Saskatchewan Municipal

Best Practice

Water Treatment Process

CONTACT

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THE PRACTICE

The resort community of Sun Dale has partnered with Tec Water and Communities of Tomorrow to develop an economical water treatment process. Many innovations are employed in this facility to ensure that a safe drinking water supply is provided to the Sun Dale resort community residents. The Sun Dale water treatment facility is serving as a "living lab" for this innovative new water treatment technology. This innovative municipal infrastructure facility addresses local water supply challenges, taps into a large market need, and provides economic benefits.

With conventional water treatment systems, the resort community was unable to utilize the abundant natural Last Mountain Lake water supply due to the lack of an affordable and efficient system to treat water sources. Sun Dale, like other communities with harsh surface water sources, are forced to look to labour intensive, less economical, or more wasteful water treatment options.

The technology employed in the Sun Dale Water treatment plant allows small communities to use surface water as opposed to traditional reliance on ground water. The water treatment system rids surface water of the turbidity which normally makes it impossible to treat. In addition it operates on an as-needed basis, so it reduces the need to continuously operate and staff the water plant. This makes it attractive to smaller communities.

THE PROCESS

- July 2009 - Oct 2009 - Batch coagulation treatment train system pilot design work, engineer meetings, documentation for permit to build compiled for SERM for the novel system
- August 2009 - Dec 2009 - System pilot pre-build and ordering off-site, system pilot build at site
- November 2009 - March 2010 - Changes and modifications to the pilot design, coagulant adjustments, meetings with the proposed site committee, pilot testing and analysis
- January 2010 - March 2010 - Engineer calculations according to regulations, documentation, engineering drawings done
- February 2010 - June 2010 - Engineer review, documentation for permit to operate compiled for SERM for the novel system

THE RESULTS

The plant was commissioned in 2009 and was granted a Permit to Operate by Saskatchewan Environment in May 2010. The innovative water treatment plant is fully operational, regulated by Saskatchewan Environment and is operated by certified professionals. Sun Dale follows a diligent regime of daily, weekly, and quarterly testing as identified by Saskatchewan Environment for this community. The Sun Dale potable water meets or exceeds all of the Saskatchewan Drinking Water

Standards. From an efficiency perspective, the recovery rate is estimated at 60% of raw water entering the plant. Chemical usage rates have been lower than originally anticipated. Minor operating changes were implemented in August 2010 to achieve this rate of recovery. Additional efficiency testing is scheduled for spring of 2011.

LESSONS LEARNED

Starting with a small scale pilot study reduced risk for the project considerably. Finding the right partners was also key. Communities of Tomorrow continue to be a valuable source of knowledge in the development effort.

MR2 McDonald Consulting Engineers welcomed the innovations at Sun Dale and delivered a working design. MPM Construction, Degelman Developments, Provincial Electric, Landel Controls, Sapphire Group, John Brooks, Aquifer, Watergroup and Wiggins Electric also provided key components and skills. Saskatchewan Watershed Authority, Canada Fisheries and Oceans, and Saskatchewan Environment have been supportive throughout the development process.

The next challenge faced by the community is waste water treatment.