

CONCLUSIONS

This NEPA study is systemically flawed. The City of Fremont and the ODNR, in effect, began the Ballville Dam removal project well over a decade ago. The parties ignored NEPA law and proceeded to negotiate a contract. The ODNR would get what it wanted: the removal of the Ballville Dam. The City would get what it wanted: $5M toward the building of a new reservoir to replace the dam's impoundment waters. The negotiations came to a conclusion in 2008 when the ODNR and the City signed a contract to that effect. Little thought was given to the serious environmental issues that would need to be addressed in removing the largest dam in Ohio's history.

The NEPA study is still not complete, but elected city officials and the ODNR have proceeded as if it was for nearly a decade.

ODNR documents prove this project was designed to help Sandusky Walleye stock. The advantages of stream connectivity are all secondary to the issue of bolstering Lake Erie's lucrative Walleye fishing industry.

It is ironic that as the NEPA process nears conclusion the Walleye spawning beds in Sandusky Bay (where 85% of the Sandusky Stock spawn) have not been found, identified, or charted. The silt will settle in Sandusky Bay, in various places, in various amounts, and with differing degrees of damage to these unknown, unidentified spawning grounds.

Worse! A reasonable effort to remove the sediment and silt behind the dam was thwarted at every step of the NEPA process by excessively high removal estimates and ever moving and changing theories on the effects, or non effects, of phosphorous and nitrogen on the various HAB's that plague Lake Erie and Sandusky Bay.

In order to cure, the inherent problems with this study, and comply with NEPA, the following actions should be taken:

1) The walleye beds in Sandusky Bay should be found and charted;
2) Silt flow models should be created to determine what damage will occur to these spawning beds in the Bay;
3) Realistic cost estimates should be sought for silt and sediment removal behind the dam, including the use of the many technologically advanced companies who now specialize in removing this material at low cost.
4) In view of the systemic problems associated with this project, an outside contractor should make another estimate of the quantity of the sediment in the impoundment area, as Dr Evans estimate is now 14 years old and Stantec's estimate is now 5 years old and those estimates do not account for the continuing build up of impoundment sediment, as testified to by those citizens who live on the river and witness this continuous process.

Sincerely

James R. Sherck

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

NOV 28 2016

REPLY TO THE ATTENTION OF:
E-19J

Jessica Hogrefe
U.S. Fish and Wildlife Service
5600 American Boulevard West
Bloomington, Minnesota 55437

RE: Final Supplemental Environmental Impact Statement: Ballville Dam Project – Sandusky County, Ohio (CEQ# 20160254)

Dear Ms. Hogrefe:

The U.S. Environmental Protection Agency (EPA) has reviewed the U.S. Fish and Wildlife Service's (USFWS) October 2016 Final Supplemental Environmental Impact Statement (FSEIS) for the Ballville Dam Project located in Sandusky County, Ohio. This letter provides our comments on the FSEIS, pursuant to the National Environmental Policy Act (NEPA), the Council on Environmental Quality's NEPA Implementing Regulations (40 CFR 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act.

EPA reviewed the Draft Supplemental EIS (DSEIS) for this project and provided comments to USFWS on April 11, 2016. We rated the DSEIS as **Environmental Concerns - Insufficient Information (EC-2)**. This rating was based primarily on concerns relating to contaminants and nutrients from the DSEIS's sediment analysis. Prior to this review, EPA reviewed the original DEIS for the project and provided comments on March 26, 2014; our review of the DEIS also resulted in a rating of **Environmental Concerns - Insufficient Information (EC-2).** We also provided comments on the Final EIS (FEIS) on September 8, 2014. EPA's previous comments and primary recommendations have focused on wetland and water resource impacts, mitigation, water quality, endangered species, historic preservation, and sediment issues.

Both the original FEIS and the DSEIS selected Incremental Dam Removal with installation of an ice control structure (ICS) as the Proposed Action for providing fish passage upstream and downstream of the Ballville Dam location, restoring natural hydrologic and sediment transport regimes, and addressing dam safety and liability.

The FSEIS is a limited scope document that builds on the previous environmental documents compiled for this project, incorporating new information regarding contaminant analysis of sediments located within the Ballville Dam's upstream impoundment on the Sandusky River brought to light during the interim period of the publication of the project's original Record of Decision (ROD) in October 2014 and the present.

Recycled/Recyclable • Printed with Vegetable Oil Based Inks on 100% Recycled Paper (50% Postconsumer)

On July 7, 2015, the Sierra Club filed suit in District Court alleging that the City of Fremont (City), the USFWS, and the U.S. Army Corps of Engineers (USACE) (as the cooperating agency) failed to "*lawfully consider and mitigate the environmental harm that the release of the massive quantity of contaminated sediment that has grown behind the dam for over a century will cause downstream to the Sandusky River, Sandusky Bay and Lake Erie following the dam's removal in the manner approved in the EIS*" and, further, failed to "*lawfully consider reasonable alternatives to addressing this sediment in a more environmentally protective manner.*"

Concurrently, USACE determined that further testing of the sediments impounded by Ballville Dam would be required to complete the Clean Water Act Section 404 permitting process. USFWS determined that this additional sediment data would add significant new information that could inform their understanding of the impacts of the proposed alternative on the environment in the project area. As such, USFWS worked closely with USACE, the Ohio Department of Natural Resources (ODNR), and the City to develop a plan to complete additional testing, reevaluate the potential impacts based on the analytical results, and incorporate this additional information into the decision making process through the completion of the DSEIS and the FSEIS.

