DRY CLEANING FACILITY EXPOSURES: DON'T GET TAKEN TO THE CLEANERS

HISTORY

Dry cleaners have been operating for over 100 years. In the early years, gasoline, kerosene, and benzene were used as dry cleaning solvents. Stoddard solvent (petroleum naptha) was the primary dry cleaning solvent from the late 1920s to the late 1950s. Perchloroethylene (PCE) then replaced Stoddard solvent as the most widely used dry cleaning solvent. Other chlorinated solvents were used between the 1930s and 1960s including carbon tetrachloride and trichloroethylene (TCE). Based on the most recent estimates available from the United States Environmental Protection Agency (USEPA), in 2004 90% of the dry cleaners still used PCE, consuming over 2.67 million gallons annually.[1] Freon 113 was used briefly in the 1960s. 1,1,1-trichloroethane (TCA) was used at a small number of dry cleaners in the early 1980s. Other chemicals have been used as pre-cleaning and spotting agents. Recently, more environmental friendly non-solvent substitutes have been employed; however, even some of these compounds present risks.

Individuals to developers to large real estate investment trusts (REITs) are involved in the acquisition of commercial real estate. While commercial properties may not appear to have the same environmental concerns as an industrial property with a long history, the presence of a current or former dry cleaner increases a site's pollution liability risk. Identification of this risk during property acquisition due diligence is a critical step in minimizing this exposure. Likewise, proactive management of dry cleaning operations and/or tenants is an important step in minimizing ongoing operational exposures.

WHY THE CONCERN?

The use of solvents in the dry cleaning industry has resulted in soil and groundwater contamination at and around dry cleaner sites through:

- Spills from improper handling and overfill of tanks and equipment
- Leaks from equipment, piping and underground and aboveground storage tanks
- Vapors released from dryers and during clothes transfer
- Spills/discharges of wastewater to floor drains, sewers, and septic tanks
- Improper storage and handling of wastes

Studies in California have detected free-phase PCE in sewer lines serving dry cleaners.[2] This is a particular concern as older sewer systems have been known to leak and this provides a conduit for widespread soil and groundwater contamination.

The USEPA estimates that 15,750 active dry cleaners require cleanup at an estimated cost of $6.3 billion. An EPA study of remediation performed at 50 dry cleaner sites revealed costs ranging from $19,000 to over $3 million and an average of $402,400 per site.[3] Remediation often also involves off-site cleanup. A study in Florida of site assessments at 150 contaminated dry cleaner sites showed that contaminated groundwater migrated off the property at approximately 57% of the sites.[4] Another study estimates that 75% of dry cleaning facilities are contaminated.[5]

XL INSURANCE

DUE DILIGENCE

When performing environmental due diligence to support a property acquisition, the presence of active and historical dry cleaning facilities must be considered. Several estimates note that there are between 30,000 and 36,000 commercial "fabricare facilities" in the US. The EPA Office of Solid Waste noted in 2004 that there are between 9,000 and 90,000 inactive dry cleaners that have yet to be discovered.[3] Older dry cleaners have the potential for more releases since more solvent was needed for these less efficient machines. From 1987 to 1997, over 9,200 dry cleaner sites closed.[6] These numbers show the widespread potential that dry cleaners could have operated on numerous properties in commercial and industrial areas.

There are steps that can be taken to minimize the impact of dry cleaners on property acquisitions. A Phase I Environmental Site Assessment (ESA) should be performed prior to acquisition for all appropriate inquiry into previous ownership and uses of the property. If a property is found to have an operating dry cleaner or a dry cleaner is suspected to have previously operated on the site, a Phase II ESA or subsurface investigation should be performed. Depending on the location, the state regulatory agency may also have a dry cleaner program that dictates specific investigative requirements.

Various issues should be considered when developing an environmental assessment scope of work as more than one area may require investigation. For example, a shopping center site may have more than one location where a dry cleaner operated. Existing drop-off only locations may have historically performed processing on site. Historical and current dry cleaning agents should be identified so a more targeted assessment can be performed. Neighboring businesses (past and present) should be considered as sources of chlorinated or petroleum solvent contamination.

Site assessments should address potential sources of contamination including equipment, storage areas, septic tanks, storm sewers, and floor drains. This may involve sampling inside or underneath buildings on the subject site or at neighboring businesses. Sampling locations should consider impacts to various portions of the property. Tanker trucks may have been used for filling solvent tanks and spills may have occurred during delivery. Waste products such as still bottoms or contaminated filters may have been stored outside or disposed of in leaking solid waste dumpsters resulting in soil or stormwater contamination. Historical wastewater disposal practices may have included floor drains, septic fields, or leaking sewer systems.

