



State of Ohio Environmental Protection Agency

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November 13, 2009

FINDING OF NO SIGNIFICANT IMPACT
TO ALL INTERESTED CITIZENS, ORGANIZATIONS,
AND GOVERNMENT AGENCIES

Tri-Cities North Regional Waste Water Authority
Miami County
Wastewater Treatment Plant Pump Building Equipment
Loan No. CS391439-0004

The purpose of this notice is to seek public input and comments on the Ohio EPA's preliminary decision that a Supplemental Environmental Study is not required to implement the recommendations discussed in the attached Environmental Assessment of the power generating equipment replacement submitted by the municipality mentioned above.

How were environmental issues considered?

The Water Pollution Control Loan Fund program requires the inclusion of environmental factors in the decision-making process. Ohio EPA has done this by incorporating a detailed analysis of the environmental effects of the proposed alternatives in its review and approval process. Environmental information was developed as part of the facility plan and associated documents, as well as through the facility plan review process and during site inspections. The Agency's preliminary Environmental Assessment found that the project does not require the preparation of a Supplemental Environmental Study.

Why is a Supplemental Environmental Study not required?

Our environmental review concluded that significant environmental impacts will not result from the action. Any adverse impacts have either been eliminated by changes in the facilities plan or have been reduced by the implementation of the mitigative measures discussed in the attached Assessment.

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

Ohio EPA is an Equal Opportunity Employer

How do I get more information?

A map depicting the location of the project is included as part of the Environmental Assessment. The Environmental Assessment presents additional information on the project, alternatives that were considered, impacts of the action and the basis for our decision. Further information can be obtained by calling or writing the contact person listed in the back of the Environmental Assessment.

How do I submit comments?

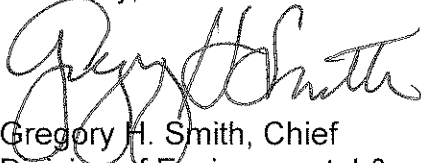
Any comments supporting or disagreeing with this preliminary decision should be submitted to me at the letterhead address. We will not take any action on this facilities plan for 30 calendar days from the date of this notice in order to receive and consider any comments.

What happens next?

In the absence of substantive comments during this period, our preliminary decision will become final. The municipality will then be eligible to receive loan assistance from this agency.

Please bring any information that you feel should be considered to our attention. We appreciate your interest in the environmental review process.

Sincerely,



Gregory H. Smith, Chief
Division of Environmental &
Financial Assistance

GHS/JB/jb

Attachment

ENVIRONMENTAL ASSESSMENT

For

**MAIN PUMP STATION IMPROVEMENTS
TRI-CITIES NORTH REGIONAL WASTEWATER AUTHORITY
WPCLF LOAN NUMBER CS 391439-0004**



**Applicant: David Heckler, General Manager
Tri-Cities North Regional Wastewater Authority
3777 Old Needmore Road
Dayton, OH 45424**

Summary of Need

The North Regional Wastewater Treatment Plant (NRWWTP), located at 3777 Old Needmore Road in Dayton, is owned and operated by the Tri-Cities North Regional Wastewater Authority (TCA). The NRWWTP treats wastewater from the TCA's member cities of Huber Heights, Tipp City, and Vandalia, and portions of Miami County. It is a two-stage trickling filter facility with influent pumping, screening, grit removal, primary settling, wet-weather flow equalization, trickling filters, intermediate clarification, nitrification, final clarification, chlorine disinfection and post-aeration. Sludge is treated anaerobically and land-applied. NRWWTP is designed to process an average daily flow of 11.2 million gallons per day (MGD), peak flows of 16 MGD, and 30 MGD through the wet-weather flow equalization process. Final effluent is discharged to the Great Miami River at river mile 87.5 under NPDES permit number 1PD00020.

The NRWWTP utilizes three sources of energy in its daily operations: natural gas from Dayton Power and Light (now Vectren), electricity from Dayton Power and Light (DP&L), and digester gas, which is a byproduct of anaerobic sludge digestion. Approximately 80 percent the energy consumed at the NRWWTP goes to pumping water from the wet-well to the head of the treatment process. The engines that provide energy for many of the pumps, located in the Main Pump Building at the NRWWTP, include two gas-fired units with electric generators and two gas-fired units with direct-drive raw wastewater pumps. There are also four electric motor-driven raw wastewater pumps.

The gas driven generators and the gas engine-driven pumps may be fired with digester gas or Vectren natural gas. Digester gas is an economical energy source because its only cost is that associated with operating the sludge facilities. Enough digester gas is produced to supply most, but not all, of the potential energy for the engine-driven pumps and generators at the NRWWTP. Prior to operational changes in the late 1990s, Vectren natural gas was the main supplement to digester gas. The electricity produced by the generators drives the electric pumps and other electrical equipment. Alternately, the electric pumps and other equipment may be powered by DP&L electricity.