In addition to the noted allegations, the lawsuit detailed other concerns also related to sediment management and sediment impacts. These topics include questions regarding the estimate of total quantity of sediment impounded by Ballville Dam, the potential impacts of the proposed alternative on harmful algal blooms (HABs) in the Sandusky River and Lake Erie due to the proposed sediment release, the potential impacts of the proposed alternative on downstream habitats due to sediment release, the accuracy of cost estimates of sediment removal within the DEIS, evaluation of a by-pass and excavation alternative provided in comments on the FEIS, and the potential for beneficial reuse of sediments impounded by Ballville Dam. These topics were covered by USFWS's publication of the DSEIS.

USFWS provided additional review and assessment in the FSEIS to help further clarify the issues raised during public review of the project's DSEIS. After the publication of the DSEIS, in May 2016, a meeting was held with Sierra Club representatives, ODNR, and USFWS to discuss comments and the project. At this meeting, the Sierra Club suggested a new conceptual alternative for the management of sediment currently impounded by Ballville Dam. Following that meeting, the Sierra Club and the owner of Universal Farms LLC (a local business specializing in yard waste recycling and mulch manufacturing) met with the City where this concept was also presented as an option to reduce sediment movement downstream. Subsequently, a new alternative for beneficial reuse of sediment was further developed; this alternative was described in section 2.2.3 of the FSEIS. With an estimated cost of $55 per cubic yard of removed sediment (for removal and trucking plus other associated costs), at an estimated $20 per cubic yard sale price, there would be an approximate loss of $25 per cubic yard of removed sediment. Instead of recouping overall project costs, these estimates would translate into an additional net cost of this alternative of approximately $7M to $10.5M, in addition to the cost of dam removal. Due to the estimated costs, when viewed in light of the expected limited long term risk of impacts downstream, USFWS determined that excavation along with beneficial reuse of the impounded sediment was neither necessary nor economically feasible. Therefore, this alternative was not carried forward for further analysis.

USFWS has an agreement with ODNR to fund the Proposed Action under the Great Lakes Restoration Initiative (GLRI) through the Great Lakes Fish and Wildlife Restoration Act, pursuant to NEPA compliance. The GLRI is a driver for environmental action and represents a collaborative effort on behalf of EPA and 15 other federal agencies, including USFWS, to address the most significant environmental concerns of the Great Lakes. EPA continues to be in support of the project, and appreciates USFWS's diligence in responding to comments from EPA, other Federal and state agencies, and the public, raised during the DSEIS comment period.

EPA's comments on the FSEIS continue to be based primarily on concerns relating to contaminants and nutrients from the DSEIS's sediment analysis and subsequent information provided in the FSEIS. We recommend that USFWS address our remaining concerns and issues as project design, refinement, and environmental permitting progress.

SEDIMENT TESTING – NUTRIENTS

- Both the FSEIS, and before it, the DSEIS, ultimately concluded that the release of Ballville Dam's impounded sediments would likely not have significant negative impacts on harmful algal blooms (HABs) downstream or on Lake Erie eutrophication. EPA, in our DSEIS comment letter dated April 11, 2016, raised questions relating to algal bloom toxicities, Nitrogen to Phosphorous (N:P) ratios, and whether or not the DSEIS sediment analysis considered different pathways of N versus P loss in impoundment sediments following drawdown, which could possibly alter actual N:P ratios delivered downstream and to receiving waterbodies.

  A response to EPA's questions and recommendations was provided in Appendix B1 of the FSEIS. The response in Appendix B1 does not specifically consider impoundment-only N:P ratios/N loading if N is significantly more mobile than P when sediments are largely kept in place and flows may be relatively low. The response does put the potential N load mobilized from the impoundment in perspective of annual Sandusky River N loading. The response assumes most N is currently, and would be mobilized, in a largely unavailable form.

  Recommendations: If that assumption holds (that most N is currently, and would be mobilized, in a largely unavailable form) and N does not have a chance to be processed into a more bioavailable form before it reaches HAB communities in Sandusky Bay, the response is adequate. However, as this response is based on an assumption, further clarification and/or research into the potential issues associated with N, if mobilized in an available form, should be undertaken.

SEDIMENT TESTING – CONTAMINANTS

- Based on the sampling effort design and the way in which the data is represented, EPA reiterates our determination, as noted in our DSEIS comment letter, that that there does not appear to be a significant threat for adverse impacts from metals, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbon (PAHs), or pesticides based on the current data associated with the proposed sediment release. Our DSEIS comment letter recommended that the FSEIS identify and describe which section of the sediment cores were used for comparison to below-dam samples, and describe why; and describe how all of the samples were prepped for analyses (i.e.; cores split, homogenized, etc.). These comments and EPA's

request for additional information was satisfactorily addressed in the FSEIS and in USFWS's responses provided in Appendix B1.

Previously, EPA had also recommended that the FSEIS identify and describe contaminant results from the 10 sediment core samples taken from the impoundment, and describe which sediment core sections are likely to be mobilized based on their location and depth. The FSEIS states in Section 4.1.2.1.2 that sediment depths within the impoundment range from "*11 feet near the dam to over 20 feet near the outer margins.*" However, during sampling, depth to refusal was met between 3-11 feet at the pre-determined locations (Section 4.1.2.1.4). Currently, characterization data does not describe sediment at depths greater than 11 feet. Specifically, it is unclear in the FSEIS if sediment at depths from 11-20' in the impoundment are still at risk to mobilize.

