

New technology used to remediate hydrocarbon contaminated site

Ivey-sol® works at the molecular level, on site remediation using designed phase transfer mixtures that interact with the full range of organic LNAPLs (light non-aqueous phase liquids) and DNAPL (chlorinated solvents). This is a patented technology comprising mixtures of environmentally safe constituents that encapsulate and separate hydrocarbons from contaminated soil, bedrock, groundwater and solid wastes. In doing so, this allows for the rapid recovery of the “dissolved” contaminants for treatment.

The “selective” aspect means there are several different mixture options and two processes, enabling it to accurately target everything from light hydrocarbons like gasoline to heavy Bunker-C oil among other contaminants.

Earlier this year, the company secured its first remediation project in Alberta. This patented technology is being used to treat extensive soil and groundwater contamination at an active service station in Red Deer. As there is a residential area nearby, the environmental sensitivity is relatively high. Past excavation efforts following the original spill failed to clean-up soil and groundwater contamination.

Ivey reported that greater than 85% of the contamination was cleaned up within the first six months, adding that the whole site would be cleaned within 12 months, rather than the industry average of five to seven years.

“Versatility is important,” says founder and CEO George Ivey, whose background in organic chemistry and geological engineering led to his breakthrough discovery between 1993 and 1998. “We can selectively encapsulate different classes of organic compounds within gasoline and oil and get them dissolved in water. As gasoline has more than 1,000 different components, how can one mixture treat gas, diesel or Bunker-C?”

By applying the various Ivey-sol mixtures *in situ* monthly or bi-monthly through injection wells or injection galleries, the company’s case studies show that 95 per cent of project goals

are achieved within 18 months, and typically within 12. “We get the petrochemical hydrocarbons dissolved, making them more mobile – and then we recover and remove them from the soil and groundwater contaminate plume,” said Mr. Ivey.

The *ex situ* method involves the addition of contaminated soil and/or solids into a rotation treatment unit (RTU), which contains water and Ivey-sol. The subject solids are treated to compliance with applicable guidelines on a continuous basis at a rate of 12-15 tons per hour, with contamination loads starting at > 20,000 ppm. Once treated, soils can be removed and the hydrocarbons recovered.

Ivey-sol mixtures are not significantly affected by the presence of metals, chlorinated compounds or salinity, which is especially important in the silty to salty soils of Alberta and coastal B.C.

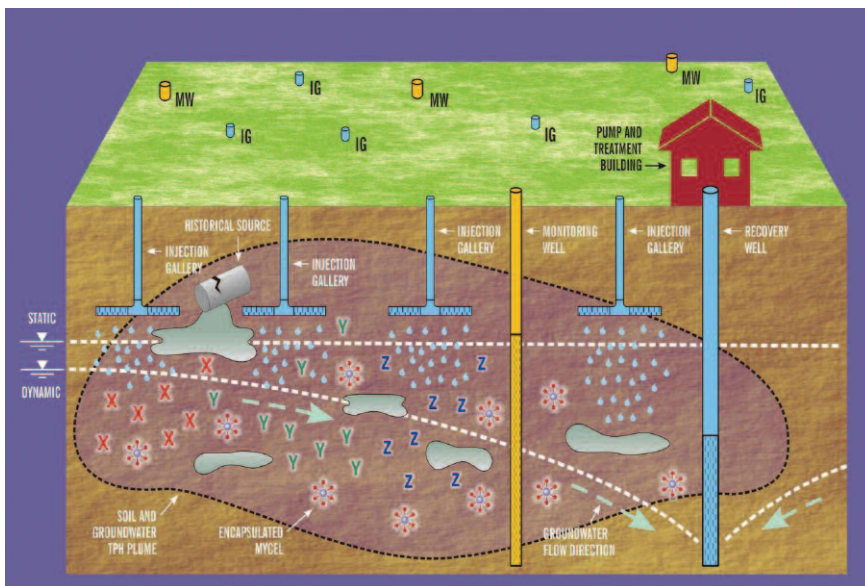
Peter Clark, president of Clark Oil Co. Ltd. (Ultramar), credits this technology with saving his East Coast company tens of thousands of dollars after using it to treat a fuel-oil spill. Drinking water was contaminated and

Clark looked at a number of technologies. “They wanted to put recovery towers in and stripper systems costing more than \$100,000,” he says. Clark was told remediation would take five to seven years. But Ivey-sol did it in less than 18 months saving some \$60,000, while meeting stringent environmental standards.

Ivey-sol may allow industrial and commercial clients to begin remediation otherwise deemed unfeasible. For instance, at sites where there is a risk of damaging a building’s structure to access underground contaminants beneath foundations, the product can be applied right through the basement floor. The injection and clean-up process can proceed without incurring the structural liability faced by some other technologies.

It can also be used on off-shore oil spills, oil and gas and petrochemical wastes, heavy metals, chlorinated solvents among many others.

Contact Ivey International Inc., e-mail budivey@island.net.



Injection and clean-up processes can proceed without the risk of structural problems.