Energy conversion through gas-fired engines is known to be inefficient. As a result of this known inefficiency and because of high natural gas bills, TCA conducted a series of energy surveys at NRWWTP to determine how to reduce the operating cost of the raw water wet-well pumps and associated generators.

A 1997 study identified Vectren natural gas as the costliest energy source. The study concluded that energy costs could be reduced by supplementing the digester gas with DP&L electricity instead of natural gas, and by increasing the efficiency of the digester gas. Following the recommendations of the 1997 study, TCA made minor capital improvements to the gas supply lines, gas engines and electric pumps. It also made energy-saving changes in the operation of the wet-well and the recycling of flow through the plant. These actions greatly reduced the use of natural gas for pumping and

electrical generation and yielded significant energy cost savings without major capital expenditures.

Despite these savings, TCA still spent \$81,200 on outside power sources, primarily DP&L electricity, in 2005. In 2006, TCA conducted a study to recommend ways to reduce this expenditure. The 2006 study recommended increasing pumping efficiency by replacing two of the electric pumps with high-efficiency electric pumps, by adding one new high-efficiency electric pump to reduce usage of the gas engine pumps, and by implementing a "smart" pumping control system that coordinates the pumps to achieve the lowest energy usage per million gallons pumped. It also recommended improving the metering of gas and electricity, and adjusting controls to import less DP&L electricity. Finally, it recommended further study of ways to increase the efficiency of converting digester gas to electricity, focusing on replacing the aging, inefficient gas engines.

Building on the last recommendation, TCA carried out an energy monitoring project after 2006. In this project, TCA metered electrical output and electrical consumption, and measured digester gas production and use. Using this data, TCA learned that there is enough inefficiency in the gas-driven engines to warrant replacing them altogether, added to the fact that these engines are no longer in production and parts for them are scarce. The significant inefficiency identified in the study also argues in favor of converting all the pumps to electric drives, as opposed to having any pumps operate from gas drives.

TCA ultimately decided to replace the two gas-driven direct-drive pumps with a biogas-fired engine-driven generator and a biodiesel-fired engine-driven generator. The second generator will be a backup unit, and biodiesel was chosen as the fuel type to lower capital equipment costs and afford TCA further diversification of fuel/energy options. The combination of three fuel sources (biogas, natural gas and biodiesel) for onsite electricity generation, along with DP&L's electric service, will provide TCA assurance of continuous operation of the NRWTP.

Proposed Project

TCA will make the following improvements in the Main Pump Building and the electrical room in the Operations Building at the NRWTP:

- Replacement of the six existing pumps with five new, high-efficiency electric-driven pumps;
- Demolition of the two existing gas engines;
- Installation of one new biogas engine generator and one new biodiesel engine generator;
- Replacement of three existing aeration blowers with three new blowers;
- Expansion of the existing electrical room;
- Installation of new electrical service and switchgear in the Main Pump Building;
- Replacement of the existing heat recovery system; and

- Construction of a new “smart” pumping control system.

All work will be done within the grounds of the NRWWTP, and most of it will be done within the Main Pump Building. The only site work planned is the trenching of electric cable between buildings.

This option is clearly cost-effective. The main alternative to the proposed project, which is to continue using gas driven engines to power the influent pumps, can never be made significantly less costly or more efficient than it is now.

Implementation

The estimated project cost is \$3,539,000. As a green project, all of the as-bid cost can be funded through the American Recovery and Reinvestment Act of 2009 as a “principal forgiveness” loan. Thus, TCA does not need to repay the ARRA funding.

TCA recovers its capital and operating expenses through fees it charges the member cities. The member cities in turn recover the fees from their customers. Because TCA will not repay the ARRA funds, no capital cost for this project will be added to existing sewer charges. By not repaying principal or interest, TCA will save \$5,367,300 compared to taking a 20-year loan at the market rate of 4.42 percent.

Fabrication of the new components is expected to begin in early 2010. Installation of the new components is expected to commence in summer, 2010.

Environmental Impacts and Mitigation

The project as designed will be done entirely on site and within existing NRWWTP structures. The only excavation involved will be that for the electrical cable on the NRWWTP grounds. The project is located within the range of the following federally-listed species: the Indiana bat (endangered species), the rayed bean mussel (candidate species) and the snuffbox mussel (species of concern). The project will involve no in-stream work or tree removal, so it will have no impact on these species. It will not involve a new or relocated discharge or a higher loading of pollutants to surface or ground water. It will not result in the expansion of the service area; thus, it will not generate development-related (secondary) environmental impacts such as prime farmland loss. It will not affect cultural resources that are listed on or eligible for listing on the National Register of Historic Places, since the WWTP was built in 1985, making the structures within which the work will be done less than fifty years old. The NRWWTP is geographically isolated from existing development, so the expected levels of noise, dust and odors produced by proposed work will not affect residences or businesses. Given the isolated location of the NRWWTP, traffic revisions will not be required to carry out the project.