When the assessment is complete, the report should be reviewed and the results evaluated against regulatory standards and cleanup requirements. The potential property purchaser must then make a decision whether to purchase the property or not. If contamination is detected, consideration must be given to the following:

- Did the report appear to address all potential sources and pathways of migration? Has the contamination been fully delineated? Were samples collected beneath the dry cleaning building? Did sample analysis include degradation products of the dry cleaning solvent?
- Is reporting to the appropriate state agency required?
- Does the state have a dry cleaning program that specifies remediation and is there the potential for investigative and cleanup cost reimbursement?

– What is the potential for on-site impacts to other businesses through vapor migration or water supply wells?
– Are there off-site impacts that could result in third party property damage or bodily injury?
– Will the current property owner remediate the site prior to sale, provide an indemnity for future liability, or establish a remediation escrow account for the potential property owner to address issues discovered after acquisition?

REMEDIATION

Remediation of dry cleaner constituents may present a greater challenge than remediation at other sites. PCE, TCE, carbon tetrachloride and Freon 113 are dense non-aqueous phase liquids (DNAPLs) that are heavier than water and sink to the bottom of aquifers. Some remediation technologies cannot completely remove DNAPL, particularly in areas of fractured bedrock or complex hydrogeology. Other remediation systems can remove large amounts of contaminant mass, but cannot reduce groundwater concentrations below action levels. Multiple treatment technologies and multi-phase contaminant recovery approaches may have to be employed.

Dry cleaners are often located in dense commercial areas surrounded by other development, which may also complicate remediation efforts. Utility lines and foundations may provide a conduit for DNAPL or contaminated groundwater to spread. Neighboring businesses may refuse access to their properties for site investigation purposes. These issues have the potential to result in increased site investigation and remediation expenses. The investigation and remediation of a dry cleaner site in an urban area (i.e. shopping center) can impact neighboring businesses through temporarily limiting access to their operations, thereby increasing business interruption expenses. If off-hour investigation and remediation activities are necessary this also has the potential to increase costs.

The State Coalition for Remediation of Dry Cleaners (SCRDC) is composed of 13 member states and several associate member states that are considering cleanup programs or are very active in dry cleaner remediation through another state program. SCRDC maintains a web site (www.drycleancoalition.org) that profiles the cost and technology of numerous remediation cases.[7]

OPERATIONAL AND MANAGEMENT CONTROLS

Even if site investigative work has shown limited or no impact to the underlying soils/groundwater, the presence of an operating dry cleaner should also be considered in the purchase of the property. An operating dry cleaner still has the potential to cause contamination. Even though dry cleaning machines are more efficient than in previous years and result in less solvent usage, less on-site waste storage, and significant reductions in air emissions from equipment, improper maintenance and operational practices have the potential to result in releases to the environment. Property owners should perform periodic evaluations of dry cleaning tenants to ensure that industry best management practices are being utilized.

Existing dry cleaning operations should be evaluated for the solvent being used; new solvents have been developed that are believed to be less hazardous and easier to remediate than PCE. The use of alternate solvents is growing; there has been an increase of up to 15% of all machines now using alternate solvents. Petroleum-based solvents are a popular alternative solvent and include synthetic paraffin compounds such as DF-2000 and 140F Petroleum Distillate. Flammability is an issue for some of these hydrocarbon solvents. Local or state regulations may have additional requirements for the use and storage of the solvent dependent on the flammability class. There are also non-hydrocarbon solvents that are being used for dry cleaning including glycol

ethers, carbon dioxide, and Green EarthTM (cyclic siloxanes). Each dry cleaning agent has its own benefits and challenges to consider. For newer solvents, contaminant fate and transport and remediation technology effectiveness is not as well researched and documented as for PCE or Stoddard solvent.

In general, the proximity of dry cleaning operations to residential spaces should always be considered to address potential vapor intrusion exposures. Detectable vapors in an adjoining space may be an indicator of underlying soil and/or groundwater contamination. In one study, high PCE air concentrations were detected in upper level apartments of a multi-story building with a dry cleaner on the bottom floor.[8] In addition to federal and state requirements, some municipalities such as New York City and San Francisco, require dry cleaners in co-residential buildings to use carbon adsorbers and require room enclosures for the dry cleaning equipment.

