

PROJECT PROFILE SERIES #58

MEG Energy Corporation – Christina Lake Project Produced Water Softening System

The Facility

The Christina Lake Regional Project is centrally located among the main commercial “in situ” oil sands developments of the Canadian Athabasca oil sands region. The reservoir has been estimated to contain over 6 billion barrels of bitumen in place and approximately 2.8 billion barrels of recoverable resources.

The Problem

The hot lime softeners (HLS) effluent has about 30 mg/l of hardness, which needs to be removed from the produced water to be suitable for boiler feed water. Aquatech International Corporation was brought on to provide the Total Solution for filtration and softening consisting of an After Filter Package with the use of the overall process for the Strong Acid Cation (SAC) and Weak Acid Cation (WAC) exchangers and polishers.

The Solution

Aquatech’s After Filter Package consists of five parallel feed Filters designed to treat up to 709 m³/hr (max.) of treated water from the HLS to make up filtered water to the downstream SAC / WAC package.

The After Filters will lower the turbidity to less than 2 NTU considering an average feed water of 20 NTU.

Three trains of 33% SAC/WAC exchangers / polishers were provided to reduce the produced water hardness less than 5 mg/l as required.

The systems can be initiated manually by the operator, or automatically based on the cumulative service time or cumulative service flow through the polisher.



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DESIGN BASIS

Parameter	Filtered Water	WAC Effluent
Hardness	30 ppm as CaCO ₃	5 ppm as CaCO ₃
TDS	5000 to 8000 ppm	
TSS	5 ppm	
pH		9.5
Strong Acid Cation throughput between regenerations	14,244 m ³	
Weak Acid Cation throughput between regenerations	56,720 m ³	

PROCESS FLOW DIAGRAM