Furthermore, Executive Order 12898, “Federal Action to Address Environmental Justice in Minority Populations,” requires proposed federal actions to identify, address and

avoid disproportionately high and adverse human health or environmental effects on minority and low-income populations. The NRWTP is isolated from surrounding communities and the adverse environmental impacts will be minor and short-lived. The benefits will be realized by all ratepayers. Therefore, no particular segment of the population will face additional adverse impacts or be deprived of environmental benefits, compared to any other segment.

The project has the potential to affect air quality and the Great Miami/Little Miami Buried Valley Sole-Source Aquifer. The adverse effects have been controlled in the design of the project, as follows:

Air Quality: The federally regulated air pollutants include oxides of nitrogen (NOx), particulate emissions (PE), sulfur oxides (SOx), carbon monoxide (CO), and volatile organic compounds (VOC), along with lead (Pb). The emitters under the project at the NRWTP will include the biogas-fueled generator, the biodiesel-fueled generator, a flare, and two stationary internal combustion engines. When operational, the biogas-fueled generator will be the primary power source for the Main Pump Station. The stationary generators will be available as back up when the biogas generator is out of service for maintenance or rebuilding. The biodiesel generator will supplement the biogas generator to meet the facility's peak power needs. The flare serves as a release for biogas under conditions of excessive internal gas pressure in the sludge digesters.

The abovementioned equipment requires a modification of the Permit-to-Install-and-Operate (PTIO) that was issued on July 9, 1997 for the facility. TCA has submitted a PTIO application to the Regional Air Pollution Control Authority for the new equipment. The requested annual allowable emissions of each pollutant are shown in the table below. The figures provided are totaled across all the emitters that will be regulated under the PTIO.

Pollutant	Tons Per Year
NOx	98.72
PE	2.98
SOx	2.55
CO	31.40
OC	3.51

These figures are based on the assumption that each piece of power generating equipment runs at 100 percent capacity when in use. An annual operating scenario was developed for each piece of generating equipment that results in the total combined annual emissions of each pollutant remaining below 100 tons per year (tpy), in accordance with the criteria for permitting as a synthetic minor emissions source. These numbers are currently being refined, primarily with the intent of reducing the maximum allowable NOx emissions, which remain near the 100 tpy maximum.

In actual operation, the components will not run at 100 percent capacity. The main power generator will be the biogas-fueled generator. As such, it will be the main emitter

and will be the main impactor of air quality. TCA estimates that the biogas generator will have emissions 25 percent lower than the power generating system that it will replace. Therefore, this will be a much cleaner-burning system.

Based on all the foregoing, the project will have a beneficial effect on air quality without significant adverse long-term or short-term effects.

Sole-Source Aquifer: The NRWTP is located over the Great Miami/Little Miami Buried Valley Aquifer System, the sole-source aquifer that provides much of the drinking water for the region. Thus, construction activities that have a significant potential to pollute the aquifer through chemical or fuel spills need to be conducted with care to avoid spilling such substances and, if spills occur, to clean them up immediately.

The proposed project has little inherent pollution potential. Most construction will be carried out with electric tools inside the Main Pump Station. The cable installation outside the building will likely be completed in a short time with a small trenching machine that will not need frequent fueling. TCA will emphasize to contractors during the preconstruction meeting that care needs to be taken during refueling of outside equipment to avoid spills and to clean them up quickly if they do occur. Once the project is complete, the only outside fuel container will be an external, pad-mounted biodiesel fuel tank. This will be of new construction, which includes double walls to contain leaks.

Based on this the project will not affect the sole-source aquifer.

Public Participation

Given the following factors, the project has little potential for public controversy. With the funding that TCA is working to secure, the new equipment will add no debt service to be passed along to the member cities and to customers. By reducing operating costs at the NRWTP, it will help control the future sewer charges paid by the member cities and their customers. It will have minor, localized adverse environmental impacts and will have a positive impact on air quality. This Environmental Assessment has been posted on the websites of Huber Heights, Vandalia and Tipp City for a 30-day comment period. No further public participation is considered necessary.

Conclusion

Based on energy consumption studies of the NRWTP, telephone conversations and memoranda, we have concluded that the proposed project described herein will have no significant adverse environmental or economic impacts as it relates to floodplains, wetlands, endangered species, surface water, ground water, wooded or aquatic habitat, farmland or cultural resources. It will have a positive effect on air quality. Odors, dust and noise generated by its activities will be minimal to begin with and will not be noticeable from the surrounding area. Traffic revision will not be necessary as no work will be done in heavily populated areas.

By facilitating the continuous, more efficient operation of the NRWTP, it will help maintain water quality in the Great Miami River.

For further information, please contact:

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