

## A Cooperative Approach to the Management and Remediation of a Former Oil Refinery Site on the Banks of the Bow River

Trenton M. Parks and Scott J. Eagleson, The City of Calgary  
Adrian P. Bakker, Imperial Oil Limited

In the late 1970s The City of Calgary became the owner of a large parcel of land along the banks of the Bow River. From 1925 until its decommissioning in 1977 the land had been owned and operated as an oil refinery by Imperial Oil. During the course of 50 years of normal operations the site became impacted by hydrocarbons and metals. After extensive negotiations The City and Imperial came to an agreement in 2007 on cost-sharing and the development of a Risk Management Agreement (RMA) which would allow for redevelopment of the land for “community benefit”. This type of agreement was unprecedented for both parties, and enjoyed the full support of Alberta Environment, the provincial regulator.

The entire area covered by the RMA encompasses approximately 96 ha, of which approximately 80% was within the refinery footprint. The remaining 20% represents adjacent properties which have been impacted by subsurface movement of contaminants. The RMA covers extensive investigation of the entire site using a variety of methods, including geophysical, shallow direct push sampling, deep bedrock boring, test pitting, and river water and benthic organism sampling. Comprehensive ecological and human health risk assessments will be performed using the data gathered, and remediation and management measures will be developed which will allow for redevelopment of the site.

Remediation and management measures envisioned at this time include removal of free-phase liquids, removal of surficial “hotspots”, capping, and potentially the construction of a 1 km long subsurface barrier wall to isolate the Bow River from the site. The current groundwater regime on the site is complex and will require extensive modelling prior to the construction of the wall. A groundwater recovery system supplying a constructed wetland designed to meander through the site is also proposed at this stage.

Current results will be presented.

Trent Parks, Ph.D., P.Chem.

Trent Parks graduated from Dalhousie University with his PhD in chemistry in 1994, and has been a Professional Chemist (P.Chem.) since 2001. He spent 12 years in the environmental consulting industry primarily performing site investigations and remediations on a wide variety of sites. Trent joined The City of Calgary in 2006 and is currently manager of the Former Imperial Oil Refinery (FIOR) project.