Ohio Environmental Protection Agency

Mike DeWine, Governor
Jon Husted, Lt. Governor
Laurie A. Stevenson, Director

June 16, 2021

Limited Environmental Review and Finding of No Significant Impact

City of Delphos – Allen and Van Wert counties
WWTP MBR Buildout
Loan number: CS390309-0019

The attached Limited Environmental Review (LER) is for a wastewater treatment project in Van Wert County which the Ohio Environmental Protection Agency intends to finance through its Water Pollution Control Loan Fund (WPCLF) below-market interest rate revolving loan program. The LER describes the project, its costs, and expected environmental benefits. Making available this LER fulfills Ohio EPA's environmental review and public notice requirements for this loan program.

Ohio EPA analyzes environmental effects of proposed projects as part of its WPCLF program review and approval process. We have concluded that the proposed project should not result in significant adverse environmental impacts. This project's relatively narrow scope and lack of environmental impacts qualifies it for the LER rather than a more comprehensive Environmental Assessment. More information can be obtained by calling or writing the person named at the end of the attached LER.

Upon issuance of this Finding of No Significant Impact (FNSI) determination, award of funds may proceed without further environmental review or public comment unless new information shows that environmental conditions of the proposed project have changed significantly.

Sincerely,

Jonathan Bernstein

Jonathan Bernstein, Assistant Chief
Division of Environmental and Financial Assistance

Attachment

LIMITED ENVIRONMENTAL REVIEW

Project Identification

Project: WWTP MBR Buildout

Applicant: City of Delphos
608 North Canal Street
Delphos, Ohio 45833

Loan Number: CS390309-0019

Project Summary

The City of Delphos has requested financial assistance from the Ohio Water Pollution Control Loan Fund (WPCLF) for the WWTP MBR Buildout project. Work for this facilities improvement project will include the installation of an additional membrane bioreactor (MBR) train to allow the wastewater treatment plant (WWTP) to function at its original design capacity. The estimated loan amount is $6,771,885. Debt for the project will be repaid from monthly sewer rates and the Delphos Sewer Fund. The project is scheduled to begin in autumn 2021 and be completed in 12 months.

History & Existing Conditions

The City of Delphos (see Figure 1) is located in Van Wert and Allen counties. The city is located in the Maumee River watershed drainage basin, which outlets into Lake Erie at Toledo by means of the Maumee River. The existing WWTP is located at 24793 Pohlman Road in the City of Delphos. The treated effluent from the WWTP is discharged to Jennings Creek. Jennings Creek flows north to the Auglaize River then into the Maumee River at the City of Defiance.

As a result of Ohio EPA Findings and Orders, the City of Delphos replaced it original trickling filter type wastewater treatment plant with a new state-of-the-art treatment facility utilizing flat plate membrane technology. The new treatment facility, which started operations in 2006, was at the time the largest flat plate membrane bioreactor in the world.

The 2006 wastewater treatment plant consisted of 3 mm influent screenings, aerated grit and grease removal, MBR process, ultraviolet disinfection, post aeration, and an Autothermal Thermophilic Aerobic Digestion (ATAD) solids handling system. The original MBR process was comprised of five independent processes, each consisting of 10,400 flat plate membranes for a total of 52,000. The average daily design capacity was to be 3.83 million gallons per day (MGD). The wastewater is collected throughout the City of Delphos and transported to the plant's main influent pump station.

Within the first 12 months of operation, the MBR system experienced severe solids buildup between the membrane plates. The solids buildup between the membrane plates severely limited the plant's ability to treat the current average daily influent flow of 1.2 MGD.

The existing WWTP has experienced failed membranes, blower failures, high electric power consumption, uneven flow splitting between membrane trains, flow hydraulic issues, inability to drain membrane tanks for cleaning and maintenance, permeate pump failures, hydraulic flow issues, and influent screening problems. These equipment failures and operational problems have resulted in effluent violations of National Pollutant Discharge Elimination System (NPDES) permit limits. The problems have been caused by the frequent failures of the existing flat plate bioreactors. As a result of these violations, Director's final findings and orders was issued to the City of Delphos on February 25, 2016.

