



December 2014 Issue

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SCRD State Program Site Data through December 2014 (Cumulative)

	Program Sites	Assessments Initiated	Assessments Completed	Remediation Initiated	Remediation Completed	Closed Sites
Alabama [^]	110	21	7	1	0	7
Connecticut [^]	82	19	8	35	15	5
Florida	1,422	355	330	219	132	158
Illinois	788	788	579	105	44	435
Kansas	157	77	69	45	24	14
Minnesota ^{*^}	196	193	193	193	152	152
Missouri	42	42	20	12	8	20
North Carolina	351	351	214	117	60	47
Oregon [^]	53	53	28	24	18	18
South Carolina [^]	407	328	44	16	4	53
Tennessee	111	111	109	98	46	46
Texas	242	240	218	58	10	54
Wisconsin [^]	230	196	127	80	35	79
Totals	4,191	2,774	1,946	1,003	548	1,088

^{*}represents all dry cleaner sites in MN programs (Brownfields, Superfund, RCRA), not just reimbursement program
[^]no update since December 2013

SCRD Committee Updates

Administrative Subgroup & Project Management/Technical Support Subgroup

Some members of each of these subgroups worked together developing data to answer three questions:

- How are drycleaning sites being closed?
- How long does it take to clean up a contaminated drycleaning site?
- What does it cost to cleanup a contaminated drycleaning site? Three (3) spreadsheets have been developed to capture data from the thirteen (13) SCRDR state programs:

Some of the problems encountered in this project include: site closure terminology, collection of data on remedial technologies utilized, and what constitutes a conditional closure. A summary of the findings follows.

REMEDIATION CONDUCTED AT DRYCLEANING SITES

Data from 219 Drycleaning Site Profiles posted on the State Coalition for Remediation of Drycleaners website www.drycleancoalition.org/profiles/ was reviewed to address the following questions:

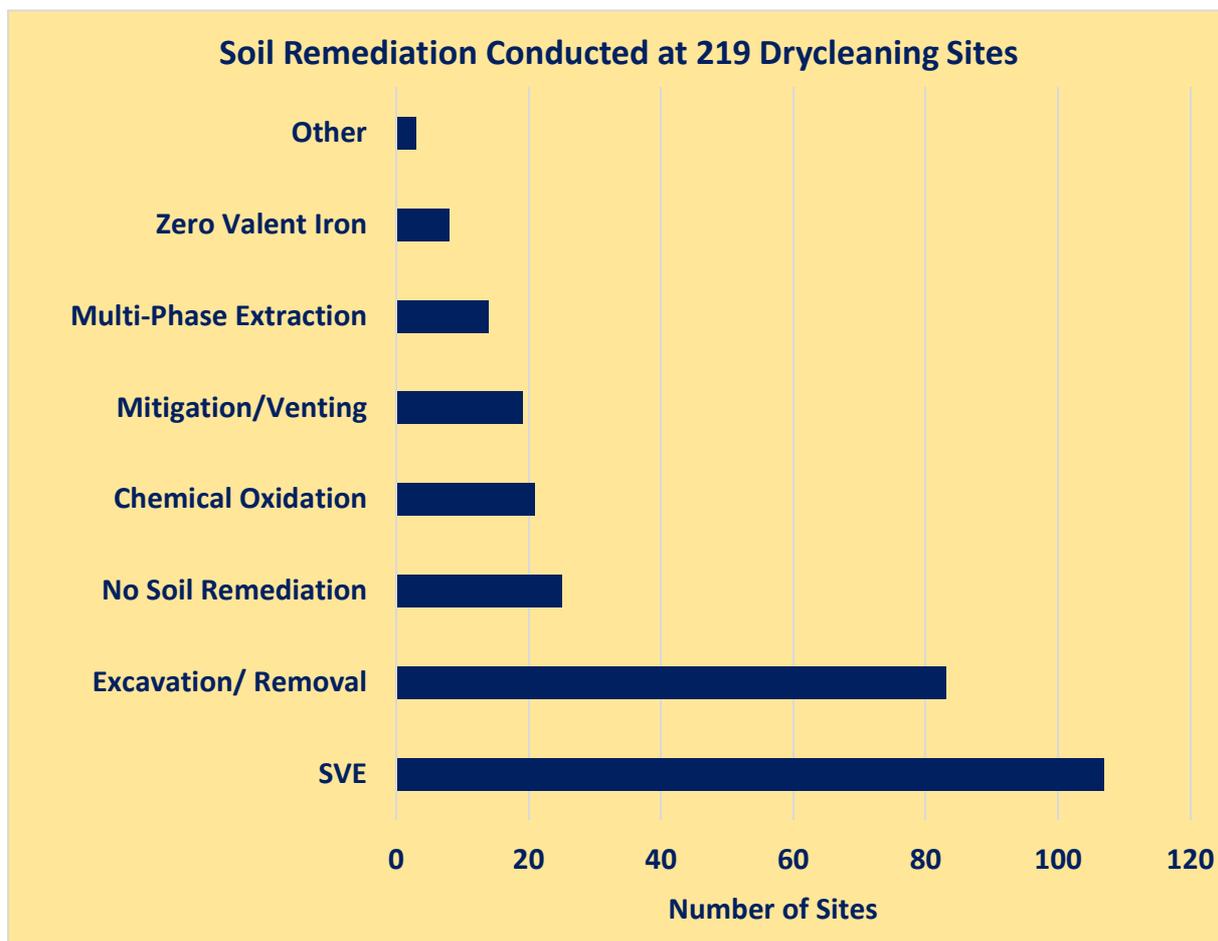
- What technologies have been utilized to remediate contaminated soil?
- What technologies have been utilized to remediate contaminated groundwater?
- What remedial technologies have been utilized to close sites?
- What types of site closures (conditional/unconditional) have been obtained?

