

Racine Water and Wastewater Utilities

Keith E. Haas, P.E.
General Manager



City of Racine, Wisconsin

Michael L. Gitter, P.E.
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April 3, 2009

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MAYOR'S OFFICE

Mayor Thomas Friedel
City of Racine
730 Washington Avenue
Racine, WI 53403

Dear Mayor Friedel:

This letter is being sent to you in accordance with the Racine Area Intergovernmental Sanitary Sewer Service, Revenue Sharing, Cooperation and Settlement Agreement (Agreement) dated April 25, 2002. Section 3.4 b. (copy attached) requires the Wastewater Commission to provide the SSR Parties of the Agreement a written notice prior to proceeding with any "Unplanned Upgraded Sewer Service Facility." The notice shall include a description of the project, the proposed timing of the project, the estimated cost of the project, and state what portion of such total cost it estimates will be the responsibility of each SSR Party.

The Wastewater Commission has authorized Black & Veatch to conduct an assessment of the OpenCEL pretreatment technology, as a potential means to enhance anaerobic digester gas production and reduce biosolids disposal volume at the wastewater treatment plant. Waste Activated Sludge (WAS) is difficult to biodegrade in a digester, due to the organic intercellular material being embedded inside bacterial cells. The OpenCEL technology utilizes a rapidly pulsing, high-voltage electric field that lysis the cell walls of WAS, which releases the intercellular material so it can be exposed to the biological organisms within the digester for improved degradation. This degradation results in the increased conversion from a solid to a gaseous phase, which consists of about 2/3 methane that can be harnessed as a source of renewable energy. The net result is a two-fold savings in reduced natural gas usage, and reduced biosolids disposal costs. Additional savings are expected for reduced polymer usage, and reduced digester sludge heating. The attached Black & Veatch Technology Evaluation Report shows that annual savings of about \$300,000.00 are projected.

The OpenCEL system consists of step-up transformers for high-voltage power supply, capacitors for electrical energy storage, and a treatment chamber, where an electrode assembly focuses the electrical pulses on the WAS flow. The sludge is diverted through a grinder pump that reduces the particle size before introduction into the OpenCEL system. When voltage is applied, electrodes in the treatment chamber generate an electric field, which flows from one electrode to the other through the WAS inside the chamber. The technology itself is not new, as it has been used in the food industry as a disinfection mechanism. However, its application to the wastewater field has been limited, but with promising results. As the application in wastewater

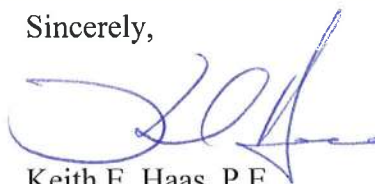
does not have an extensive track record, OpenCEL is open to purchase agreement options, including performance standard milestones. Therefore, the final cost is not defined, but can be estimated to be about \$1.5 million. Presentations have been made to the Racine Wastewater Commission and to the Commission's Technical Advisory Committee with regard to this project. This purchase and installation price can also be reduced through a combination of Stimulus, Focus on Energy, and WE Energies grants, which Black & Veatch is currently researching.

The methodology to assign actual SSR Party share of the total cost would need to be reviewed and discussed. As an estimate, the percent share of Average Daily BOD capacity that each SSR Party currently has in the Agreement is used here. BOD is a measure of the organic strength of the wastewater. Using that concept, the Racine share of the OpenCEL system would be about \$681,000.00. Remember, however, that the total cost may well be reduced through savings garnered through applicable grant funding. Black & Veatch concludes that "there is a significant opportunity to realize savings that would justify the level of risk perceived to be associated with such an installation." Also keep in mind that these costs may be amortized over a 20-year period to bring the actual yearly payments down to a significantly lower number.

At this time, I need you to provide a written response to the Commission indicating that you acknowledge receipt of this information, and whether or not you approve of the expenditure for the unplanned upgrade to the Wastewater Utility. The Agreement states that the Commission shall provide each SSR party not less than 40 days prior notice before approval of the proposed project. While honoring that provision, I request that you respond in time for the matter to be taken up at the April 28 meeting of the Wastewater Commission, as there is a June deadline for submittal of any Community Block Grant funding associated with the Stimulus package in which this project may qualify.

If you, your staff, or your commissioners have any questions, please do not hesitate to call. We will be happy to meet with you, at your convenience, to attempt to answer any questions you may have as a result of this letter.

Sincerely,

A handwritten signature in blue ink, appearing to read 'KEITH E. HAAS', with a stylized flourish at the end.

Keith E. Haas, P.E.
General Manager

c: B. Anderson (Wastewater Commission President)
M. Gitter

Enclosure