THE "PERK" OF STREAMLINING OPERATIONS

CITY OF CLEARWATER – PUBLIC UTILITIES DEPARTMENT

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SYNOPSIS: The "Perk" of Streamlining Operations

for Submittal to 2011 Transforming Local Government/FCCMA Conference
Case Study Application

It all started with a cup of flavored coffee; how could anyone have known it would help process discharged water? Advanced Wastewater Treatment ("AWT") is the removal of nutrients such as Nitrogen and Phosphorous prior to discharge. These nutrients, if discharged to surface water in large quantities, can degrade ecosystems. At the City of Clearwater Public Utilities Department ("PU"), our task is to remove these nutrients prior to surface water discharge. Historically, PU treated wastewater with a proprietary process product [read: "expensive"], which is a carbon source that facilitates the biological removal of Nitrogen. The idea to use an organic waste byproduct – from a local beverage manufacturer – to meet the process needs of AWT helped streamline operations. Their beverage waste became our carbon source. Additionally, both entities received perks in the form of reduced disposal costs for the beverage manufacturer and reduced product costs for PU.

PU sought to substitute a less costly product, which happens to be more sustainable, while maintaining the current level of Nitrogen reduction, or actually improve treatment. Anticipated outcomes included: maintain AWT performance; cost-savings; utilize waste byproduct effectively; reduce compliance issues; and decrease traffic impact by sourcing locally. Since implementation, AWT treatment limits have been maintained; cost-savings has been significant; effective and efficient use of the byproduct has been demonstrated as viable; compliance has been maintained by both parties meeting regulations; the environmental impact has lessened; and a reduction in transportation costs and traffic impacts has been realized.

The idea to use an alternative carbon source is not an industry standard but rather a local solution created through opportunity; available organic waste byproduct which could perform the biological nutrient removal for the AWT process; motivated industrial pretreatment staff with a background in treatment who realized the discharge properties of this local industry byproduct were near those purchased for treatment; cost-savings; and environmental efficiencies. The byproduct is just as safe and stable as the proprietary product, available in necessary quantities and performs well. However, because this is not an industry standard, AWT operators were initially hesitant. Operators are

responsible for maintaining environmental regulatory compliance and were accustomed to using a reliable, commercially-marketed product. There was no usage history of the new organic waste byproduct and no data to show it could meet regulatory compliance.

As the new process product was implemented, operators learned through trial and error to adjust the dosage rate. Additionally, they changed the type of pump used to deliver the product due to viscosity issues. The simple solution was to employ the proper pump for the application. The trials are ongoing and further optimizations are possible.

Based upon the implementation of the byproduct, presently one AWT plant is saving $48.48 per day which could result in annual savings of approximately $17,000. PU continues to improve efficiencies for plant operations and expects to further streamline the process.

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PRESENTATION COMPONENTS: The "Perk" of Streamlining Operations

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1. Innovation / Creativity

The product substitute is a mixture of several raw ingredients that are organic waste byproducts created by a local beverage manufacturer. The waste byproducts are too concentrated a carbon source which make it cost-prohibitive to treat and/or legally dispose of in the sanitary sewer system. Following the existing treatment flow pattern, the byproduct would cause a depletion of oxygen and a huge power demand at the treatment facility. However, the raw ingredients in a concentrated form (collected, transported to the treatment facility, fed at a controlled rate in small proportions at the appropriate phase of treatment) is actually beneficial to the biological removal of Nitrogen. A critical and long-standing component of Advanced Wastewater Treatment is Nitrogen removal. Public Utilities has applied a known technology in a different manner.

2. Outcomes Achieved

All public utilities are provided in a safe, reliable and efficient way to customers; part of meeting this standard is advanced wastewater treatment. The innovation assists in streamlining the treatment process. Utilizing an untapped resource as a key component of a beneficial treatment process as well as removing the byproduct from the waste stream is helpful to the treatment process and ecosystem as a whole. The initiative is a very new program, perhaps after awareness of the success becomes common knowledge more people will look for opportunities and share ideas.

3. Applicable Results and Real World Practicality

The technology applied doesn't necessarily have to be new it may be a simple refinement of existing technology or applying it in an unintended function. Depending on treatment process and design, this innovation may be applicable to other local governments. Also, application will depend on locally available resources. The process is monitored on a continuous basis and lab data is routinely collected and analyzed. We plan to share compliance results and cost-savings. Performance may be measured in: dollars spent per nitrogen removal, discharge standards and compliance records.

4. Case Study Presentation

The presentation would include a PowerPoint presentation and video and could include a field trip to the wastewater treatment plant.