Integrity
MUNICIPAL SYSTEMS

PROJECT PROFILE: Ft. Pierre, SD

Integrity Municipal Services Successfully Reconditions 15-Year-Old Emergency Chlorine Vapor Scrubber System for the Oglala Sioux Rural Water Supply System in South Dakota

The MNI Wiconi Water Treatment Plant in Ft. Pierre, South Dakota was built for the Oglala Sioux Rural Water Supply System between 1997 and 2002 with a grant provided by the U.S. Department of Interior. The plant, which treats water drawn from the Missouri River, supplies clean, quality water to a large portion of southwestern South Dakota, including one non-tribal and three tribal water systems.

In order to provide safe drinking water to its customers, the plant utilizes chlorination as a part of its water disinfection process, requiring the use and storage of toxic chlorine gas at the plant. In 1998, USFilter/RJ Environmental provided an Emergency Chlorine Vapor Scrubber System (EVSS) as part of the plant's emergency management plan. An EVSS is typically used to remove and neutralize chlorine gas vapor from the chlorination building in the event of an accidental vapor leak. This requires the system to be ready to operate at optimal performance at all times.

"Professionalism and skill; this is what we received working with Integrity Municipal Systems. Thank you."

Marty Swallow,
Maintenance Manager,
MNI Wiconi Water Treatment Plant

During a preliminary site visit in August 2014, an Integrity Municipal Services (IMS) inspector determined that the plant's EVSS had approximately "12 inches of caustic solids built up in the scrubber sump with an appearance of a clear block of ice." The existing liquid caustic was foaming and pushing residual out the top of the recirculation pump.

Integrity Municipal Systems was contracted to provide scrubber inspection and cleaning services in October 2014. IMS neutralized existing solutions to a pH of approximately seven and, because the plant has a large waste storage reservoir, plant personnel were able to safely store the waste solution in the reservoir.

The procedure included:

1. Removal of spent caustic;
2. Addition of muriatic acid to breakdown and neutralize solids;
3. Running the recirculation pump to circulate acidic solution through the system in order to wash the scrubber packing media and liquid distribution piping;
4. Removal, cleaning, and reinstallation of spray nozzles; and
5. Removal, neutralization, and rinsing of all internals with fresh water.

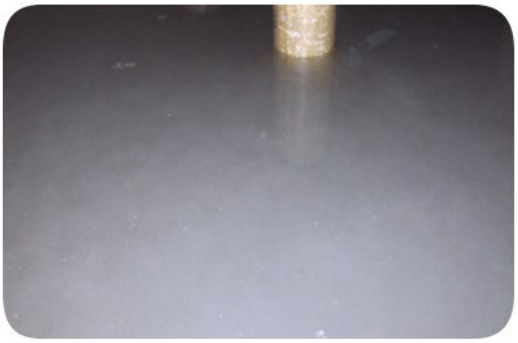
Following completion of the service and inspection of the work performed, the plant's Maintenance Manager, Marty Swallow, stated: "Professionalism and skill; this is what we received working with Integrity Municipal Systems. Thank you."

Packed Bed Before Acid Wash

Packed Bed After Acid Wash

BEFORE ACID WASH

Clear 12” Block of Caustic Solids



Sump Before Acid Wash

AFTER ACID WASH

Sump After Acid Wash

Sump After Acid Wash

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