Active remediation has been conducted at 219 sites. Approximately 41.5% of the 219 sites utilized more than one remedial technology in a particular medium (soil/groundwater).

Soil Remediation

Remediation was conducted in the unsaturated zone (soil) at 194 or 88.6% of the 219 sites. Soil vapor extraction and excavation/removal were the predominant remedial technologies employed in the unsaturated zone. They account for 67.8% of the 280 soil remedial actions conducted at the subject sites. Soil vapor extraction, utilized at 48.8% of the sites, was the most common technology to address unsaturated zone contamination. Excavation/removal actions employed include excavation of contaminated soils/sediments, removal of underground storage tanks, cleanout/removal of septic tanks and drain fields and removal of contaminated sediments from storm drains and sumps.

Chemical oxidation was utilized to remediate contaminated soil at 21 sites (9.6% of sites). Among the oxidants employed were: potassium permanganate, sodium permanganate, sodium percarbonate, sodium persulfate, calcium peroxide, and hydrogen peroxide.



Multiphase Extraction was utilized at 14 sites (6.3% of sites) and zero valent iron (ZVI) was utilized at 8 sites (3.6% of sites).

Although not generally recognized as a remedial technology, sub-slab depressurization and passive venting systems were installed at 19 sites (8.7% of sites). Other technologies utilized to remediate soils at the subject sites were: surfactant/co-solvent flushing, soil mixing (zero valent iron/clay), and thermal treatment of soil (mobile injection treatment unit).

Groundwater Remediation

Groundwater remediation was conducted at 208 of the 219 sites (94.9% of the sites). The most common remedial technology utilized was bioremediation (68 of the sites or 31% of total sites). Some of the carbon amendments utilized include: potassium lactate, sodium lactate, ethyl lactate, hydrogen release compound, oxygen release compound, chitin complex, ethanol, molasses, dextrose, corn syrup and soybean oil. In addition to carbon amendments, various nutrients have been utilized at some sites. Bioaugmentation has been utilized at a few sites and buffering has been performed at some sites.