In 2016, Delphos pilot tested a demonstration MBR train that uses both hollow fiber and flat plate membrane technology. The demonstration train had four cassettes of membrane modules that were installed in an existing concrete chamber. Based on the results of the pilot test, the city continued to operate the demonstration MBR train and installed a fifth cassette in the train for additional capacity and flexibility.

In 2017, Delphos installed a second MBR train using the new membranes to provide backup to the first train and the existing influent screens were replaced with two new mechanical screens.

Project Description

The proposed project (see Figure 2) is the final phase of a multi-phase project to replace failed flat plate membrane technology with more efficient membrane utilizing both flat plate and hollow fiber technology. Each membrane is comprised of approximately 500 fibers, with 16 membranes arranged side by side to form a module. The modules are configured in a block three rows high to make up a cassette. The membranes will be cleaned in place by back pulsing with clean permeate from inside outward through the hollow fibers. Chemical storage and feed systems for sodium hypochlorite and citric acid will be provided to assist in cleaning.

The proposed work will add a third treatment train of membranes and a permeate pump to restore the WWTP to its original average design flow of 3.83 MGD. This project also includes new aeration equipment in process tanks 1 and 2, new biological process, and membrane blowers. Specifically, the project includes the installation and construction of the following:

- Four membrane cassettes and associated equipment for the final membrane train
- Blowers for membrane air scour
- Effluent flume upgrade
- Process aeration and post aeration equipment
- Return Activated Sludge (RAS) channel upgrade
- Fine bubble diffused aeration for two aeration tanks
- Outside chemical feed containment walls
- New chemical feed in basement
- Four RAS pumps
- Magnetic flow meters
- Controls system upgrade
- Air piping
- Miscellaneous demolition and electrical control work

Implementation

Delphos proposes to borrow the eligible cost for the project from Ohio's WPCLF. Delphos will recover debt associated with the project from monthly sewer rates and its Sewer Fund, and rates will not increase as a result of this project. The 2021 monthly residential sewer rate in Delphos is $46.61 ($559.32 annually), based on average monthly water usage. This is 1.13 percent of the median household income of $49,711.

The total loan amount is $6,771,885. This project qualifies for a 30-year, zero-percent hardship loan. Borrowing at zero percent will save Delphos approximately $2,390,000 over the life of the loan compared to the current market rate of 2.1 percent.

Public Participation

The Delphos WWTP project has been discussed extensively at public meetings and city council meetings and has received coverage in local newspapers and online outlets. The city is aware of no controversy surrounding this project. Furthermore, this Limited Environmental Review will be posted on Ohio EPA's website.

Conclusion

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

Will have no adverse environmental effect, will require no specific impact mitigation, and will have no effect on high-value environmental resources, as construction will take place within an existing wastewater treatment facility where extensive excavation has previously taken place and where no high-value resources are present. 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.

Is cost-effective, as the proposed action satisfies technical goals of the project and was deemed the most cost-effective compared to other evaluated alternatives.

Is not a controversial action, as there is no known opposition to the proposed project, the cost of the project is not overly burdensome to ratepayers, and will be financed through the WPCLF, saving approximately $2,390,000 in interest payments compared to conventional financing.

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 involves the functional replacement of and improvements to existing equipment, and not increases to pollutant discharges.

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 design capacity at the wastewater 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 by standard construction best management practices.

The proposed project is a cost-effective way to make improvements to the failing MBR equipment. Once implemented, the project will update failing infrastructure, helping Delphos achieve the designed treatment capacity of its WWTP, and ensure safe and effective operation of the facilities. Also, by using WPCLF zero-interest financing, Delphos has minimized the project cost.

