

## Now You See It, Now You Don't

A petrochemical facility in Baton Rouge is fortunate to be located in an area with abundant groundwater supplies. However, the 1,452 foot deep well that supplies water for drinking and other utility purposes has elevated levels of iron and manganese. Although both metals are necessary elements of a healthy diet, levels above the Environmental Protection Agency's (EPA's) National Secondary Drinking Water Regulations can cause aesthetic effects.

In this case, the elevated levels of iron and manganese were apparent; the water in some plant locations had a noticeable color. In some cases, a fine sediment was visible. These conditions led to understandable concerns regarding the quality of the water supply. A comprehensive evaluation of the system was initiated by

Compliance Consultants that included monthly sampling of multiple points in the distribution system.

It was determined that the iron and manganese were being oxidized ("rusted") by aeration and the addition of chlorine. Both practices are required by the Louisiana drinking water regulations, so a system to remove the iron and manganese before these operations was needed.

A search began to find a treatment system that would reliably remove the iron and manganese. A type of ion exchange system, commonly used in home water softeners and used at the plant to treat boiler water, was selected. As part of pollution prevention strategies, the system uses a patented electrochemical process to regenerate the resin in the system.

This process was developed and patented by Compliance Consultants, Inc. Their process allows regeneration of the resin without the use of sulfuric acid and sodium hydroxide, and removes the regulatory burdens associated with their use.

The results have been 'clearly' visible. The monitoring shows removal of over 95% of the iron and manganese, and stains on fixtures are disappearing. The removal of the iron and manganese has had an immediate effect on the color of the water. The EPS Secondary Drinking Water Standard for color is 15. The facility is now meeting a newly established internal color standard of 5 in the drinking water tank, which is 3 times more 'clear' than the secondary standard. Currently, work is underway to optimize the system.

**Water Color Measurements  
Before and After Ion Exchange Treatment**

