

Client: Evraz Steel Mill, Regina Saskatchewan

Installation Date: 2015

Summary

The Evraz facility in Regina is the largest steel mill in Western Canada and is a part of the largest producers of steel in North American. Evraz creates steel plates, coils, pipe, and more for the purposes of rail, energy, and industrial markets through various mechanical processes. Some of these processes include the use and reuse of water. These processes are where CWC and its C50 Clarification unit comes into play.

Evraz Steel Mill used the C50 unit to mitigate the issues from within four different processes throughout their steel mill. These processes include that of the Castor Well, the Rolling Mill, the Cooling Tower, and the Mill Pond. The C50 was used to clean these processed water systems that contain everything from hydrocarbons, heavy metals, and other containments from the mills processes.



The Castor Well

The Castor Well provides water to assist in the cooling of the molten steel slab that has just been cast. Imperfections in the slab develop when the well water has suspended particles that adhere to the steel in the cooling process. Prior to the use of the C50, the well water was clarified by sand filters. Sand filters are expensive to operate and maintain. The C50 clarifies the well water more efficiently cost effectively than the Evraz sand filters do.



The Rolling Mill

The Rolling Mill shapes the slabs from the castor into plates. Oils, greases, hydraulic fluids, and other contaminants fall from the rolling mill equipment onto the products being formed. Water cools and cleans the products as they are made and harden. A water with little suspended material is needed in this process. The C50 can provide a more dependable supply at a lower cost than the sand filters Evraz was previously using.

The Cooling Tower

The Cooling Tower uses water to control the heat in the furnaces by running water through water-cooled panels inside of the furnace. This water must have low levels of suspended material. Cooling tower wells, pipes, and spillways are favorite spots for bacteria to form. At Evraz, a bacteria strain formed strings of green fibers that were clogging their system. To mitigate this problem, Evraz used large amounts of micro biocide. With the C50, the bacteria was fully controlled, no chemical was needed, and the cost to properly maintain the wells was reduced.

The Mill Pond

The Mill Pond is the collection area at Evraz for wastewater that cannot be immediately clarified at the source. The oils and floating material are skimmed off as much as possible, but the remaining wastewater must be hauled away for disposal at a large cost. The C50 was used to recycle this wastewater for 'make-up' water.



February 12th, 2017. The glass on the left is a sample from the mill pond. The glass on the right is the C50 clarified water from the pond.

Project Successes

In summary, the benefits of the C50 to the Evraz Steel Plant include:

- A consistent and high quality of recycled water provided to each source.
- No replacement costs for the clean 'make-up' water as this is recycled from Evraz wastewater.
- Clean water for cooling and cleaning which ensures a higher quality product as well as reducing the stress on the equipment and structures within the plant.
- Bypassing the existing expensive and ineffective sand filters used by Evraz as wastewater that is clarified by the C50 goes directly into the Evraz storage wells.
- Significant savings at the Cooling Tower as there is no need to use chemical to control bacteria growth.
- Additional savings at the Mill Pond as the C50 reduced the volumes needing to be hauled for disposal as well as providing an additional clean water source to the Evraz Mill.

The Solution is Clear

-Clear Water Clarification-