Contact information

R. Eric Schultz
Division of Environmental & Financial Assistance
Ohio Environmental Protection Agency
P.O. Box 1049
Columbus, Ohio 43216-1049

e-mail: eric.schultz@epa.ohio.gov

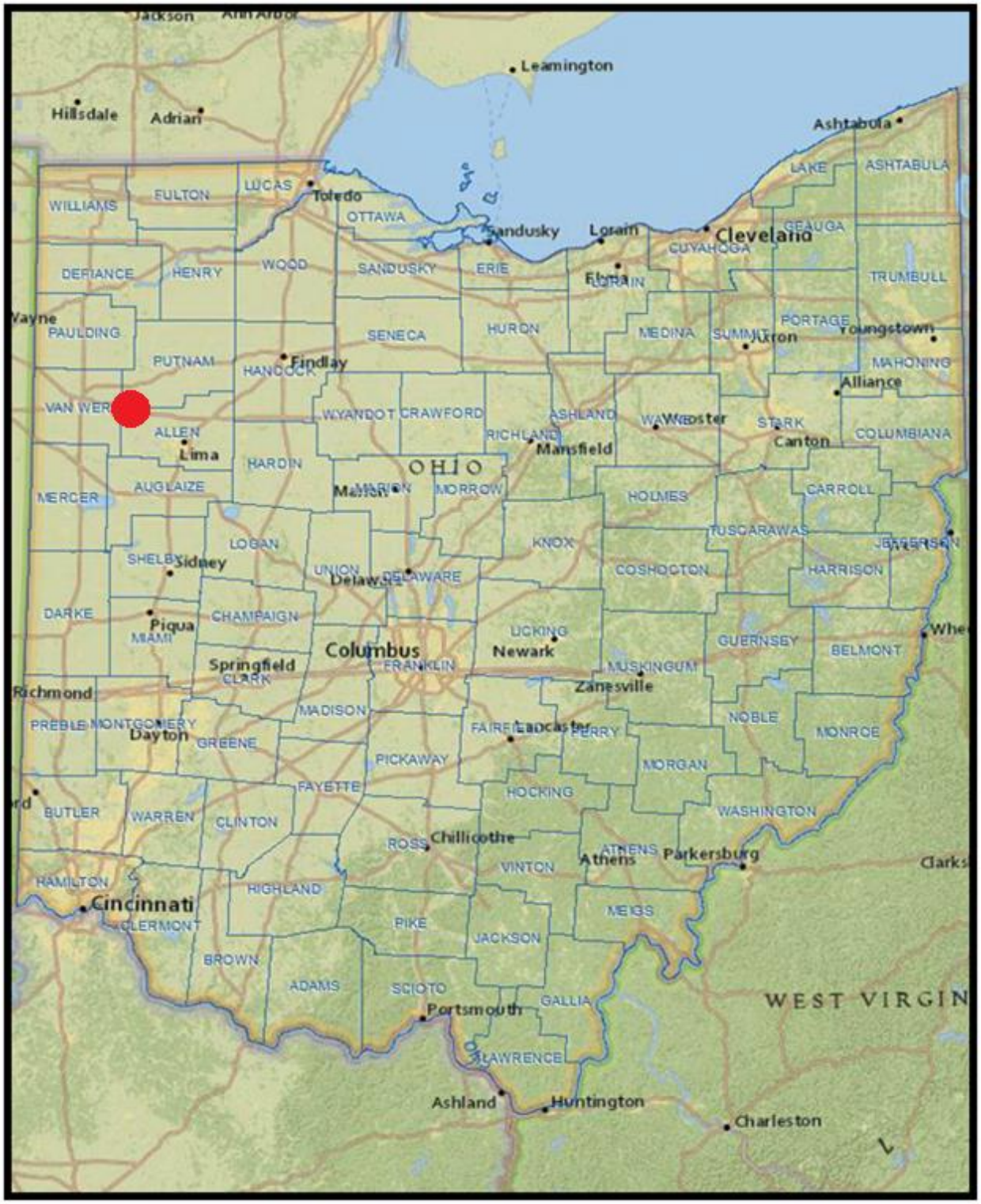

Figure 1. General project area (in red)

Figure 2. WWTP MBR Buildout project location (in red)