USFWS's response to earlier EPA comments (found in the Appendix B1 response) states, "*Sample sites were determined by assessing the likely areas that would mobilize during dam removal and cross referencing that with previously completed depth soundings by Stantec Inc. Initially, several sample locations were to be split into two depth intervals (e.g., 0-10 feet and 10-20 feet), however refusal depths varied between a few feet and approximately 11 ft. Therefore, sediment cores were not split into sub-samples, but were homogenized as a single sample for each sample location and these homogenized samples were used for comparison to below-dam samples. Utilizing homogenized samples best reflects expected sediment mobilization and composition during release under the alternative Incremental Dam removal with installation of ice control structure (the Preferred Alternative).*" Additionally, USFWS's response in Appendix B1 states, "*It is expected that sediment from all sampling locations, with the possible exception of sample location #8, are likely to be mobilized.*" If there are sediments at depths greater than 11 feet that have the potential to mobilize, it would be worthwhile to understand why there is no risk and/or what contaminant levels are.

> **Recommendation**: EPA recommends that USFWS clarify if there are any sediments at depth intervals greater than 11 feet that are estimated to be mobilized. If yes, the contaminant levels of these sediments should be characterized and risk levels evaluated.

EPA appreciates the opportunity to review this FSEIS. We are available to discuss our comments with you in further detail if requested. If you have any questions or comments regarding the content of this letter, please contact EPA's lead NEPA reviewer for this project, Ms. Liz Pelloso, PWS, at 312-886-7425 or via email at pelloso.elizabeth@epa.gov.

Sincerely,

Kenneth A. Westlake, Chief
NEPA Implementation Section
Office of Enforcement and Compliance Assurance

cc (via email):
Brian Elkington, USFWS, brian_elkington@fws.gov
Megan Seymour, USFWS-Columbus Field Office, megan_seymour@fws.gov
Danny Sanchez, Mayor of Fremont, dsanchez@fremontohio.org
Gary Harsanye, ODNR-Engineering, gary.harsanye@dnr.state.oh.us
Becky Jenkins, ODNR-Wildlife, becky.jenkins@dnr.state.oh.us
Christina Kuchle, ODNR-Scenic Rivers, christina.kuchle@dnr.state.oh.us
Joseph Krawczyk, USACE-Buffalo District (LRB-2011-00046), joseph.w.krawczyk@usace.army.mil
Heather Allamon, OEPA-NWDO, Heather.Allamon@epa.ohio.gov
Dr. Justin Chaffin, Ohio State University, chaffin.46@osu.edu
Meaghan Kern, EPA-GLNPO, kern.meaghan@epa.gov
Kevin O'Donnell, EPA-GLNPO, odonnell.thomas@epa.gov

Ballville Dam Project

Final Supplemental Environmental Impact Statement (SEIS):

Appendix B – Public Comments

Final SEIS Comment Category Responses

Ballville Dam Project, Final SEIS Comment Categories and Responses

Thank you to all who submitted comments on the Final SEIS. Below we have created "Comment Categories" based on all comments received and have provided a response for each category. Please read through these categories to find responses to concerns or issues you may have raised in your comments. We have included in parentheses after each comment category the names of commenters we felt best fit under each. For transparency and completeness, all comments received have been included in full following the Comment Category Responses below. The Final EIS, Final SEIS, and associated appendices and documents can all be found at: https://www.fws.gov/midwest/fisheries/ballville-dam.html.

1. Support for dam removal (Capito, Mosser, Spangle)

   Response: Thank you for your comments.

2. Opposition to the use of federal dollars to remove the dam (Public)

   Response: Thank you for your comment. The federal dollars being contributed to this project are from the Great Lakes Restoration Initiative (GLRI) through the Great Lakes Fish and Wildlife Restoration Act (GLFWRA). The GLRI is a driver for environmental action to improve the Great Lakes ecosystem. The goal of the GLFWRA is to protect, restore and enhance fish and wildlife habitat in the Great Lakes. Ballville Dam is currently a complete barrier to upstream fish passage and impedes hydrologic processes. The purpose for the issuance of these federal funds is to restore natural hydrological processes over a 40-mile stretch of the Sandusky River, re-open fish passage to 22 miles of new habitat, restore flow conditions for fish access to new habitat above the impoundment, and improve overall conditions for native fish communities in the Sandusky River system both upstream and downstream of the Ballville Dam, restoring self-sustaining fish resources. Therefore, this project will contribute to the purpose and goals of both the GLRI and GLFWRA and is an appropriate use these federal funds.

3. Confusion regarding the timing of dam removal due to errors in the final SEIS (Sierra Club)

   Response: Thank you for noting these date errors in the Final SEIS. These were all mistakenly written as occurring one year earlier than proposed (e.g., 2016 instead of 2017). All other detail regarding timing (i.e., month) are accurate. Further, none of the dam notching activities are proposed for the walleye spawning period.

   The correct dates (from pp. 3-4 and 3-5) are as follows:

   > 3.1.1.1.1 Phase 1A – Construct access to south abutment (Approximately September 2017)

3.1.1.1.2 Phase 1B – Notch spillway and impoundment drawdown (Approximately November 2017)

3.1.1.2.1 Phase 2A – Sediment stabilization (Approximately March 2018, dependent on weather and stream flow)

3.1.1.2.2 Phase 2B – Construct access ramp below dam (Approximately May-June 2018)

4. Clarification of the depths of sediments likely to be mobilized with dam removal, as sampled for contaminants testing (EPA)

EPA comments that Section 4.1.2.1.2 of the FSEIS states that sediment depths within the impoundment range from "11 feet near the dam to over 20 feet near the outer margins." EPA further comments "Specifically, it is unclear in the FSEIS if sediment at depths from 11-20' in the impoundment are still at risk to mobilize" and "If there are sediments at depths greater than 11 feet that have the potential to mobilize, it would be worthwhile to understand why there is no risk and/or what contaminant levels are." EPA recommended that USFWS clarify if there are any sediments at depth intervals greater than 11 feet that are estimated to be mobilized."

