

ISCO CASE STUDY

PETROLEUM HYDROCARBONS AND VOCs AT A COMMERCIAL FACILITY, POWELL RIVER, BC

Case Study #18

A Fenton's based ISCO (in situ chemical oxidation) process modified with the application of sodium persulphate was selected to remediate a site with VPH (volatile petroleum hydrocarbons), LEPH (light extractable petroleum hydrocarbons), and BTEX (benzene, toluene, ethylbenzene and xylenes) in the saturated soil and groundwater. In addition, low concentrations of MTBE (methyl tertiary butyl ether) and PAHs (polycyclic aromatic hydrocarbons) were also present at the Site.

Following a Bench Scale Application (BSA), a 10-day Pilot Scale Application (PSA) was performed which included reagent delivery through three application wells in the vicinity of three existing monitoring wells with known contaminant mass in the groundwater.



Groundwater sampling approximately three months following the PSA indicated total mass reductions of 80 % for VOCs and 81% for TPH. A summary of reductions for the monitoring wells and application wells are shown in the table below.

Well	VOCs (ppb)			TPH (ppb)		
	Before PSA	After PSA	Reductions (%)	Before PSA	After PSA	Reductions (%)
MW01-5	3	59	NR	ND	ND	NR
MW01-6	19570	2925	85%	5,000	2,080	58%
MW01-7	467	2080	NR	2,280	460	80%
AW05-35	3111	ND	100%	1,820	ND	100%
AW05-36	4282	1	100%	4,400	ND	100%
AW05-37	4330	1259	71%	1,200	290	76%
Total	31,763	6,324	80%	14,700	2,830	81%