



Reference:

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The 3.0 million gallon per day (mgd) Saint Johnsbury Water Treatment Facility was constructed in 1990 with a 0.146 mg in-plant clearwell. The limited operating volume of the clearwell required frequent on/off operation of the treatment facility, which is detrimental to finished water quality and increased color and particle counts in the finished water. The new clearwell project includes constructing a 0.5 million gallon (mg) clearwell at the former site of the east alum residuals lagoon at the existing water treatment facility. The east alum lagoon was abandoned during this project. The additional storage volume will improve finished water quality and is anticipated to result in decreased disinfectant byproducts. The design was completed in November of 2008 and construction was initiated in 2009.

The remaining alum residuals lagoon was renovated to allow process waste to normally discharge to a slip-lined main which will convey the waste to the St. Johnsbury Wastewater Treatment Facility (WWTF). The renovation included constructing two pre-cast concrete process waste holding tanks and reshaping the remaining lagoon area to serve as a separate waste holding area when discharge to the WWTF is limited or not allowed.

KEY FEATURES

- Design plans included for two tank alternatives (precast-prestressed concrete and bolted panel glass fused to steel) to maximize bidding competition.
- The clearwell construction increases the water system hydraulic gradeline by 37 ft (15 psi) and a new pressure reducing valve vault was necessary to reduce the possibility of damage within the distribution system that could occur as a result of the pressure increase.
- Site work included chemical feed improvements to extend the potassium permanganate feed line to a location near the raw water intake.