Response: The full text of FSEIS Section 4.1.2.1.2 is "Estimates of sediment depths within the impoundment range from 11 feet near the dam to over 20 feet near some outer margins." This same language was also utilized in Section 4.2.2.4.3 in the Final Environmental Impact Statement (August 2014). Based on estimated sediment depth, the Scope of Work for the sediment sampling stipulated "that several sample locations be split into two depth intervals (e.g., 0-10 feet and 10-20 feet) and that cores be driven to bedrock." (Hull and Associates, Inc. October 20, 2015 memorandum "RE: City of Fremont Ballville Dam Sampling; CIF003.100.0001"). The Hull memorandum further states that "……refusal depths precluded sample collection below approximately 11 feet. As a result, each sample location had one single homogenized sample, for a total of ten samples in the impoundment area." Hull also contacted Johan Gottgens and James Evans, authors of the 2007 sediment study, and confirmed that they were not able to sample past this depth and Hull also attempted to achieve greater penetration in the dam impoundment area by offsetting the sampling site, but were not successful in achieving greater penetration.

Sediment sampling sites in the impoundment were determined by assessing the likely areas that would mobilize during dam removal (Final SEIS). Sampling conducted by Hull and Associates, based on these locations, resulted in sampling to the point of refusal to determined sampling depth. Offsetting the sampling location did not achieve greater penetration, and sediment sampling depths were consistent with a previous sampling study. Therefore, the Service believes that sediment samples collected in the Ballville impoundment are representative of the depth of sediment that would be mobilized as a result of dam removal.

5. Question regarding the potential for nitrogen in the impounded sediments to move downstream and fuel HAB toxicity in Sandusky Bay (Collins, EPA, Sierra Club)

   A few commenters raised the concern that when the dam is removed, the nitrogen in the impounded sediments will wash downstream and fuel HAB toxicity in Sandusky Bay.

   Response: Over the course of writing the EIS, SEIS, and related documents, we consulted with multiple academic researchers who are recognized experts on Lake Erie, HABs, and nutrient inputs in this region. This included researchers from the University of Toledo, Bowling Green State University, Ohio State University, Defiance College, and Heidelberg University. Following our analysis of this issue, we received further questions on the final SEIS asking for further clarification of the potential for nutrients, primarily nitrogen, in the impounded sediments to potentially flow downstream and fuel toxicity in HABs in Sandusky Bay. To complete our evaluation of this issue and ensure that we had fully investigated, we reviewed our previous analyses and again reached out to one subject expert, Dr. Laura Johnson, Director of the National Center for Water Quality Research at Heidelberg University. Our response here is based on these previous analyses and the additional information received from Dr. Johnson.

   Additional comments regarding phosphorus contributions to HABs in Sandusky Bay should reference comments #13 and #14 in the response to comments on the draft SEIS, where this issue was addressed. The remaining questions regarding nitrogen involve two main elements: (1) the amount of nitrogen in the impounded sediments as a portion of the total nitrogen transported in the watershed and (2) the form and bioavailability (or usability) of that nitrogen to algae in once it reaches Sandusky Bay.

   In reference to the amount of nitrogen, we have two estimates of total mass of nitrogen in the impounded sediments. For the response to comments in the draft SEIS (#14), Dr. Chaffin estimated 425 to 595 metric tons of nitrogen within the sediments likely to mobilize. The second estimate comes from Dr. Johnson (personal communication, December 2016, January 2017) when we contacted her recently to further investigate this issue for these comments. Using more conservative calculations, she estimated between 750 to 1167 metric tons of nitrogen in the impounded sediments likely to mobilize. These estimates of impounded nitrogen, however, must be viewed within the baseline context of nitrogen moving through the Sandusky River. As previously noted in the response to comments on the draft SEIS, the Sandusky River inputs high amounts of nutrients to Lake Erie (Scavia et al. 2014). Dr. Chaffin calculated that the impounded nitrogen likely to move downstream following dam removal comprised up between 2.6 and 3.7 percent of an average annual nitrogen load of the Sandusky River. For her estimate, Dr. Johnson (personal communication, December 2016, January 2017) calculated that the impounded nitrogen in the likely mobilized sediments comprised between 9 and 15 percent of an average annual nitrogen load of Sandusky River. Both Dr. Chaffin and Dr. Johnson considered the nitrogen in these sediments to be too low increase HAB toxicity in a meaningful way.

The second part of our analysis of the impounded nitrogen is to clarify the form and bioavailability (usability) of that nitrogen. Again we rely on the analyses provided to us by Dr. Chaffin in the response to comments on the draft SEIS (#14) and the recent information provided to us by Dr. Johnson (personal communication, December 2016, January 2017). As previously explained by Dr. Chaffin, Planktothrix and other algae can assimilate nitrogen in multiple forms, including nitrate, ammonium, and urea. He further concluded that much of the total nitrogen in sediments occurs as forms that are unavailable for biotic utilization and therefore would not be bioavailable to algae in Sandusky Bay. Dr. Johnson clarified this conclusion by adding that most of the nitrogen in sediments is either in bound up in particulate organic nitrogen (from eroded soil particles) or as ammonium attached to sediments. She further added that while some of the ammonium may partition off the sediments during transport, most of the ammonium would be expected to remain bound to the sediments and thus remain unavailable for biological uptake even after reaching the bay.