Newer machines are provided with better controls for handling and storage of the dry cleaning solvent and result in lower air emissions. For PCE dry cleaning, the latest machines are called "fifth generation machines". These machines have all the technologies of earlier machines and also include a PCE analyzer in the drums and a system that locks the drum door until the PCE concentration falls below a certain concentration. Newer machines also use less solvent than older units.

Operations, maintenance, and housekeeping by the dry cleaning facility owner should be appraised including handling and storage practices of the solvent. Secondary containment should be provided for the dry cleaning machine and storage and waste containers. Drums of solvent and wastes stored outside should be contained, secured, and protected from the elements. Records should be maintained for solvent receipt and waste generation. Regular equipment inspections and preventive maintenance procedures should be performed. Equipment and the underlying floor should be maintained in good condition. Floor stains and other evidence of spills is an indicator of questionable housekeeping and handling controls.

Dry cleaners are and have been a common tenant at commercial properties. Indemnity language and pollution liability insurance requirements can be added to lease agreements to provide additional protection for the property owner; however, this may not be able to be incorporated until the next lease renewal after the property has been purchased. The lease agreement could also stipulate that a dry cleaner operator will conduct a remedial investigation when they vacate their space. This ensures that there is a responsible party to address any contamination instead of the property owner. The financial strength of the dry cleaner should also be considered to determine if they can financially handle investigation and remediation costs.

REGULATORY ISSUES

The increase in alternative solvents is also being driven by the hazards of PCE. In July 2006, the USEPA amended the National Emission Standard for Hazardous Air Pollutants (NESHAP) for drycleaners in 40 CFR 63, Subpart M. The final rule entitled National PCE Air Emission Standards for Dry Cleaning Facilities, phases out the use of PCE at dry cleaner facilities in apartment buildings and other residential locations and a full ban takes effect in December 2020. Similarly, state regulatory agencies

have taken action and in January 2007, the California Air Resources Board adopted amendments to gradually phase out the use of PCE in dry cleaning.

Regulatory compliance issues are another aspect to consider when evaluating operations. The Clean Air Act/NESHAP requirements for dry cleaners are based on the type of machine and the type of source and include permitting, recordkeeping, emissions control, inspections, and leak detection. Dry cleaners that are major air emission sources are also required to apply for a Title V air permit. Dry cleaners must also adhere to federal hazardous waste management regulations. PCE dry cleaners may produce up to seven types of listed hazardous waste. Hydrocarbon solvent wastes may be classified as an ignitable hazardous waste. States with dry cleaner programs often have additional requirements for operating dry cleaners such as requiring registration, secondary containment, disallowing wastewater discharges, and requiring direct coupled systems for PCE deliveries.

SUMMARY

Dry cleaner equipment and solvent storage, handling and disposal practices have resulted in soil and groundwater contamination at many dry cleaning facilities. Appropriate due diligence should be performed at known or suspected dry cleaner sites prior to acquisition. Even "clean" sites with an active dry cleaner should be evaluated since they have the potential to cause future environmental contamination. Operation and maintenance procedures should be evaluated against regulatory requirements and best management practices. Various proactive steps can be taken by existing or prospective property owners to ensure that the presence of a dry cleaner or former dry cleaner does not impact the property value, create future liability or result in being taken to the (dry) cleaners.

REFERENCES

1. Industry Trends of Major and Area Source Dry Cleaners; Eastern Research Group; November 10, 2005.
2. Conducting Contamination Assessment Work at Drycleaning Sites; Linn, William, et al; State Coalition for Remediation of Dry Cleaners Website; March 2004.
3. Market and Technology Trends – Cleaning Up The Nation's Waste Sites: Market Technology Trends, USEPA Office of Solid Waste; September 2004.
4. Leaks, Spills, and Discharges At Florida Dry Cleaning Sites; Linn, Bill and Kristen Mixell; State Coalition for Remediation of Dry Cleaners Website; November 2002.
5. State Programs to Clean Up Dry Cleaners; State Coalition for Remediation of Dry Cleaners Website; 1999.
6. Economic Census: Comparative Statistics of the United States for Service Industries; US Census Bureau, 1998.
7. Site Profiles; State Coalition for Remediation of Dry Cleaners; 2007.
8. Assessing Residential Exposures to Perc; Schreiber, Judith; 2005.

WEBSITES FOR ADDITIONAL INFORMATION

www.drycleancoalition.org
www.epa.gov/Compliance/resources/publications/assistance/sectors/notebooks/dry.html
www.epa.gov/air/drycleaningrule

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