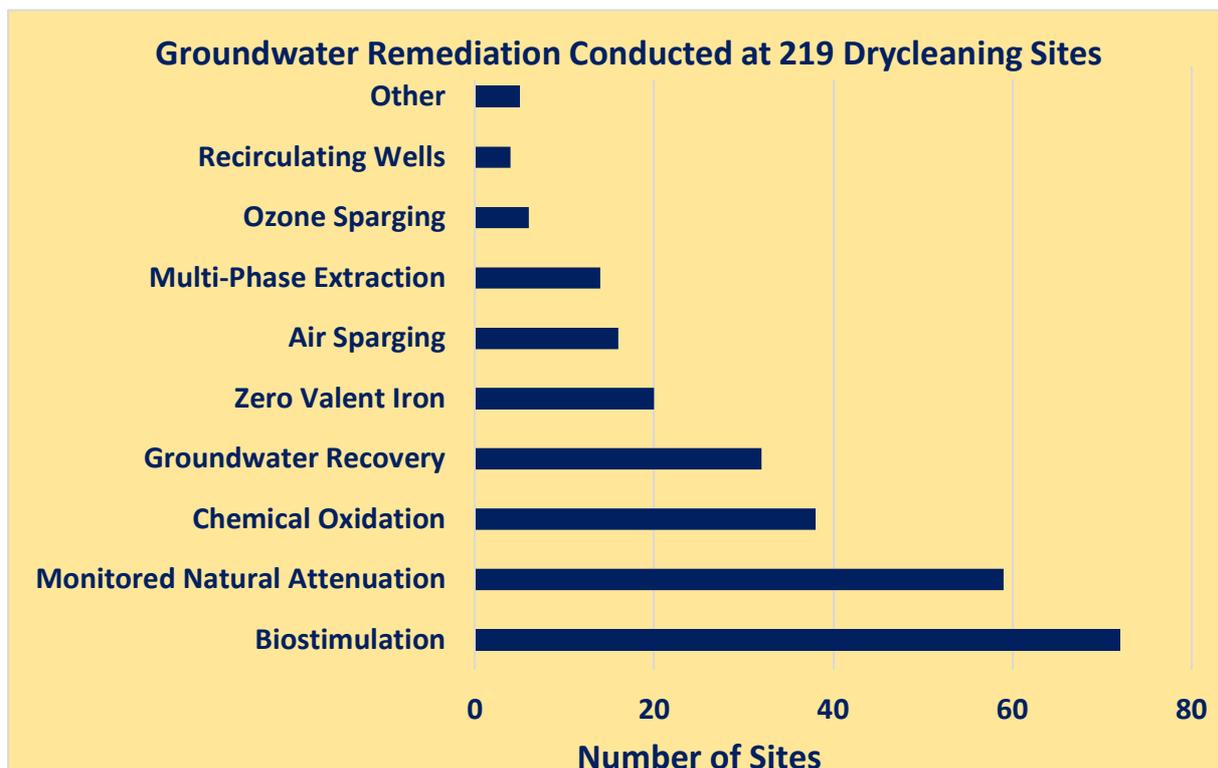
After bioremediation, chemical oxidation was the most common remedy utilized in groundwater at the subject sites (38 of the 219 sites or 17.3% of the sites).

Zero-valent iron (ZVI) was utilized as a remedy at 16 sites or 7.3% of sites. ZVI was commonly used with a carbon amendment to enhance reductive dechlorination through abiotic and biological processes.

Among the more conventional technologies utilized for groundwater remediation were:

- Groundwater Recovery & Treatment: 32 sites of 14.6% of total sites.
- Air Sparging: 16 sites or 7.3 % if total sites.
- Multiphase Extraction: 14 of sites or 6.3% of total sites.

Ozone sparging was utilized at six (6) sites (or 2.7% of sites) and recirculating wells (inline stripping) were utilized at four (4) sites (1.8% of sites). Other remedial technologies utilized in groundwater included phytoremediation, surfactant/co-solvent flushing, soil mixing (ZVI/clay), biosparging, in-situ oxygen curtain and a passive reactive barrier wall.



No groundwater remediation had been conducted at 54 sites (24.6% of total sites). At many of these sites, soil remediation was sufficient to reduce contaminant flux to the groundwater and therefore, monitored natural attenuation was the selected groundwater remedy. At other sites, no groundwater remediation had been initiated at the time the site profile was submitted, but it is believed that groundwater remediation will be necessary at some of these sites.