After some further discussion with EPA regarding nitrogen, they posed an additional question regarding the potential mobilization of nitrogen through pore water (and subsequently moved downstream) in the sediments that stay in place after the dam is removed. In response to this question, Dr. Johnson replied as follows:

> "…most of the nitrogen in the sediments is likely in a particulate organic form that over time would be remineralized to ammonium. My guess is that with a slow rate of leaching much of this ammonium would be nitrified to nitrate and ultimately denitrified to [nitrogen] gases. Even if all the remaining nitrogen was transformed to ammonium and leached within a year, it would be a small portion of existing nitrogen loading. If leaching was over multiple years, the relative importance would be much lower. I agree that ammonium is a more bioavailable form of nitrogen that has been shown to increase toxicity in Microcystis and Planktothrix during nutrient experiments, but I still feel the amounts reaching Sandusky Bay would be too low to have a measurable influence."

To summarize, measurable increases in HAB toxin production are not expected due to transformation of bound nitrogen in the impoundment to more mobile, bioavailable forms and subsequent transport to downstream areas. The amount of nitrogen in the sediments is only a small proportion of the total nitrogen transport of the Sandusky River and most of that impounded nitrogen will not be available for biotic uptake once it reaches the bay. Based on this further investigation, we maintain our conclusion that the removal of Ballville Dam under the Preferred Alternative is not expected to have significant negative impacts on HABs or Lake Erie eutrophication.

6. <u>Concern regarding potential sediment deposition affecting the walleye spawning beds in Sandusky Bay</u> (Kobel, Sherck, Sierra Club)

   A few commenters raised the concern that when the dam is removed, the impounded sediments will wash downstream and affect the walleye spawning beds in Sandusky Bay. Commenters raised concerns that there has not been enough study of the location of the

walleye spawning beds in Sandusky Bay. Further, commenters raise concern that the level of study and modeling of the silt and sediment flow into the bay has been insufficient and that most of the sediment released by the removal of Ballville Dam will be retained within Sandusky Bay and cause further damage to the spawning areas. We address these points here.

Response: We consulted with the Ohio DNR regarding the knowledge and state of the walleye spawning beds in Sandusky Bay, as the primary management authority. They conclude that the study titled Walleye Habitat Use, Spawning Behavior, and Egg Deposition in Sandusky Bay, Lake Erie completed by Thompson (2009) uses acceptable fisheries study techniques to identify the majority of areas of likely walleye spawning in the bay. Thompson identified the areas of walleye spawning by creating a map of rocky substrate (i.e., potential walleye spawning habitat) in Sandusky Bay, and used radio telemetry to locate, follow, and identify congregations of adult walleye, which indicate spawning activity, over much of that substrate during the spawning season. In this study, Thompson further documented walleye spawning by laying out mats to collect eggs laid as the fish spawn. The Ohio DNR believes that this study provides sufficient information to understand and manage the walleye spawning in Sandusky Bay.

The Feasibility Study (Stantec 2012) evaluated the sediment transport and deposition downstream, associated with dam removal under the Preferred Alternative, using the standard practice of a HEC-RAS model generated by the Federal Emergency Management Agency (FEMA). While this modelling simulated riverine hydraulics and sediment transport under a range of streamflow and sediment loading scenarios, it did not did not extend into the portion of the river impounded by Lake Eerie lake levels nor Sandusky Bay. However, the Feasibility Study did discuss the issue of sediment accumulation in the Bay overall.

> *Release of sediment from the impoundment through removal of the dam will certainly impact navigation in the Bay. However, these impacts are minor in comparison to the long term loads received from the watershed. The Sandusky Bay will need to be dredged for recreational boating regardless of the Ballville Dam's removal. The release of sediment may accelerate the dredging schedule, but only by one to three years. Sediment transport impacts are classified as minor for spawning habitat, minor for impacts to the flood protection system, and minor for recreational boating in the lower river.p.58-59*

The Sandusky River currently conveys large sediment loads through the lower Sandusky River and into Sandusky Bay. The estimated volume of sediment in the Ballville Reservoir is 840,000 cubic yards (cy), with an estimated 470,000 cy that may be mobilized over the course of the 2 year demolition of the dam. However, either amount of sediment is still very small in the watershed scale. Between 1979 and 2002, 8.8 million cy of sediment flowed down the Sandusky River according to the US Geological Survey gage near Fremont. The bulk of this sediment was ultimately delivered to Sandusky Bay. Despite this large amount of sediment Thompson (2009) was able to locate suitable spawning substrate in Sandusky Bay via radio telemetry locations of adult walleye during

the spawning season. This spawning substrate is still present despite the tens of millions of cy of sediment that has moved through the Bay since the Ballville Dam was constructed. If the locations of the current spawning beds within the Bay were conducive to sediment deposition, it is likely that pronounced sediment accumulation would already be occurring. It is likely that the walleye spawning beds in the Bay exist in their current locations because currents, geomorphology and other factors make these areas less susceptible to sediment deposition. Expanding this idea further, the additional high quality spawning habitat upstream post dam removal would more than offset the potential short-term impacts downstream.

7. Concern regarding impacts to the Fremont levee area fishing grounds (Sierra Club)

   This comment requests additional explanation and support for our conclusions that there would not be significant impacts from sedimentation to the Fremont levee area fishing grounds.

   Response: We support our previous conclusion that sediment moving downstream following notching of Ballville Dam under the preferred alternative will not negatively impact the Fremont levee fishing grounds (see #17-19 in comment responses on the draft SEIS). The explanation and support for this conclusion, and all supporting analyses and statements, come from the results of the Ballville Dam Removal Feasibility Study (Stantec 2011) which presents sediment transport analysis methods and results in the reach of the Sandusky River downstream from Ballville Dam as part of its proposed removal. The Feasibility Study clearly addresses the concerns and is the primary basis for the conclusions related to the post-dam status of the river bottom in the levee area.

