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Member of the SNC-Lavalin Group

Co-op Refinery Complex Wastewater Improvement Project, Phase 2

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 **WATERREUSE**
LOS ANGELES

Co-op Refinery Complex

- › Operates on 800 acres in Regina, Saskatchewan, Canada
- › Employs >1,000 people
- › Processes 130,000 bpd
- › Distributes up to 17 million liters of fuel daily (4.5 million gallons) in western Canada



Water Reuse Project – the Expansion

- › **Phase V major expansion: 100,000 bpd to 130,000 bpd (\$2.8B)**
- › High quality water needs for boilers, cooling towers, powering equipment, hydrogen production
- › Water supply: onsite groundwater wells supplemented by City water – insufficient for expansion
- › Provincial Water Security Agency strictly regulates water allocation
- › Wastewater pre-treated before sending to City's WRF not of reuse quality



2-mgd Membrane Bioreactor Plant

- › Two 1-mg membrane bioreactor tanks
- › Dissolved gas flotation
- › Permeate and oily sludge tank
- › Biosolids stabilization tank
- › Dewatering centrifuges
- › Chemical feed
- › Piperacks
- › Firewater system, electrical/controls, buildings, site work
- › HERO (High Efficiency Reverse Osmosis) process downstream for reuse at demineraliser plant

https://www.youtube.com/watch?v=KO9zYiQDU_0&feature=youtu.be

Water Reuse Project – Challenges

- › Oily substances in the water; very high quality reuse water required
- › Fast track construction with sequencing constraints
- › Poor soils
- › Site safety



Results

- › Project completed in 2016
- › CRC: only refinery in North America to reuse wastewater for steam production
- › Freshwater consumption reduced by 28%, equivalent to 3,100 households
- › Multiple awards



Questions?

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