

## CASE STUDY

# Wastewater Recycle



Chinook Power Station – 350 MW Natural Gas

<b>Customer:</b>	<b>Burns and McDonnell (Saskpower)</b>
<b>Location:</b>	Swift Current, Saskatchewan, Canada
<b>Process:</b>	Combined Cycle Power Plant, Wastewater reclamation

**APPLICATION:** Hydrocarbon removal from washdown water

### OBJECTIVES OF THE TREATMENT

- Remove hydrocarbons to below detectable limits
- Protect Ion Exchange, Membranes and other demineralization equipment
- Recover wash-down waste water for reuse as boiler feed makeup in high pressure boiler system
- Continuously monitor hydrocarbon concentration in effluent

### DATA & CONCLUSIONS

- Inlet oil content from Turbine Lube Oil avg. 5 ppm
- Outlet oil content below detectable limits
- Highly variable solids concentrations dependent on time of year

#### FLOW RATE:

- Design – 300 gpm

**CONTACT / REFERENCE:** Upon Request

### MYCELX DELIVERED:

**Complete skid mounted two stage redundant polishing system**

**Protection to downstream processes**

**>99% removal of hydrocarbons**



## CHALLENGE

- Power plants rely on clean water to produce energy via use in high pressure boilers and steam turbines
- Complicated processes are used to make ultra-clean water for use in high pressure steam systems. These demand rigorous water pre-treatment to protect heat and mass transfer methods.
- Make up water demands on local water sources are monitored and limited in many areas
- Many plant waste water streams are now being recycled for make-up water, to maximize water efficiency
- Hydrocarbons are especially difficult to remove to ultra trace needs – in order to protect membrane filtration and ion exchange resins

## SOLUTION

MYCELX provided a two stage treatment solution driven by patented technologies for an optimized solution.

MYCELX provided a prefabricated skid to drop into place at site, requiring minimal site labor.

Primary treatment removes neutrally buoyant hard particles covered with oil, like pipe scale and dust, to 5 microns in size.

Secondary treatment by MYCELX polisher removes oil and hydrocarbons larger than 0.5 micron in diameter. Removing all oil to this level shows non-detect by the oil monitor, which is capable of PPB levels of detection from UV Fluorescence.

The system is equipped in duplex form, to allow for maintenance without stopping flow.

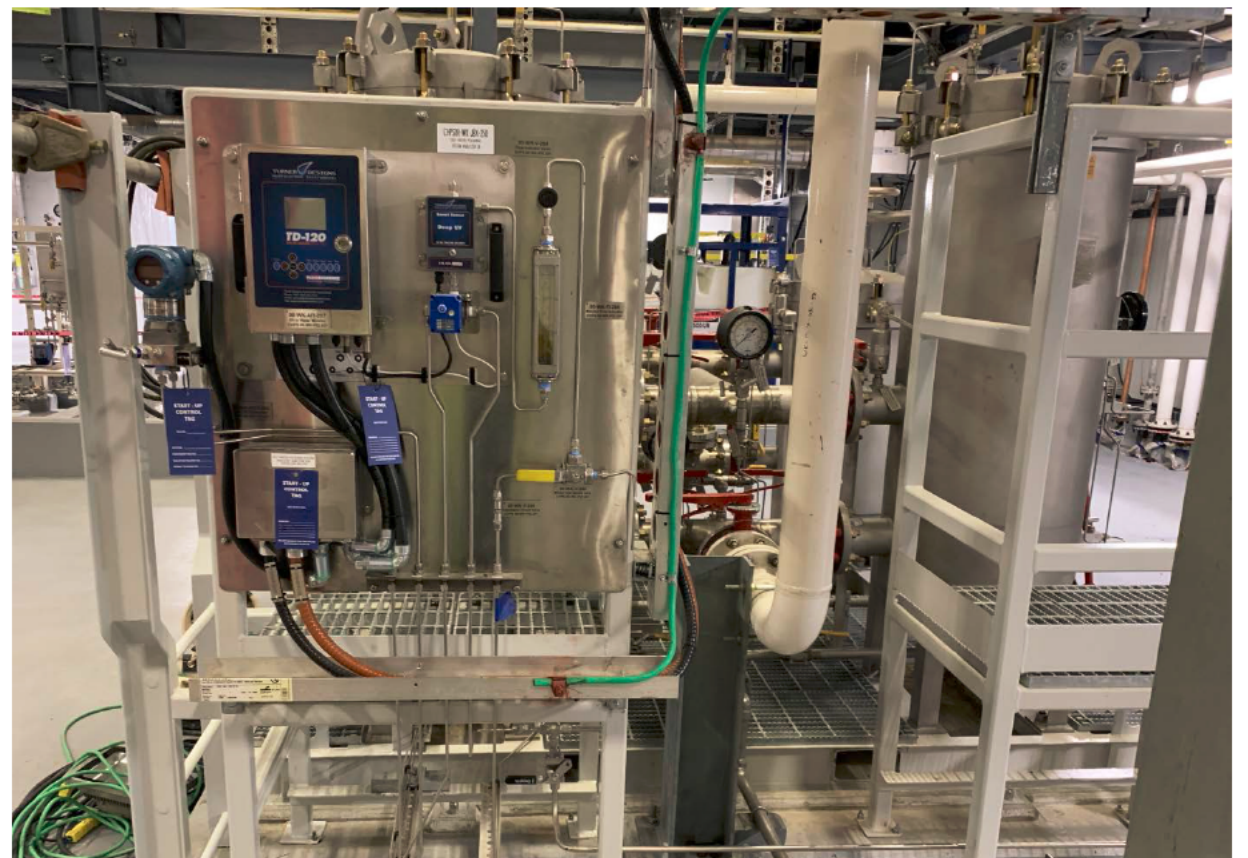


Installation Overview

## IMPACT

The MYCELX solution delivered commercial and environmental benefits for the power plant. Benefits include:

- **Complete oil removal** to protect deionization treatment
- **Reduces Environmental Footprint** of the facility on nearby aquifers, by recycling as much water as possible
- **12 week build time** from approval to proceed until ready to ship by using pre-engineered MYCELX systems.
- **Seamless remote monitoring** saves labor from check ups etc. and frees operation to monitor operation from common control center



On-Line Oil in Water Analyzer and pressure monitoring