



River Terrace Laundromat

Soldotna, Alaska

Current Status

DEC initiated a November 2002 pilot study using bioaugmentation (injection of bacteria) to assist in the degradation of contamination. The Hydrogen Releasing Compound (HRC) was effective in degrading the perchloroethylene (PCE) into cis-1,2-dichloroethylene (cis- DCE), but further degradation into non-toxic substances appeared to stall.

The bioaugmentation was injected into a monitor well and the initial results appear to be positive. There are levels of degradation compounds detected that were not there before. The monitoring program will continue to verify the results. If it is determined to be successful, DEC will consider using bioaugmentation in other areas to further assist in the degradation of the contamination.

Additional assessment work conducted at the site in November identified elevated levels of PCE in the groundwater. The area of concern is where soil had been excavated in 1997 but was not completed due to its location. DEC is considering treatment and/or cleanup alternatives in this area.

About 3,300 cubic yards of contaminated soil was excavated and treated on site, and now meets EPA and DEC cleanup levels. The property owner has submitted a plan to dismantle the treatment cells and spread the soil on site. They anticipate this activity to occur in May - June 2003.

Cleanup status

The majority of contaminated soil that was practical to excavate --**3,300 cu. yds. -- has been stockpiled and successfully treated.** The property owners have submitted a plan to dismantle the treatment cells and spread the soil on site. The soil is expected to be spread on site

Background

River Terrace Laundromat, currently operated as River Terrace RV Park, is located on the bank of the Kenai River in downtown Soldotna. A dry cleaning firm operated there from the 1960's to the 1980's.

In 1992, DEC investigated a complaint regarding leaking barrels at this site, and discovered 22 barrels containing used oil and other substances. One barrel was labeled "Perchloroethylene," a dry cleaning solvent also known as PCE. The degree of soil and groundwater contamination wasn't discovered until 1997.

Soil cleanup began in earnest that fall, and groundwater cleanup began in fall 2000, prior to contamination migrating into the Kenai River.

Public Health and Environmental Concerns

Groundwater and some soil contaminated with PCE and its breakdown products are the main threat to public health and the environment, although some petroleum hydrocarbon contamination has been encountered in the soil and groundwater at the site.

PCE is listed by EPA as highly toxic and is a suspected human carcinogen. Avenues of human exposure have been blocked, so the area of concern is now **protection of the Kenai River, specifically its sediments, from contamination.**

in May - June 2003.

Some soil contamination remains on site located in deep pockets in the lower plume area. The November 2002 sample results identified elevated levels of PCE in the groundwater at about 39 feet. It is suspected that there also is soil contamination in the upper plume under the former dry cleaner building. Deed restrictions are planned to be attached to the property to protect

present and future human exposure by prohibiting soil disturbance and preventing drinking water well use from the contaminated upper aquifer.

- **Groundwater is monitored quarterly** to determine the water quality conditions at the site and assist in the evaluation of the groundwater treatment.
- During June 2002, groundwater in 15 of 16 (94%) monitoring wells sampled was below the PCE cleanup level. Prior to the “biological treatment” of HRC being injected in September 2000, PCE had been found to be below cleanup levels in only 9 of 22 (41%) monitoring wells sampled. DEC considers this to be a successful trend in reducing the primary contaminant of concern as listed in the Record of Decision.

However, sampling for the secondary contaminants, during the June 2002 monitoring event, identified exceedances in 9 of 16 (56%) monitoring wells.

- **Breakdown of the groundwater contamination on the River Terrace site remains the major issue.** Monitoring at various wells continues to track the flow of groundwater and the progress of treatments. In June 2002, analysis showed that the colony size of bacteria necessary to break down cis-DCE was very low in the lower plume. In the upper plume, sampling showed high concentrations of the bacteria in one monitoring well near the former dry cleaner building but very low colony size in the other well sampled. Additional injections of HRC and introduction of bacterial colonies (“biological augmentation”) has occurred.
- **Cleanup and groundwater treatment efforts have apparently stopped the spread of contamination into the sediment of the Kenai River.** The river sediments, home to organisms which are an important food source in the rivers’ ecosystem, had exceedances to ecological benchmarks for PCE and its degradation products trichloroethylene (TCE) and cis-DCE in 1997 and 1999.

However, the sediment samples collected in May 2002 have shown little contamination and no concentrations close to ecological benchmarks.

Breakdown of the groundwater contamination on the River Terrace site remains the major issue. Two treatments of Hydrogen Releasing Compound (HRC), in fall 2000 and June 2002, have been successful in degrading PCE into its breakdown product cis-1,2-dichloroethylene (cis-DCE). The natural break-down of cis-DCE has been evaluated and DEC has initiated a pilot study to determine the effectiveness of bacteria to facilitate cis-DCE breakdown.

- **PCE levels in the stormwater sewer discharge into the Kenai River from the adjacent Sterling Highway have been below surface water quality standards since November 1999.** Contaminated groundwater had spread under the Sterling Highway and was draining into the stormwater sewer. This leak has been treated by adding an aeration treatment system in the sewer in 2000.
- Over \$3.0 million has been spent by DEC on the River Terrace site to date. This includes assessment, monitoring and cleanup actions as well as legal issues.

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