8. Questions regarding the estimates of the amount of sediment behind the dam (Appleby, Sherck, Rohm)

   Commenters have repeatedly raise concerns regarding differences in the existing estimates of sediments impounded behind the dam. Through the EIS Process and now the Supplemental EIS process we have worked with Dr. Evans and with Stantec Inc. to understand each separate estimate and determine with their help which would be most accurate to best inform our assessment of the potential environmental impacts of each alternative. On the Final SEIS, commenters indicate that the Stantec Inc. estimate used by the Service is low, given localized occurrences of sediment deposition seen by landowners in some portions of the reservoir.

   Response: As previously stated in the EIS and Draft SEIS, we acknowledge that the two known estimates of sediment - a 1993 survey by Ohio DNR (Dr. Evans) and a 2011 survey by Stantec - provide different estimates of impounded sediments. In our response to comments on the Draft SEIS, we establish that we consider the 2011 Stantec estimate to be more accurate. As we stated, the 2011 survey used much more accurate and up-to-date methodology, had a much higher resolution, and used the most recent measurement of bathymetry available.

We further spoke with both Stantec and Dr. Evans regarding their respective estimates. Through those conversations, as described above, a reasonable explanation of the change in total estimated quantity has been provided and agreed to by Stantec Inc. and Dr. Evans. It appears that the 2002 Evans study included the island upstream of the dam in its volume computations. However, the Stantec study noted that the island is covered in trees and other mature vegetation that stabilize sediment and prevent mobilization. Therefore, Stantec excluded the sediments comprising the island from its volume computations. It is clear that their individual methodologies for incorporating the island accounts for the majority of the difference between the two surveys. Based on this information, Stantec is a more informative estimate relating to the Ballville Dam Project and was used to assess the potential downstream impacts of dam removal during the NEPA process.

We appreciate the comments provided throughout this process on this important topic and the efforts made by the commenters to help understand and describe what they are witnessing as apparent accumulation of sediments on the landscape. Sediment deposition and scour are a dynamic process and are subject to redistribution in any river system or reservoir. Sediments within reservoirs may be redistributed by wave action, river velocities or flood events. However, the total volume of sediments within a reservoir will continue to accumulate until it no longer has the capacity to trap sediments. Therefore, the older the reservoir, the less sediments it is capable of trapping. At 100 years old the Ballville reservoir has likely surpassed its trapping capacity as both the Evans and Stantec studies suggest.

Through the NEPA process we are charged with using the best science available and information to assess the potential impacts of the alternatives. We believe we have done that in regards to estimating the quantity of sediment currently held behind Ballville Dam that would likely be mobilized during a dam removal alternative using modern bathymetric survey technologies and techniques.

9. Questions regarding the consideration of methodology and estimates of sediment removal used by the City of Fremont. (Kobel, Sherck, Sierra Club)

   Some commenters raised questions regarding the City of Fremont's consideration of excavation and beneficial reuse of the impounded sediments, as proposed by the Sierra Club.

   Response: We met with Sierra Club and Ohio DNR representatives in May 2016 to discuss the issues and ideas regarding excavation and beneficial reuse of sediments. Following that meeting, and after a meeting between the Sierra Club and the City, the Service worked directly with the City to understand the ideas Sierra Club presented so we could determine the most feasible and functional approach. As the Service, Sierra Club, and Ohio DNR discussed in our meeting in May 2016, this was a newly proposed idea by Sierra Club which required further development and review by engineering experts as well as an economic review by the City as the property owner and the leadership for the community potentially to gain from any profits as a result of beneficial reuse.

As a part of their proposal and in their comments on this topic, the Sierra Club referenced historic sediment activities (dewatering and excavation) that took place sometime prior to 1959 when the Dam was owned by the Ohio Power Company. It is important to note that and such actions that may have taken place at that time would have predated the Clean Water Act and NEPA, and would not have been subject to the same rigorous environmental reviews or permitting as modern day projects in the Sandusky River.

To complete our review of this idea we began by looking at the intent and goals of the beneficial reuse idea as presented to the Service. We understood those primary functions of the beneficial reuse idea to be (1) reducing overall costs of the proposed dam removal for the City of Fremont and (2) preventing sediment from being released downstream. To assess this idea, the Service asked the City to work with their engineers as needed to develop an alternative that they determined would be functional to achieve the desired results proposed by Sierra Club. The City worked within the spirit of the idea to determine how it could technically be achieved and to develop any estimated costs and profits associated. They completed this analysis and provided that information to the Service for our review and consideration, which was included as Appendix A in the Final SEIS. To respond to additional Sierra Club comments regarding beneficial reuse on the Final SEIS, the City provided another response (see Appendix C) where they reaffirmed their conclusion that beneficial reuse is cost-prohibitive. This decision by the City and our determination that there is limited long-term risk to the Sandusky River ecosystem through the Proposed Action, we continue to support the Proposed Action as the Preferred Alternative.

Some commenters raised concerns regarding the accuracy and reliability of sediment removal cost estimates of the alternatives in this EIS process. Estimates were completed by an external contractor and a range provided in the EIS based on technical reviews and expert identified contingency planning. Additionally, during the Supplemental EIS process, an unrelated project was identified in northern Ohio on a separate river system which independently determined its own costs to be within a similar range (Final SEIS Appendix B-1, Section 8). Lastly, in the Supplemental EIS we reviewed alternative cost estimates which were significantly reduced from those ranges first identified in the EIS, as a check and balance based on the concerns identified by commenters, and they were still determined to be cost prohibitive (Final SEIS, Section 2.2.1; Final SEIS Appendix B-1, Section 8).

