

September 12, 2016

**Issuance of A Limited Environmental Review
To All Interested Citizens, Organizations, and
Government Agencies**

Lake County

**Aquarius PAC Improvement HAB Project
Loan Number FS390043-0018**

The purpose of this notice is to advise the public that Ohio EPA has reviewed the referenced project and finds neither a Supplemental Study (SS) nor an Environmental Assessment (EA) is required to implement the project as discussed in the attached Limited Environmental Review (LER). Consequently, a Finding of No Significant Impact is being issued for this project.

The Water Supply Revolving Loan Fund program requires the inclusion of environmental factors in the decision-making process for project approval. Ohio EPA has done this by incorporating a detailed analysis of the environmental effects of the proposed actions in its review and approval process. Environmental information was developed as part of the facilities plan, as well as through the facilities plan review process. A subsequent review by this Agency has found that the proposed actions do not require the preparation of either an EA or an SS.

Our environmental review concluded that because the proposed project is limited in scope and meets all applicable criteria, an LER is warranted. Specifically:

- The proposed project will have no significant adverse environmental effect, nor will it adversely affect any specific resource type.
- It will not require extensive general or specific direct impact mitigation.
- It will not affect current design flow value or the existing service area.
- It is clearly cost effective.
- It is not controversial.

- It will not result in an increase in the volume of discharge or loading of pollutants to receiving water or increase the withdrawal of additional water supplies.

The LER presents additional information on the proposed project, costs and the basis for our decision. Further information can be obtained by calling or writing the contact person listed on the back of the LER.

Upon issuance of this determination, loan award may proceed without being subject to further environmental review or public comment, unless information is provided which determines that environmental conditions on the proposed projects have changed significantly.

Sincerely,



Jerry Rouch, Assistant Chief
Division of Environmental & Financial Assistance

Attachment

**LIMITED ENVIRONMENTAL REVIEW
For
Lake County**

**Aquarius PAC Improvement HAB Project
Loan Number FS390043-0018**

**Applicant: Randall J. Rothlisberger, Sanitary Engineer
Lake County Department of Utilities
105 Main Street
Painesville, Ohio 44077**

Project Summary/Background

The presence of algal toxins, related to Harmful Algal Blooms (HAB), in drinking water source water and in treated drinking water has been receiving considerable attention in recent years. Algae populations generally proliferate during the summer and fall, corresponding to warm water temperatures, and HAB are becoming increasingly prevalent. These seasonal issues in water quality have led to “Do Not Drink” advisories being issued in communities whose source water has become contaminated with algal toxins. Microcystin has been the predominant type of algal toxin present in Lake Erie, and a concern in the communities that use Lake Erie as a drinking water source, such as Toledo, Oregon, and Sandusky. Microcystins, which are able to cause serious damage to the liver, as well as being irritants to the skin, eyes and throat, are extremely persistent, even resisting degradation in boiling water, and resist common chemical breakdown under conditions found in most natural water bodies. Most drinking water treatment plants utilize conventional treatment methods that were not developed to deal with algal toxins and are unable to yield adequate removal of microcystins.

Lake County’s Aquarius Water Treatment Facility provides drinking water to residents in the West District of Lake County’s water distribution area. As Lake County utilizes Lake Erie as its raw water source, concerns exist related to the potential for “Do Not Drink” advisories due to HAB and their related toxins. A steady rise in HAB events and intensity have raised concerns related to a potential increase in these advisories and the associated health risks of exposure to the algal toxins. The use of Powder Activated Carbon (PAC) is a proven and effective treatment of drinking water for HAB if appropriately apportioned for the water treatment system and source water. Therefore, to address these issues, Lake County plans to update and expand its undersized PAC system through construction of the Aquarius PAC Improvement HAB project. The project, to be financed through an Ohio Water Supply Revolving Loan Account (WSRLA) loan, has a total estimated capital cost of \$620,000. The approximate construction schedule is November, 2016 through January 2017.

Existing Conditions

Lake County owns and operates two drinking water treatment plants that serve approximately 40,000 customers and businesses: the 6 million gallon per day (MGD) Bacon Road Water Treatment Plant, serving the East District of Lake County, and the 20 MGD Aquarius Water Treatment Facility (here forward referred to as Aquarius), serving the West District. Lake County’s systems include approximately 500 miles of water

mains, 9 elevated storage tanks and nine booster pump stations. Aquarius, located in Willoughby, provides drinking water to the communities of Eastlake, Lakeline, Timberlake, Wickliffe, Willoughby, Willoughby Hills and Willowick.

Aquarius, located at 38265 Aquarius Parkway, treats raw water that is drawn from Lake Erie via a 60-inch diameter water intake pipe that extends approximately 3,000 linear feet into Lake Erie. Water from Lake Erie is screened for particulates, and then pumped to rapid mix tanks where chemicals, including PAC, can be added to control odor, taste and pH. Water is next sent to flocculation tanks, and later transferred to settling basins where sludge is removed. Additional filtration takes place, and chlorine and caustic soda are added before the finished water is sent through the distribution network to consumers.

