

# Edmonton Journal

## Cleaning up NASA's mess

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A smaller version of the Wavefront pulsating injector is being used in the U.S. for groundwater remediation work.

During the Apollo missions of the late 1960s at Cape Canaveral, for instance, NASA sprayed down the launch area with tetrachloroethylene to degrease metal. The chemical, now a known carcinogen, was also widely used as a dry-cleaning solvent. It quickly dispersed in the earth and contaminated the groundwater.

The treatment in Florida involves pumping a mixture of iron particles and corn oil into the ground. The wave action slowly moves the material so it contacts all the contamination, neutralizing the chemical in place. The iron particles are the same size as grains of sand, and the pulsing action is needed to push the iron through the ground.

It's the same technique that is being used at former gas stations, chemical dumps and even facilities that used creosote to preserve railway ties and telephone poles.

"Gasoline soaks into the ground and separates into different components, and the plume spreads all over the place," says physicist and Wavefront co-founder Tim Spanos. "Digging the soil out doesn't make a lot of sense, because what you put back in will become contaminated too."

Different chemicals are used to neutralize different contaminants. In the U.S., \$10 billion a year is spent on cleanups.

The Wavefront device works five times faster than conventional injection systems, and rents for \$4,000 a month, says the firm.