Literature cited

Scavia, D., Allan, J.D., Arend, K.K., Bartell, S., Beletsky, D., Bosch, N.S., Brandt, S.B., Briland, R.D., Daloğlu, I., DePinto, J.V. and Dolan, D.M., 2014. Assessing and addressing the re-eutrophication of Lake Erie: Central basin hypoxia. Journal of Great Lakes Research, 40(2), pp.226-246.

Stantec Consulting Inc. (Stantec). 2012. 2011 Quality Assurance Project Plan Monitoring Report. Prepared for Five Rivers MetroParks. April 10, 2012.

Stantec Consulting Inc. (Stantec) 2011. Ballville Dam Removal Feasibility Study. Report prepared for City of Fremont, Ohio, 80 pp plus appendices.

Thompson, A.L. 2009. Walleye Habitat Use, Spawning Behavior, And Egg Deposition In Sandusky Bay, Lake Erie. The Ohio State University.

Personal communications

Dr. Laura Johnson, Heidelberg University, email communications between December 2016 and January 2017.

Ballville Dam Project

Final Supplemental Environmental Impact Statement (SEIS):

Appendix C

Letter from the City of Fremont Regarding Removal of Impounded Sediment

FREMONT
OHIO
Where People Come First

CITY OF FREMONT

OFFICE OF THE ENGINEER

December 22, 2016

Jessica Hogrefe
U.S. Fish and Wildlife Service – Region 3
Fish & Aquatic Conservation Program
5600 American Blvd W. Suite 990
Bloomington, MN 55437

Re: Ballville Dam Project – FEIS Response to Sierra Club Comment #5

Dear Ms. Hogrefe,

The City of Fremont is writing this letter in response to the Sierra Club comment #5 of the FEIS comment letter dated November 28, 2016. The City of Fremont provided your office with a sediment evaluation letter on September 16, 2016 that outlined the City's efforts to respond to the Sierra's Club idea of removing the sediment within the dam's impoundment area. The Sierra Club presented this idea in a meeting with the City and indicated that they believed the sediment could be removed, transported and processed for a net profit. As stated in the evaluation letter, the conclusion was that this idea could not be done without costing the City millions of dollars more and the Sierra's Club idea, while great in concept, cannot be done for a net profit. Therefore it is the City's position that extra costs above and beyond the current project costs is not acceptable, especially with the position of all the regulating agencies for this project being in agreement that the proposed dam removal preferred alternative is acceptable.

As outlined in the sediment evaluation letter, the City consulted with MWH Constructors and Stantec to further explore the potential methods and costs of this idea. To further explain the reasoning and conclusion of the above, there were several conditions and constraints that were considered in developing potential removal option. The first is river access, in which there is only one point of access in the area of where the majority of the sediment is located. This access point is at the end of Yingling Road on the south side of the river where there is a 60 foot right-of-way that extends beyond the end of the road down to the river. From this access point, the distance to the dam is approximately 950 feet and approximately 2800 feet to the upstream section of the river where the sediment thickness starts to become minimal or only a couple feet or less in thickness. This location also provides needed staging and storage area which would need to be secured

323 SOUTH FRONT STREET • FREMONT, OHIO 43420 • 419/334-5900 • FAX: 419/334-843

from the private resident who owns the land adjacent to the right-of-way. It is anticipated that once the dam is removed, the flow will cut a channel through the sediment, which will form on the north side of the river where the original channel was prior to the dam being built. It is also anticipated that as the channel redefines itself, there will not be a significant amount of sediment that will remain on the north side of the river. Therefore attempting to remove sediments remaining on the north side of the channel would be more difficult to accomplish and not cost effective. To remove the sediments from the northern side a river crossing would need to be constructed enable the equipment to gain access to this area and then to excavate and haul it out. So having the access point on the south side of the river is critical. It should also be noted that the development of the current cost estimate does not include any sort of river crossing and is consistent with the assumption above.

The second condition is the composition of the sediment, which is mostly silt. Silt has a high affinity for water, like a sponge, and is a very unstable material even at low moisture contents. Therefore attempting to run loaded dump trucks over this material, will most likely results in the trucks and excavators getting stuck. Because of this scenario, it is believed that only specialized equipment will be able to effectively remove the sediment from the river. The Sierra Club mentions that the sediment will harden to a cement like consistency if the sediment were to completely dewater. This may be the case where a hard crust will form on the top layer which may support light equipment. However, given the extent of the sediment area and its thickness, it is most likely that entire sediment thickness will not harden in this fashion unless it is given a long amount of time and is not further exposed to being re-hydrated by rainfall and river flows.

To the point of the sediment becoming stable to the point of being able to resist erosion, this is exactly what is anticipated to happen over several years and the designed efforts of immediately planting the exposed sediment. Once the sediment gets to this point of becoming stable there would not be the need to remove it as it would not present a significant risk of large amounts of sediment being transported downstream. Over time it is anticipated that there would be further erosion near the channel however nothing like the potential amounts that are anticipated right after the dam removal or if the sluice gates were opened.

The third condition is the extent and thickness of the sediment, which in most areas varies from approximately five to ten feet in the areas where the sediment is expected to be mobile. As mentioned by the Sierra Club in the comment letter, there are historic reports from residents who witnessed the removal of sediment as part of the hydroelectric dam operations. However there are no records the City is aware of on the historic removal regarding what equipment was used, the extent and thickness of the sediment were, the

amount of time that it was allowed to dewatered, the amount of sediment removed, etc... With the sediment being periodically removed and being that has not happened in quite a long time, it could be assumed that the current extent and thickness of the sediments is more than what it was at that time. Due to the know extent and thickness of the sediment based on recent survey and sampling events, it is anticipated that outlined method of removal would be necessary, which includes specialized equipment.

