



INDIAN RIVER COUNTY, FLORIDA DEPARTMENT OF UTILITY SERVICES

Date: March 24, 2017
To: Jason E. Brown, County Administrator
From: Vincent Burke, P.E., Director of Utility Services
Prepared By: Arjuna Weragoda, P.E., Capital Projects Manager
Subject: Florida Department of Environmental Protection (FDEP) Consent Order 17-0072 for the Indian River County West Regional Wastewater Treatment Facility

DESCRIPTIONS AND CONDITIONS:

Indian River County Department of Utility Services (IRCDUS) owns and operates the West Regional Wastewater Treatment Facility (WWTF) located on 8th Street, west of 82nd Avenue. The plant is currently permitted for 6.0 million gallons per day (MGD). The West Regional WWTF wetland system, adjacent to the plant, has a permitted 4.0 MGD annual average daily flow (AADF) discharge to the Lateral D Canal, Class III fresh waters. The West Regional WWTF and wetland system FDEP Permit No. FL0041637 was renewed April 12, 2016, with an expiration date of April 11, 2021.

ANALYSIS:

The subject permit has waste load allocations (WLA) assigned to the plant that restrict how IRCDUS and its wetland treatment system (WTS) contractor operate the system. The Total Maximum Daily Load (TMDL) point source allocations tied to the plant are very rigid and do not allow the county any capacity to deal with varying environmental conditions. For example, should there be a large rain event, precipitation containing atmospheric nitrogen is deposited onto the 135 acre site and must be absorbed by the system even though it is an additional source of nutrient load not attributed to the WWTF operations. Additionally, birds frequenting the site can add bio load to the water way. The permit conditions put TMDL restrictions on the WTS site that changed the way the WTS was allowed to cope with extreme conditions. IRCDUS, in its efforts to achieve permit compliance with the TMDL restrictions, has had to store water in the wetlands system in direct contrast with the way the system should be operated. When water is discharged from the site, the FDEP requires IRCDUS to take samples of the discharge to ensure not only that Class III surface water quality requirements are met, but also to ensure that the nutrient concentration, given a set flow rate, does not exceed the WLA. By solving one problem, the system has developed another. Fluctuations in the water flow through the system have created pools of stagnant water. As a result, vegetative communities in the wetlands cells are now struggling to survive. Stagnant water and decomposing plant matter have led to water quality exceedances attached to the permit, for which the FDEP is now requiring corrective action.

In order to address some of these exceedances, IRCDUS has already taken actions such as:

- Evaluated methods to operate the WTS given the restrictive nature of the permit.

- Started removing cattails and decaying biomass in the WTS Cell 14, the final cell of the WTS before water discharges from the site. On March 7, 2017, the BCC authorized a \$73,700 work authorization for Tim Rose Contracting. The final work will be to re-vegetate this cell once the maintenance clearing is complete.
- Hired an outside consultant, who specializes in unit process operations associated with Biological Nutrient Reduction (BNR) facilities, to review and analyze what is/is not occurring at the treatment plant. His preliminary findings, currently under review by staff, indicate that there may be operational inconsistencies at the West plant, possibly due to fluctuating nutrient dosing from other sources prior to entering the WWTF. Staff is currently gathering data with regard to this issue in order to explore viable solutions.
- Requested a proposal to assess and evaluate the operations of the biosolids facility from the same firm that helped analyze the West Regional WWTF operations. The biosolids facility appears to have inconsistent and periodically high organic nutrient loading demands sent to the West Regional WWTF. To better understand this impact to the West plant and to find corrective actions required by the FDEP in the consent order, staff is recommending the hire of a senior operations specialist and two process engineers from CH2M Hill.

Although the FDEP has issued a consent order to address the permit excursions, it is worth noting that, based on the historical information reviewed by our consultant, “staff have done remarkably well operating a facility with erratic loading and limited monitoring tools to make process decisions.”

