



June 2006

Tour a Drycleaning Operation!

Have you ever wondered what goes on at a drycleaning facility or how clothing is drycleaned? If so, take the Drycleaning Virtual Tour. This virtual tour, the latest addition to the SCRDR website (References Section), is a photographic tour of a drycleaning operation with text to describe the equipment, processes, practices, chemicals used and wastes generated in the drycleaning operation. This presentation was compiled by Julie Friddell, a drycleaning project manager with the South Carolina Department of Health and Environmental Control. Photographs and reviews were provided by the Florida, Minnesota, North Carolina, Oregon, South Carolina, Tennessee and Wisconsin drycleaning solvent cleanup programs.

A similar type presentation focusing on drycleaning wastes and waste management practices is currently in the works.

Also NEW on the SCRDR Website

Another recent addition to the SCRDR website is "Physical Properties of Chemicals Used in Drycleaning Operations". This is a table compiled by Ken Koon and Scott Huckstep of the Missouri DNR that lists the physical and chemical properties for fourteen different drycleaning solvents.

Project Management Technical Subgroup

The Project Management Technical Subgroup has completed work on the site profile data base (106 sites) and is currently evaluating these data in preparation for writing a paper on remedial technologies being utilized at drycleaning sites. There are currently profiles for 118 drycleaning sites with remedial systems posted on the SCRDR website.

State and National Updates

Florida

- Florida has terminated the use of in-situ oxygen curtain technology at two drycleaning sites: J&D Cleaners in Milton, Florida and Prime Cleaners in Coral Springs, Florida. This technology diffuses oxygen into the groundwater to aid in

aerobic degradation contaminants in groundwater (cis 1,2-dichloroethene and vinyl chloride at these two sites).

- The Florida Drycleaning Solvent Cleanup Program has recently injected an edible oil emulsion (EOS[®]) at the former Dixie Cleaners site in Jacksonville, Florida to stimulate reductive dechlorination of chlorinated solvent contaminants in groundwater.

Kansas

- The Kansas Department of Health & Environment's Dry Cleaning Program recently completed the installation of a granular activated carbon (GAC) water treatment system for the City of Downs, Kansas. The system is currently treating 350 gpm of historically PCE-contaminated water using two, 20,000 lb. GAC vessels. The system allows the city to pump their best-producing PWS well in this small community of just under 1,000 people.
- A joint venture between the Kansas Department of Health & Environment's Dry Cleaning Program and Kansas State University is making progress at a bioremediation project at Cinderella Cleaners in Manhattan, Kansas. The project is in the pilot test stage and included the injection of food grade biostimulants (soy oil methyl esters, lactate, and yeast extract) and KB-1 Dechlorinator bioaugment from Sirem labs. Bench scale testing for the use of cheese whey as a biostimulant has been successful and is advancing to field injection in the pilot test area.
- The Kansas Department of Health & Environment's Dry Cleaning Program On-line Registration Web Page is now accepting electronic check payments for annual registration fees. The electronic check option is in action to previously approved Visa, MasterCard and Discover credit cards. On-line registration is available through the Program's Web Page at www.kdheks.gov.

Minnesota

- Minnesota plans to raise fees to dry cleaners for the second consecutive year in order to meet a statutory requirement enacted in 2005 to ensure an annual income of \$650,000 to its Dry Cleaner Account.

Missouri

- On May 30, 2006 the rules for Missouri's Drycleaning Environmental Response Trust (DERT) Fund became effective. The DERT Fund is now in full operation and will begin accepting applications for enrollment. This program provides funds for the investigation, assessment and remediation of releases of chlorinated solvents from dry cleaning facilities.

Oregon

- Oregon's Dry Cleaner Program will be initiating a pilot study using Adventus America's EHC product in July at Serry's Cleaners in Corvallis, Oregon. EHC is a controlled-release integrated carbon and zero valent iron (ZVI) product. EHC is

designed to facilitate destruction of PCE/TCE without the formation of potentially problematic intermediates, such as DCE/VC.

- Oregon's Dry Cleaner Program will be initiating remediation of PCE/TCE at the site of the former Plaza Cleaners in the town of Sweet Home, Oregon in the summer of 2006, prior to site redevelopment. Hot spot soil removal (ex-situ treatment with SVE and re-use of treated soil on-site) will be coupled with an aggressing injection/recirculation biostimulation approach for the groundwater hot spot. Dextrose will be the primary electron donor, which will be coupled with nutrients. Bioaugmentation will likely be performed to accelerate the treatment schedule, which is estimated to be six months.

Virginia

- Virginia's VRP devised an inspection program for sites closed from 2002 and earlier to ensure the integrity of institutional controls and to verify that the recorded deed restrictions in the local land records office could be found. As part of this inspection/survey, 13 closed dry cleaners sites were evaluated and no significant problems were discovered with these dry cleaner sites (or any of the other sites inspected). Therefore, our conclusion is that institutional controls are working for mitigation of the risk posed by historic releases. We did find minor problems, some of which can be fixed by technical and administrative improvements/changes and some of which are beyond our control.
- On Thursday, May 25, the California Air Resources Board voted unanimously to develop a plan to eliminate perchloroethylene. The Board directed its staff to determine the economic implications of eliminating perchloroethylene use and consider developing financial incentives for phasing out perchloroethylene drycleaning equipment. Reportedly there are an estimated 2,500 independent drycleaners in California.

