

CASE STUDY

RL Sherard WTP, Cheyenne, WY

Integrity Municipal Services Successfully Reconditions Emergency Chlorine Vapor Scrubber

The Integrity Municipal Services (IMS) team successfully cleaned and reconditioned an emergency chlorine vapor scrubber in Cheyenne, WY, and did so while providing substantial savings to the City of Cheyenne, Board of Public Utilities (BOPU). The BOPU provides clean water for Cheyenne at its R.L. Sherard Water Treatment Plant. An emergency vapor-phase chlorine scrubber supplied by Siemens Water Technologies (formerly USFilter/RJ Environmental) was installed at the R.L. Sherard WTP during the plant expansion in 2001.

The emergency chlorine scrubber is designed to contain and neutralize chlorine vapors in response to a chlorine gas leak. A fan draws chlorine-laden air into the scrubber where it is contacted with caustic that is recirculated from the sump over packing media to neutralize the vapors during a leak event.

IMS personnel were involved in the design, manufacturing, and start-up of the system during its installation in 2001, and performed a thorough inspection of the system in August 2011 in response to a proposal solicitation from the Cheyenne BOPU for the cleanout and reconditioning of the chlorine scrubber system located at the water treatment plant.

"The dedication and attention to detail demonstrated by Integrity Municipal Services resulted in a savings of over \$100,000 of budgeted funds."

*- Bud Spillman,
Manager, BOPU Water Treatment Division*

After the site visit, IMS determined that it could neutralize the spent caustic and acid wash solutions that would be generated from the cleaning process on-site in the nearby sludge holding pond, where a pH in the range of 6-9 was acceptable. Utilizing onsite disposal instead of traditional removal and disposal at qualified facilities provided substantial savings for BOPU. In November 2011, IMS personnel performed the acid wash of the system. The cleaning process included: (1) removing as much of the existing liquid caustic solution as possible from the scrubber sump, neutralizing and disposing of it onsite, (2) dissolving solids buildup in the sump with muriatic acid, (3) recirculating acidic solution over the packing media to dissolve solids buildup and increase pH, (4) cleaning the spray nozzles, and finally, (5) removing the acidic solution from the sump, neutralizing and disposing of it. The system was thoroughly rinsed with water prior to the final inspection of all components.

Bud Spillman, Manager of BOPU Water Treatment Division, stated, "The final work product resulted in a professional service and restoring the chlorine scrubber unit to service in a condition that mirrored the original design and intent of the unit. The dedication and attention to detail demonstrated by Integrity Municipal Services resulted in a savings of over \$100,000 of budgeted funds and a quick and effective turnaround to one of the key safety systems located within the water treatment facility. Integrity Municipal Services not only assisted with the cleaning and reconditioning, but provided staff with direction for the long-term operation and maintenance tasks required of the system. It is without hesitation that I would consider Integrity Municipal Services for future efforts related to the Chlorine Scrubber system."

BEFORE ACID WASH



Packing in Second Stage

AFTER ACID WASH



Packing After Acid Wash



Solids in Sump Up to 29" Thick



Sump After Acid Wash



Nozzle in Second Stage



Sump after Acid Wash

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