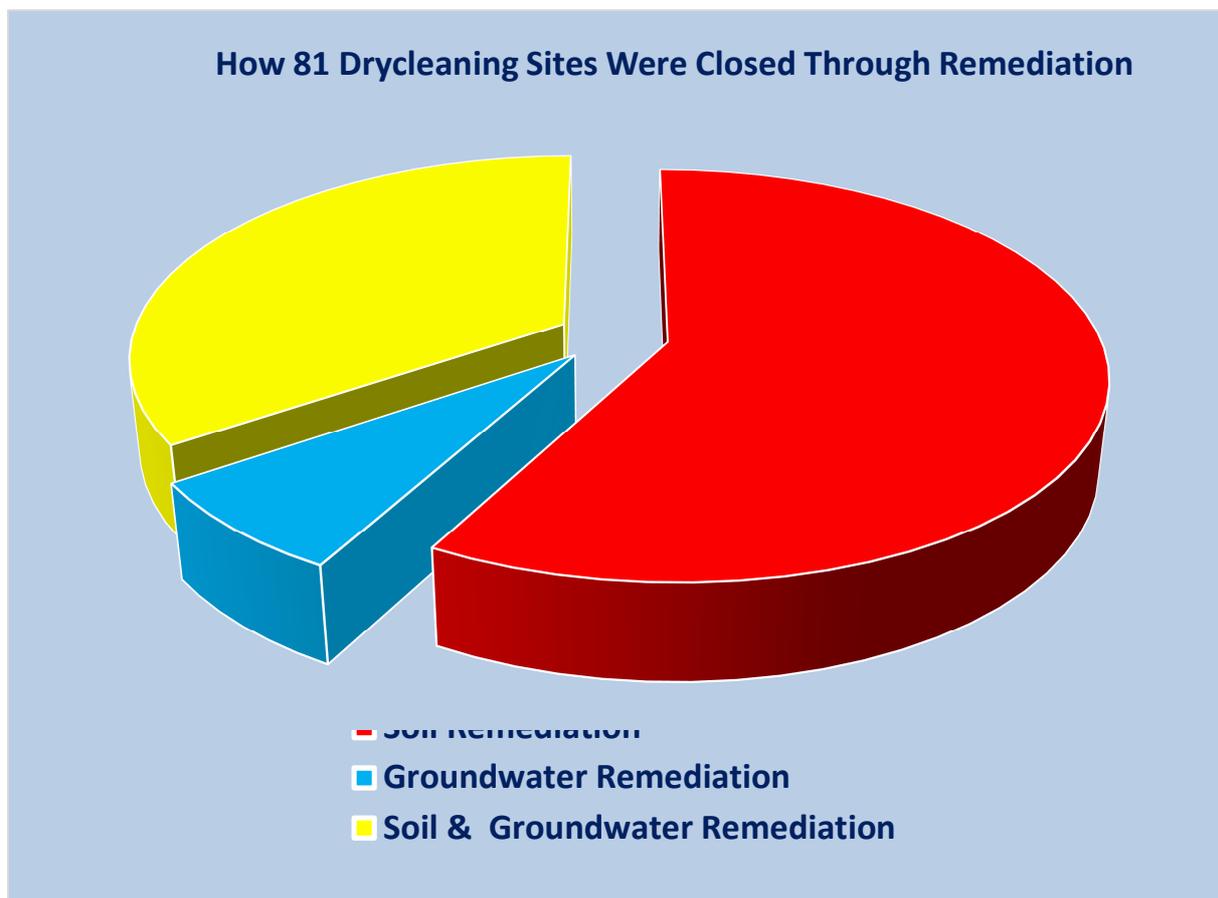
Remedial Closures

A total of 81 of the 219 sites have been closed (36.9% of sites). The site closures can be divided into 3 categories: soil remediation only, groundwater remediation only and soil and groundwater remediation. At sites with relatively low contaminant concentrations in groundwater, removing contaminant mass from the unsaturated zone via excavation or soil vapor extraction can sufficiently reduce contaminant flux to groundwater and result in site closure.