While Aquarius has a PAC system that has been utilized, as needed, to treat the plant's drinking water for odor and taste, the PAC system is undersized and not designed to efficiently dose Lake Erie water with PAC in the event of large HAB events.

Alternatives Analysis

To address potential future HAB treatment needs, Lake County considered the following two alternatives.

Alternative 1, a "no-action alternative," would essentially maintain current practices. However, this does not adequately address the public health threat related to HAB and the associated algal toxins affecting drinking water treatment and availability. This alternative could expose residents to unsafe drinking water conditions and/or "Do Not Drink" advisories.

Alternative 2 involves updating and expanding the existing PAC system to improve chemical storage, distribution and PAC treatment. Environmental Engineering and Technology, Inc. evaluated the type and dose of PAC to be used, as well as plant systems and configuration to determine the most effective PAC treatment plan. The results of jar tests concluded that wood-derived PAC had the highest toxin removal rate and allowed for removal of toxins to the 0.2 micrograms per liter concentration. This new PAC system would result in the removal of algal toxins, eliminating the exposure of residents to unsafe drinking water conditions and eliminating "Do Not Drink" advisories related to HAB.

Project Description

Based on its effectiveness in addressing future HAB threats and providing safe drinking water to its customers, Lake County selected Alternative 2 for implementation at its Aquarius Water Treatment Facility. The proposed project improvements will be located within the existing Chemical Feed Building, and consist of the following: removal of the existing rotary feeders and piping; installation of 2 normal-dose PAC feed pumps and 2

high-dose PAC feed pumps; new suction pipes, feed pipes and carrier water at the existing day tanks; new day tank mixers and level sensors; 4 mechanical bulk PAC mixers and 1 new pneumatic bulk PAC mixer; and new bulk PAC transfer pumps.

Implementation

Lake County proposes to borrow the entire Aquarius project cost from the Ohio Water Supply Revolving Loan Account in the approximate amount of \$620,000. Lake County qualifies for the standard WSRLA below-market interest rate on 20-year loans, which is currently 1.26-percent. The standard rate is changed monthly to reflect bond rates and may be slightly different in October 2016, the anticipated month of loan award. Borrowing at 1.26-percent will save Lake County approximately \$89,000 over the life of the loan compared to the current market rate of 2.51-percent. Under the water rates that are effective in 2017, the residential water bill in the project area will be \$36.19 per month, or \$434.28 per year, based on a usage of 7,757 gallons per month. This is 0.76-percent of the median household income of \$56,809, which falls well within affordability guidelines.

Conclusion

The proposed project meets the project type criteria for a Limited Environmental Review; namely, it is an action within an existing public water system, which involves the functional replacement of existing mechanical equipment. Furthermore, the project meets the other qualifying criteria for a LER; specifically, the proposed project:

- *Will have no adverse environmental effect and will require no specific impact mitigation, as there are no known sensitive environmental resources within the proposed project area. The proposed project activities include upgrades to and replacement of mechanical equipment within an existing structure at an existing drinking water treatment facility. There will be no significant adverse effects as a result of project implementation, or the need for any additional mitigation measures beyond typical erosion control and construction best management practices;*
- *Will have no effect on high-value environmental resources, as construction will take place within an existing building at the water treatment facility, where no high-value resources are present;*
- *Is cost-effective, as there are no meaningful alternatives to the proposed action, and the project will be financed through the WSRLA, saving approximately \$89,000 in interest payments over conventional financing;*

- *Is not a controversial action*, as there is no known opposition to the proposed project and the cost of the project is not overly burdensome to ratepayers;
- *Does not create a new, or relocate an existing, discharge to surface or ground waters, and will not result in substantial increases in the volume of discharge or loading of pollutants from an existing source or from new facilities to receiving waters*, since the project only involves upgrades to and replacement of equipment related to improved function of the existing drinking water treatment facility, not pollutant discharges;
- *Does not create a new source of water withdrawals from either surface or ground waters, or significantly increase the amount of water withdrawn from an existing water source*, since the project proposes upgrades to and replacement of PAC equipment that will improve treatment capability, not affect water sources or withdrawal amounts, and;
- *Will not provide capacity to serve a population substantially greater than the existing population*, since the project is not related to serving new growth or increasing capacity at the drinking water treatment facility.

In summary, the planning activities for the project have identified no potentially-significant adverse impacts. The project is expected to have no significant short-term or long-term adverse impacts on the quality of the human environment, or on sensitive resources (surface water, ground water, air quality, floodplains, wetlands, riparian areas, prime or unique agricultural lands, aquifer recharge zones, archaeologically or historically significant sites, federal or state-designated wild, scenic or recreational rivers, federal or state-designated wildlife areas, or threatened or endangered species). Typical construction impacts, such as noise, dust, and exhaust fumes, will be short-term and addressed through the use of standard construction best management practices.

The proposed project is a cost-effective way to address necessary upgrades to the existing treatment system's powder activated carbon equipment. Once implemented, the new PAC system will allow the facility to ensure the quality of its treated drinking water related to algal toxins, thereby protecting public health. Also, by using WSRLA low interest financing, Lake County has minimized the project cost.

For further information, please contact:

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Figure 1: General project area, Willoughby, Ohio.



Figure 2: Project area.