

Oswego News



Volume 13, Issue 3

Winter 2005

PUBLIC WORKS DEPARTMENT

Oswego's Radium Removal Process is First in Country

By: Jerry Weaver, Public Works Director

The Village of Oswego is pleased to announce that construction of the first water treatment plants in the country utilizing a new process for radium removal is complete. The water from each of the Village's current five, high-capacity, deep wells contains naturally occurring radium, as do many deep wells in northern Illinois. The radium level at each well was above the Environmental Protection Agency's (EPA) maximum allowable level of 5 picocuries per liter (pCi/L). The patent pending process utilizes a proprietary form of the mineral zeolite, a media called Z-88™, to absorb radium from the water supply. Water from a well passes through the media which is contained in a specially designed tank. The media is very efficient at removing radium while not altering other water characteristics. The resulting passive treatment system will only require monitoring and sampling. No chemicals will be added, no backwash or regeneration of the media will be required, and as a result, no well production capacity is lost. When the Z-88™ reaches its design capacity for radium removal after two to three years, it will be disposed of in a licensed facility and replaced with new material. The process generates no liquid waste streams containing concentrated levels of radium that need to be disposed of by the water utility. Oswego evaluated the available technologies for radium removal from drinking water before deciding on the Z-88™ process. These included lime softening, conventional ion exchange, and reverse osmosis. Less widely used methods that are limited to radium removal were also considered, including those incorporating hydrous manganese oxide or barium sulfate. All of these methods have high capital costs and significant operating disadvantages. The new

Z-88™ process does not have these disadvantages. The developer of this process, Water Remediation Technology of Arvada, Colorado, will provide the equipment, media, replacement and disposal of the spent media, and maintenance of the process under a long-term contract with the Village of Oswego. There is minimal operator effort and maintenance required by Oswego. Significant cost savings to the Village results from this approach. The Village reduced construction costs of the treatment plants by approximately \$1.7 million dollars compared to conventional ion exchange. In addition, there is no need to add operators or incur maintenance costs on five separate treatment plants. This process will also be the most economical over a twenty-year period compared to any other radium removal method. It was clear to Oswego that the Z-88™ process provided the best technological solution for radium removal and the most economical alternative for achieving compliance with the radium regulations. A pilot study incorporating the Z-88™ process was conducted on the Oswego water supply and confirmed the effectiveness of this method for total removal of the radium. The treatment units have been in operation since spring 2005. They are delivering water with low radium levels that are well below the maximum allowable level under EPA regulations. The process is yielding radium levels in the distributed water closer to the health-based goal of zero pCi/L, which is less than most other processes Oswego could have installed while costing less than all other methods. Additional information on this process may be obtained from Jerry Weaver at (630) 554-3242.