Only six (6) sites have been closed by conducting only groundwater remediation. This represents only 2.7% of the sites. Drycleaning sites are typically located in shopping centers and strip malls and contaminant source areas are generally located under buildings and/or paved areas. Site closure will usually not be achieved unless unsaturated zone contaminant source areas are identified and addressed through remediation. The presence of fine-grained sediments in the unsaturated zone can also preclude remediation of contaminated groundwater to cleanup target levels.

A total of 28 sites (12.8% of total sites) have been closed through the remediation of both soil and groundwater. These are the most difficult closures. They are resource intensive requiring more money and time. Many of these sites will require conditional closures.

Of the 81 sites in this data set that have been closed, 56 sites (69.1% of closures) have been closed unconditionally and 25 sites (30.9% of closures) have been closed conditionally.



Member State Updates

For the complete listing of state contacts and websites visit:

<http://www.drycleancoalition.org/members.cfm>

Connecticut

The fund accepted brief "intake forms", or pre-application information, from 33 new applicants from May through November of this year. These were the first new applications accepted since 2009. The Department of Economic and Community Development has also been working on contracting with eligible applicants from the backlog of previous applications. Revenues have increased in the latest quarter, at least partly due to additional outreach and enforcement by the Department of Revenue Services.

Illinois

One hundred ninety three (193) remedial claims involving historical solvent contamination remain open as of November 30, 2014. The average cleanup cost per site where active remediation was required is \$208,000. Risk based closures have been completed at an average cost of \$28,000.

Kansas

In February 2014, the Kansas Site Assessment Program conducted an investigation of chlorinated solvents detected during sampling at the Standard Products radium dial site in Wichita, KS. Based on analytical results from direct push samples, private domestic well samples, and a directory search, the former Four Seasons dry cleaning facility at 8947 West Central, Wichita, Kansas, was identified as the source of the chlorinated solvent contamination. The site was officially transferred to the Kansas Dry Cleaning Program on March 24, 2014. The Dry Cleaning Program mobilized to the site to collect additional direct push samples and domestic well samples. The Dry Cleaning Program compared the analytical results from the probes and domestic well sampling to the EPA Maximum Contaminant Level (MCL) and the EPA Removal Management Level (RML) concentrations to determine immediate risk to the residents. Domestic wells with sample results greater than the RMLs were equipped with a point-of-entry whole-house carbon treatment system as a short-term measure to reduce the risk of exposure to contaminated water from bathing, inhalation and/or ingestion. Residences with domestic well sample results greater than the MCL but less than the RML were provided with bottled drinking water to be used for drinking and cooking. The Dry Cleaning Program also began discussions with the City of Wichita for the Design-Build installation of new water mains and connection of impacted residences to the municipal water supply system. Over two (2) miles of water line were installed and residences within the area of concern were connected to the City of Wichita Public Water Supply System. Nested sets of monitoring wells were installed along the periphery of the area of concern to serve as sentry wells to monitor for any plume migration after the private wells were taken offline.

The Dry Cleaning Program with the assistance of the Site Assessment Program, the South Central District Office staff, and the City of Wichita, collected samples from 222 residences. Based on the analytical results of the samples collected, bottled water was provided to 69 residences and point-of-entry carbon systems were installed on 17 residences. The Dry Cleaning Program connected 197 residences identified within the area of concern to the city water supply system. To date, the cost of the emergency action has been \$2,543,194.79.

Missouri

Missourians now have the ability to get details on hazardous substance cleanup sites anywhere in Missouri – from across the state to across the street – thanks to a new, web-based, interactive map developed by the Missouri Department of Natural Resources. The department's Hazardous Waste Program released this past year its new hazardous substance investigation and cleanup online information system, known as the Hazardous Substance Site Locator at:

<https://www.dnr.mo.gov/molts/gov/>. This website features an interactive map viewer with individual site status summaries from department databases with links to important documents. It also includes downloadable data layers local governments or utilities can download and use in their own permitting and planning efforts. The site provides a comprehensive information resource designed to ensure property is used safely in Missouri.