Even with the erratic loading fluctuations suspected from the biosolids facility, the wetland treatment system has done relatively well in removing nutrients. For calendar year 2016, the following removal efficiencies have been achieved:

Quality Parameter	Plant Removal Efficiencies	Wetlands Removal Efficiency
Total Nitrogen	90.15%	80.09%
Total Phosphorus	96.71%	66.48%

The Indian River County Biosolids plant was relocated from the Central WWTF to the landfill in 2010 after complaints and odor issues. In doing so, the site became a central point for business inside and outside of the county. The Biosolids facility, currently undergoing a FDEP permit renewal, accepts septage, grease and sludge from haulers. Such material comes from septic tank pump outs, commercial food establishment areas, smaller package treatment units and portable restrooms (aka porta-potties). Since 2010, the Biosolids facility has had an open door policy that has attracted haulers doing business inside Indian River County as well as from surrounding counties. While this may be good for business, staff is actively researching whether this policy is hampering the IRCDUS’s ability to maintain permit compliance at our West WWTF. Our low rates and unchecked analyses of incoming septage and grease allows haulers to do business very cheaply. Thus, haulers from Brevard, IRC, Martin Port St. Lucie and other counties use this site. Staff has begun investigating instances whereby very high nutrient loads are brought in and sent onto the West WWTF site. Since March 20, 2017, staff has begun to take grab samples for laboratory analysis of all material brought into the facility. While this effort has been costly for staff time and laboratory expenses, it will ultimately allow us to track which loads may have an adverse impact on the facility and our West WWTF. Starting April 1, 2017, in accordance with Florida Administrative Code 64E, we have begun requiring all haulers to submit a log manifest of where their pump-out material is coming from, whether it is septage or grease, and if it is residential or commercial in nature. The results of these investigations and CH2M’s findings may lead staff to recommend that either the facility be used only for Indian River County septage and grease, or implement some sort of out of county surcharge. The belief is that if the FDEP requires IRCDUS to implement

a pre-treatment protocol for the Biosolids facility before sending the centrate to West WWTF, there could be costly capital investment requirements and higher O&M costs associated with a pre-treatment plant at the Biosolids facility. Current rates are too low to accommodate any additional treatment modalities that may be required.

The consent order has been drafted to ensure that future permit exceedances are addressed in a timely manner. The FDEP allows for an in-kind penalty offset to the proposed fines attached to the order. Due to the erratic influent loadings, the consultant recommended IRCDUS purchase an online total phosphorus monitoring instrument and a hand-held field oxidation reduction potential probe to assist the West Regional WWTF plant operators in changing treatment processes in a timely manner to address the fluctuations in the waste loads. Staff has initial FDEP confirmation that this proposed in-kind offset is allowable.

Within 60 days of the signing of the consent order, the County must pay the FDEP \$500 in administrative fees for costs incurred by the FDEP regarding this permit-related matter.

FUNDING:

Funding for the FDEP administrative fee of \$500.00 is available in the Utilities operating fund under the License and Permits account 47121836-034970. Since the need for the two pieces of equipment was not identified prior to the compilation of the fiscal year 2016-17 budget, funds in the amount of \$32,926.05 to purchase these items will come from the Other Equipment account 471-166002, which is funded from the cash balance. Although there are currently funds available for the Other Professional Services account 47125736-033190, this unbudgeted \$29,900.00 expense may cause the need for a future budget amendment as well. Operating funds are derived from water and sewer sales.

Description	Account No.	Amount
License and Permits	47121836-034970	\$ 500.00
Other Equipment	471-166002	\$32,926.05
Other Professional Services	47125736-033190	\$29,900.00

RECOMMENDATION:

Staff recommends that the Board of County Commissioners:

- A. Authorize the Chairman to execute Consent Order 17-0072.
- B. Authorize staff to pay the \$500 administrative fee to the FDEP within 60 days of the effective date of the Order.
- C. Waive the requirements for bids and authorize the Purchasing Manager to issue a Purchase Order for a lump sum amount of \$32,926.05 to Hach for the in-kind equipment purchase/penalty offset, upon FDEP approval.
- D. Waive the requirements for bids and authorize the Purchasing Manager to issue a Purchase Order to CH2M Hill for a lump sum of \$29,900 for process engineering consulting services at the biosolids facility.

ATTACHMENT:

- 1. Consent Order 17-0072
- 2. Price Proposal from Hach
- 3. Price proposal for consulting services from CH2M