

## Clean-up of a Hydrocarbon Spill within a Municipal Wastewater Treatment Plant

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The early identification by the City of Regina of a major volume of oil entering the wastewater treatment system allowed EPCOR the opportunity to divert the contaminated wastewater into an old, aerated lagoon. The volume of oil contaminated wastewater would have wiped out all biological activity in the activated sludge wastewater plant, resulting in a Permit to Operate non-compliance event and downstream environmental impacts. Associated was hired to assess the damage, develop a plan, and oversee the clean-up and remediation.

Initial sampling indicated that the heavy portion of the oil settled to the bottom and was absorbed into the biosolids that existed in the cell. Samples collected from the upper portion of the sludge contained total PHC (C6-C50) concentrations that were greater than 20,000 mg/kg. The overall range of total PHCs ranged from 21,475 to over 50,000 mg/kg. The highest concentrations were noted in the heavy ended PHC F3 and F4 fractions. Samples showed a decrease in PHC concentrations with depth from the upper surface of the sludge. Samples were collected at 150 mm and at 300 mm below the original sludge surface.

It was imperative that only the oil contaminated portion of the biosolids were to be removed for the City to be reimbursed for the clean-up. It therefore was critical to monitor and conduct sampling so that only the impacted biosolids were removed.

No information could be found on the remediation of lagoons contaminated with hydrocarbons. Therefore, the team had to be innovative in the approach. Various clean-up methods and restoration procedures were tried before a final option could be selected and implemented. This paper presents the methodologies employed to identify a solution, define the analytical requirements, select a suitable disposal location, and manage the clean-up process.

The aerated lagoon is an important part of the flow management system and is relied upon during power outages and peak flow events.

In 2017, EPCOR completed a four-year expansion and upgrade project to Regina's WWTP to include full BNR. Currently EPCOR operates the facility and provides service to the Regina community by treating more than 25 billion liters of wastewater each year before it is returned to Wascana Creek.

On approximately May 22, 2020, a discharge of heavy bottom oil and other oil-based sludges was detected in the collection system.

As a result of this quick reaction, there were no measurable impacts downstream.

### Kerri Walker

Kerri Walker is the Manager of the Saskatchewan/Manitoba Environmental group at Associated Environmental. She has 18 years of experience in the Environmental Consulting and Analytical Laboratory fields. Through environmental consulting, Kerri has extensive experience managing projects, quality programs and environmental professionals on both National and Regional contaminated sites programs, landfill projects from expansion to closure, hazardous materials sampling programs, air monitoring programs and wildlife and biological assessments.