During the meeting between the Sierra Club and the City, mention was made by the Sierra Club to potentially open the sluice gates to allow for dewatering, however this approach was retracted and it was suggested that the preferred method was to install pumps to dewater the impoundment and exposed the sediments to allow them to dewater and stabilize. The reason was that a large amount of sediment would be discharged down river which is not what the Sierra Club wanted. Given the historic flow data, the size and number of very large pumps that would be needed to not only handle the base flow from the river, but be able to pump down the entire volume of the impoundment in a short time is unreasonable as during normal rain events the impoundment would fill very quickly. Therefore this approach was not considered. The City explained that the sluice gates have not been operated in a very long time and that at least one, but most likely multiple gates have been permanently welded shut. Therefore opening them was not possible at this time and the sediment in front of the gates has collected to a depth of approximately 10 to 13 feet based on the survey that was performed.

The proposed notching of the Dam will achieve the same result and allow a large portion of the sediment in the impoundment to be exposed, partially dewatered and stabilized which will minimize erosion and sediment transport downstream. The Sierra Club mentions and is correct with regard to historic practices of opening the dam gates and removal of sediment. However, it is believed that the extent and depth of the sediment during those historic events was less than what is there today. Given the current thickness and extent of the sediments in the impoundment, the sediments would have to be dewatered for a significant amount of time, including not being inundated during flooding and rain events to potentially allow standard equipment to operate on it. Obviously any dewatering and stabilization process is highly dependent on the amount and frequency of rainfall and inundation events at the dam which cannot be controlled.

It is also anticipated that if the gates were to be opened for an extended period of time, which will be required for the existing sediments to dewater and stabilize, there is greater risk of losing more sediment downstream faster than the preferred alternative. The opening of the gates will allow a significant portion of the sediment directly above the dam and within the channel that will be cut through the sediment all the way to the upstream extents of the sediment to be transported downstream. The hydraulic capacity of the gates is limited and is significantly smaller than the typical flows created by small

rainfall events from the rivers watershed. As such, the sediment in the impoundment would experience many cycles of the water elevations rising and lowering, especially in the new channel that will be formed, which increases the potential for sediment loss before it stabilizes. On the converse, notching the dam will not expose all of the sediment to this cycling as well as during rain events the flow will be distributed over a larger area, not a newly formed stream channel, which significantly reduces the flow velocity and scouring effect. The result is less risk for sediment erosion and transport in accordance with the preferred design as compared to opening the gates.

The second paragraph of the comment letter expresses the disagreement that specialized equipment would need to be implemented to remove the sediment and that previous removal was done by standard equipment. As explained above, it is believed that the thickness and extent of the sediment are different now than during historic removal events which will require specialized equipment to be used for removal.

The third paragraph of the Sierra Club's letter requests explanation as to why the sediment removal method of using specialized equipment instead of standard equipment was used. As addressed above, given the constraints and conditions of this project, standard equipment has been determined to not be a feasible option in potential removal of the sediment. With regard to Section 3.1.2.1, the installation of coffer dams around the location of the sluice gates was intended for their repair. The reference in this section to use this method was to accomplish two objectives which include making the repairs to the gates in the dry and to minimize the amount of sediment that would be transported through the gates when they are opened. To construct the coffer dam, the dewatering of the impoundment would be accomplished by opening the gates that may work. The opening of gates would release a lot of sediment downstream. Constructing coffer dams around them after the initial dewatering and removal of sediment directly around the gates would then minimize the amount of sediment from continuous dewatering by keeping them open during the repairs as well as flooding events that would risk much more sediment being transported downstream. The coffer dam would be constructed to be higher than the dam to allow the impoundment to fill back up and function normally while the gates were repaired. The coffer dam for this purpose would not serve as a sediment reduction method for the removal of the sediment in the impoundment as it would simply just be an extension of the dam around the gates and provide no trap or filter for sediment.

The Sierra Club expressed concerns with the pervious cost estimate provided in appendix A-2 of the Draft SEIS (Draft SEIS Comment 18). To explain the costs presented in this appendix the assumptions at the time of the estimates development must be understood. At the time, Stantec performed the estimate under the assumptions that the sediments would be hydraulically dredged from the impoundment, the slurry pumped to a location

near-by, the slurry dewatered and then the remaining de-watered sediment disposed of at a facility. Given these premises, project constraints, logistics to accomplish the work and multitude of unknowns and challenges, the costs were presented. Over time and exploration of different removal methods, the costs have been refined to what is being estimated today. However these costs also have assumptions, but are derived from a better understanding of the constraints and challenges to perform the work. Therefore due to a change in method and better understanding, there is a significant reduction in costs. However, the costs are still millions of dollars above and beyond what the City can afford.

As mentioned in the sediment evaluation letter, the City worked with Stantec and MWH Constructors. The Sierra Club mentions that Stantec has recently acquired MWH which is correct. However the City feels that the cost estimates that have been prepared are conducted using acceptable methods and resources. The City does not agree with the Sierra's Club insinuation that either Stantec or MWH has not presented the best possible estimate given the project understanding and constraints at the time of development.

The City also feels that the Preferred Alternative which includes staged removal of the dam and stabilization of the sediment is the best option and will best minimize sediment transport downstream.

Please let me know if you have any questions.

Sincerely,

Tucker Fredericksen
City of Fremont Engineer

Cc: Danial R. Sanchez, City of Fremont Mayor
Ken Myers, City of Fremont Safety Service Director
Jim Melle, City of Fremont Law Director
Mike Wilkerson, Ohio Division of Natural Resources