National

On December 21, 2005, the U.S. Environmental Protection Agency proposed amendments to the National Perchloroethylene Air Emission Standards for Dry Cleaning Facilities. (Federal Register, Wednesday, December 21, 2005). The amendments would:

- Require phasing out remaining perc transfer machines;
- Require that all new drycleaning machines are at least fourth generation technology;
- Require most drycleaners to purchase halogenated carbon leak detectors and to conduct leak detection testing monthly;
- Require major source cleaners (operations using > 2,100 gallons of perc per year) to install fourth generation machines and use photo ionization detectors or equivalent detectors to monitor for vapor emissions.

EPA is still evaluating risks associated with drycleaning facilities co-located in buildings that house residents and has proposed two options for regulating these types of facilities:

- Require co-located drycleaners to use fourth generation equipment and to enclose the machines within a vapor barrier; or
- Require a phase-out of perc drycleaning operations at facilities co-located with residences.

EPA estimates that there are approximately 1,300 drycleaning facilities that are co-located in buildings housing residents. The deadline for comments on the draft amendments was originally February but was extended to March 23

State Progress on Remediation of Drycleaning Sites Continues

Remediation is currently being conducted at drycleaning sites in twelve of the thirteen Coalition states. As of early May 2006, cumulative statistics for the State Coalition for Remediation of Drycleaners member states are as follows:

3436 Sites in drycleaning programs

1502 Sites where contamination assessment work has been initiated

681 Sites where contamination assessment work has been completed

330 Sites where remediation has been initiated

123 Sites where remediation has been completed

298 Sites closed

The following remedial technologies have been employed at SCRDR member state sites: excavation (including using large diameter augers, vacuum truck and trench boxes), soil vapor extraction, heated soil vapor extraction, passive venting, pump & treat, air sparging, dual and multi-phase extraction, recirculating wells, chemical oxidation using: potassium permanganate, sodium permanganate, Fenton's reagent, and ozone, co-solvent flushing, diffusive oxygen emitters, zero-valent iron, co-oxidation, biostimulation utilizing: potassium lactate, ethyl lactate, molasses, emulsified soy bean oil, Phosters process, hydrogen release compound, dextrose, and oxygen release compound, and bioaugmentation using: EOS B₁₂, Bio-Dechlor Inoculum, and Pseudomonas.

Midwestern States Risk Assessment Symposium

The Midwestern States Risk Assessment Symposium will be held in Indianapolis from August 21 – 24, 2006. The theme for the Symposium is "Focusing on Chlorinated Solvents". There will be two sessions: trichloroethylene and dry cleaners.

At least three SCRDR members will participate in the Symposium. A Platform presentation entitled *Vapor Intrusion from a Neighborhood Dry Cleaner* will be given by Theresa Evanson of the Wisconsin DNR. Delonda Alexander of the North Carolina DENR will present *Development of Risk-Based Decision Making Program*. Theresa

Evanson, Delonda Alexander and Bill Linn will participate in a panel discussion: *State Issues with Dry Cleaner Cleanup Risk Management*. The Florida DEP will make a poster presentation: *Drycleaning Solvent Contamination in Florida* and the SCRD will present a poster session: *The State Drycleaning Solvent Cleanup Programs*.

SCRD Goes International

SCRD chair Bill Linn is scheduled to present papers at two conferences, Committee for Challenges to a Modern Society Pilot Study (Remediation and Rehabilitation of Small Sites in Urban Areas) and the Advanced Research Workshop (“Environmental Security Threats in Urban Settings”), to be held June 4 – 9 in Athens, Greece. Bill will make the following presentations: *Technical Approaches to Rapid Site Assessment and Cleanup of Drycleaner Sites: Florida Case Studies*, *State Coalition for Remediation of Drycleaners: National Overview of Cleanup Strategies in the United States* and *Soil and Groundwater Remediation at Dixie Cleaners – Jacksonville, Florida*.

News Articles/Publications

“Performance of DNAPL Source Depletion Technologies at 59 Chlorinated Solvent”-Impacted Sites – Travis M. McGuire, James M. McDade and Charles J. Newell in the winter issue of *Groundwater Monitoring and Remediation*. This paper compares the pre and post-remedial contaminant concentrations in source areas after utilizing various remedial actions such as chemical oxidation, enhanced bioremediation, thermal treatment and surfactant/co-solvent flushing. Twenty-eight of the fifty-nine sites are drycleaning sites including those that are located in the SCRD member states of Florida, North Carolina, Texas and Wisconsin. Site profiles for many of the drycleaning sites in the study are posted on the SCRD website.

Call for Abstracts

Battelle: The Ninth International In Situ and On-Site Bioremediation Symposium will be held May 7 – 10, 2007 in Baltimore, Maryland. Deadline for abstracts is July 31, 2006. See www.battelle.org/biosymp.

SCRD Facts

- As of May 17, 2005, there are 383 subscribers to the SCRD website.
- The SCRD website received 4,179 visits in April

SCRD members are state governments that have established programs to fund remediation of drycleaner sites. Current member states include Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin. California, Louisiana, New York, and Virginia, which do not have formal programs but are active in drycleaner remediation under other authorities, also participate in Coalition activities. SCRCD provides a forum for states to share programmatic, technical, and environmental information to improve the remediation of drycleaner sites. SCRCD was established in 1998 and receives technical, management, and training support from the U.S. EPA Office Superfund Remediation and Technology Innovation (OSRTI) and the National Ground Water Association (NGWA).