The map includes information on sites overseen by the Hazardous Waste Program, including Superfund, Federal Facilities, Resource Conservation and Recovery Act Corrective Action and Brownfields/Voluntary Cleanup Program sites. Information on additional types of sites will be added in the future when data becomes available. This map represents the department's first use of Google's mapping platform and is part of an overall effort to improve the visibility of environmental information and protect human health and the environment.

New York

NY does not have a separate and distinct dry cleaner remedial program. However, there are 281 sites in one of our various remedial programs that have been identified as dry cleaners. Of these 127 have been either remediated or determined not to need remediation. Seventy Eight (78) have been classified as posing a significant threat to human health or the environment. . Information about the different remedial programs is available at <http://www.dec.ny.gov/chemical/brownfields.html>. Information about specific sites is available at <http://www.dec.ny.gov/chemical/8437.html>.

North Carolina

During the past year, the NC Drycleaning Solvent Cleanup Act (DSCA) Program initiated an internal review of potential obstacles to compliance with regulations applicable to dry-cleaners and wholesale distribution facilities in North Carolina. The intent of this evaluation was to explore ways to better enable compliance among the dry-cleaning community. Enhancements considered include administrative changes, such as hiring a Korean-speaking inspector, exploring ideas for improving Minimum Management Practices rules that may be unclear or confusing, and opening a dialog with the dry-cleaning industry about developing a no-fee registration/permitting program. The DSCA program is going through a state-wide mandatory rule review process which will eventually require that rules be re-adopted if they are considered necessary. The re-adoption process, which involves fiscal analyses and public involvement, gives the program the opportunity to amend existing rules or make new rules. Initial discussions with the dry-cleaning stakeholders have been very positive. During the coming year DSCA expects to work with our stakeholders to further develop improvements to the DSCA Compliance Program.

Texas

The Texas Dry Cleaner Remediation Program is currently conducting assessment and remediation at 104 sites. Work has been postponed on another 82 sites pending funding.

Wisconsin

In 2014, requests for reimbursement from Wisconsin's Dry Cleaner Environmental Remediation Fund continued to exceed revenues. In 2009, the program secured a \$6.2 million loan to address the issue. In 2014, the last of that loan was used to reimburse claims and a new backlog began to accumulate. Currently, the wait from when a reimbursement claim is received to when it is paid exceeds a year. That wait period is expected to grow.

Alabama, Florida, Minnesota, Oregon, South Carolina, Tennessee

No program updates since December 2013 Newsletter

Events, Training and Other Resources

SCRD Members give presentations at ASTSWMO's annual meeting

Several SCRd members (Scott Huckstep (MO), Pete Doorn (NC), Bob Jurgens (KS), Joe Schieffelin (CO), and Darsi Foss (WI)) gave presentations at the Association of State and Territorial Solid Waste Management Officials' (ASTSWMO) annual meeting (October 29-30) in Reston, VA. The presentations covered a variety of topics including: An overview of the State Coalition for Remediation of Drycleaners; North Carolina's Dry-cleaning Solvent Cleanup Act (DSCA) Program; Colorado's approach to addressing contaminated drycleaning sites; Vapor intrusion issues at a former drycleaning site (NC); Dry cleaner site emergency removal action – supplying clean drinking water (KS); and historical drycleaner sites in

Wisconsin. Copies of the presentations will be available soon on ASTSWMO's webpage at <http://www.astswmo.org/>.

Newsletter Subscription

If you would like to be placed on the subscription list for the SCRDR newsletter please go to the following address <http://www.drycleancoalition.org/newsletter.cfm>. Copies of previous newsletters can be viewed at <http://www.drycleancoalition.org/pubs.cfm> on the SCRDR website.

SCRDR 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. Alaska, California, Delaware, Maryland, New Jersey, New York, and Virginia, which do not have formal programs but are active in drycleaner remediation under other authorities, also participate in Coalition activities. SCRDR provides a forum for states to share programmatic, technical, and environmental information to improve the remediation of drycleaner sites. SCRDR was established in 1998 and receives technical, management, and training support from the U.S. EPA Office of Superfund Remediation and Technology Innovation (OSRTI).