KENTUCKY MUNICIPAL WASTEWATER TREATMENT FACILITY IMPROVES PROCESS TO COMPLY WITH WHOLE EFFLUENT TOXICITY (WET) DISCHARGE REQUIREMENTS

INTRODUCTION

Whole Effluent Toxicity (WET) testing of wastewater is a common method to characterize and measure the aggregate toxicity of wastewater that is discharged into streams, lakes and rivers. The goal of this testing is to protect the aquatic life exposed to discharge from municipal and industrial facilities. Testing measures toxicity of combined effluent constituents and does not focus on individual parameters that are typically identified in standard discharge permits. This testing aims to reduce the combined toxicity from unknown chemical reactions or toxicants in the effluent of treatment facilities that can impact nearby aquatic life.

SOLUTION

In the Fall 2005, contractors for a northern Kentucky Municipal Water & Sewer Service contacted Evoqua Water Technologies for assistance to comply with WET testing goals for the facility. The municipality receives a majority of its wastewater from a local automotive manufacturer that contains trace levels of heavy metals such as copper, nickel and many other organic contaminants. Although no specific contaminant violated the discharge standard, the facility did not consistently achieve required results under WET testing necessary under permits from the Kentucky EPA. The inability to pass these tests on a regular basis caused the municipality to seek a permanent treatment solution to provide reliable and consistent treatment results.

Evoqua’s solution included the coupling of carbon adsorption with custom formulated ion exchange treatment technology to remove trace residual contaminants in the facility effluent. Bench scale pilot testing was performed in October 2005 and then a pilot treatment system installed to evaluate the technology. The permanent system featured HP® Series carbon adsorbers in a lead/lag configuration followed by an HP® Series vessel containing ion exchange resin. The combination of carbon for the removal of trace organic contaminants with custom formulated ion exchange media was chosen to selectively remove trace inorganic metals from the wastewater. During the pilot test period, the customer successfully achieved WET goals on all toxicity tests conducted.

Significant Accomplishments

Since implementing the new treatment technology, the customer has remained in compliance with WET testing goals as required by the Kentucky EPA.

<table>
<thead>
<tr>
<th>Facility</th>
<th>Municipal Wastewater Facility</th>
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<tbody>
<tr>
<td>Application</td>
<td>Organic compounds and inorganic metals removal</td>
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<tr>
<td>Technology</td>
<td>Carbon adsorption, ion exchange</td>
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<tr>
<td>Scope of Services</td>
<td>Pilot study, System design, Full scale installation and startup, Ongoing support to work with customer and improve performance</td>
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<tr>
<td>Start Date</td>
<td>Fall 2005</td>
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<tr>
<td>Project Duration</td>
<td>Ongoing</td>
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NORTH AMERICA SERVICE NETWORK

Our North America service network is backed by more than 80 offices staffed with certified technicians and applications experts who can solve your problems. In addition, Evoqua Water Technologies provides response flexibility through either a lease or capital purchase option, and the company offers assured liability protection through environmentally safe waste destruction.

SERVICES AVAILABLE

- Activated carbon supply, removal and reactivation services
- Filter media supply and removal
- Ion exchange resin supply
- Membrane supply and cleaning programs
- Parts and expendables
- Service contracts
- Temporary/emergency water systems

TECHNOLOGIES AVAILABLE

- Reverse Osmosis (RO) membrane filtration
- Conventional clarification and filtration
- Oil/Water separation
- Granular activated carbon adsorption
- Demineralization
- Inorganic metals removal
- Chemical addition

Evoqua Water Technologies delivers cost-effective, reliable systems guaranteed for quality, safety, and compliance. Our trained service staff is available to make sure your systems is running at peak performance and to your specification. For your water treatment system, choose the partner that is committed to taking care of the world’s water...and yours.