- Evaluation of parking and landscaped areas, including stormwater conveyances and lighting systems.

- Evaluation of life safety and energy saving features

The Scope of Work for these surveys often includes development of replacement reserve analysis tables which describe short-term and long-term building component replacement requirements and cost estimates for replacement of items. Through these evaluations, lenders are provided with cost estimates for items which are deficient and require immediate repair or replacement, as well as projected maintenance and repair costs over a particular (often 20 years) time frame.

These surveys also may include evaluations of various building code issues, such as accessibility to handicapped persons and compliance with the Americans with Disabilities Act.

Lenders view these assessments as complementary to Phase I ESAs, and often select firms which can provide both services concurrently, which generally allows for the project to be completed in a more cost-effective and timely manner, with minimal disruption to the occupants of the site being evaluated.

EI has licensed professional engineers with experience in performing commercial and industrial building evaluations, as well as a solid ten-year track record in providing environmental due diligence for commercial property transactions. If you have any questions or would like a price quote to provide property assessment services, please contact us at 1-800-717-3472, ext. 230.

In addition to collecting soils from the base of the UST, one soil sample should be collected from beneath fuel piping lines, if the lines exceed 10 feet in length.

A certified analytical laboratory should analyze the samples for the appropriate TPH method requirements for Underground Storage Tank Closure" in this *EI Alert*). Any TPH analytical results equal to or greater than 10 mg/kg require notification to the NCDENR, Division of Waste Management, UST Section.

REMINDER TO REGULATED UST OWNERS/OPERATORS DEADLINE FOR UST UPGRADES IS APPROACHING!

By December 22, 1998, all regulated UST systems must meet the requirements for leak detection, corrosion protection, and spill/overfill protection as described in the federal UST regulations. Tank owners/operators are required to comply with these regulations by December 22, 1998 or permanently close the UST systems in accordance with federal and state regulations.

LENDERS ADDING BUILDING CONDITION INSPECTIONS TO DUE DILIGENCE EVALUATIONS

For the past decade, lending institutions have required evaluations of environmental conditions at commercial and industrial properties prior to making loans or during pre-foreclosure proceedings. The Phase I Environmental Site Assessment has become a standard requirement for banks performing due diligence prior to extending financing to borrowers. While some lenders have developed requirements for Phase I ESAs, many lending institutions have adopted the American Society of Testing and Materials (ASTM) *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (E-1527-97)* in order to obtain consistency in reports prepared by various consultants. In addition to the tasks described in the ASTM standard, some lenders have included requirements for evaluation of site buildings for asbestos, lead-based paint, and elevated concentrations of radon gas as part of their required scope of services.

Recently, increased attention has been given to the structural condition of buildings on the site being evaluated. Many national lending institutions are requiring some level of structural, mechanical and electrical system evaluation as part of the documentation required for extending financing on commercial and industrial real estate. These evaluations, sometimes referred to as "Property Condition Surveys", are typically conducted by licensed professional engineers, require the assessment of building and site structural elements, and often include the following:

- Visual evaluation of the structural framing components of site buildings, including load-bearing walls, support beams, joists, etc.;
- Inspection of foundations and slabs for indications of cracking or settling;
- Visual inspection of roof systems (exterior and interior) for indications of leaks, evaluation of gutter/downspout systems and estimation of roofing system life expectancy;
- Evaluation of building systems, including HVAC, electrical, plumbing/hot water, and fire suppression systems for condition and adequacy/compatibility with spaces served;
- Visual inspection of condition of pavements, walkways, balconies and building exterior finishes/facades; and

Assessment, Soil Assessment Reports, or Comprehensive Site Assessments) must utilize the risk-based analytical parameters presented in the January 2, 1998 guidelines.

In addition, if analytical results from any samples collected during UST closure activities exceed 10 mg/kg TPH, the responsible party must proceed to a Soil Assessment or a Limited Site Assessment in accordance with the Risk-Based rule [15A NCAC 2L .0115(c)].

Requirements for Waste Oil Tank Closure Also Modified

The January 2, 1998 guidelines required considerable analytical parameters for the closure of USTs containing used oil. The August 24, 1998 letter from NCDENR also described changes in the analytical requirements for closure of waste oil USTs. These changes are described in the table at the bottom of the page.

As noted in the table, analysis of samples for PCBs and pesticides is not required when the waste oil is used crankcase oil. Therefore, analysis by EPA Method 8080 is not required for waste oil UST closures at service stations.

These reductions in analytical requirements should also result in a decrease in the costs associated with UST closure activities. As described earlier in this article, detection of TPH at concentrations of greater than 10 mg/kg would require the tank owner/operator to proceed with additional investigation as described in the January 2, 1998 requirements.

Additional information on the January 2, 1998 Risk Based Rules can be obtained from EI Alert Vol. 8, No. 4. Please visit our website at www.ei1.com to review this article.

NCDENR ISSUES GUIDANCE FOR HOME HEATING OIL USTS

While home heating USTs are not regulated under current federal and state laws, releases from these USTs are regulated. For home heating oil USTs where contamination is suspected, or when sampling has been requested prior to a real estate transaction, NCDENR has issued the following guidelines:

- *For USTs less than six feet in length* - One soil sample should be collected from below the tank (or from a boring near the bottom of the UST, if the tank is not removed), at a depth of no greater than two feet into the underlying native soil.

- *For USTs greater than six feet in length* - Two soil samples should be collected, as described above.

Jan. 2, 1998 Analytical Requirements for Waste Oil USTs	**Revised Requirements as of Aug. 24, 1998 for Waste Oil USTs**
1) Volatile Organics by EPA 8260 AND 2) MADEP VPH: Alkanes/Aromatics AND 3) Semivolatile organics by EPA 8270 AND 4) MADEP EPH: Alkanes/Aromatics AND 5) Pesticides/PCBs by EPA 8080 AND 6) Total Chromium and Lead by EPA 3050 and 3051	1) TPH (Low Boiling Point) – 5030 sample preparation with modified 8015 (California GC-FID Method) AND 2) TPH (High Boiling Point) – 3550 sample preparation with modified 8015 (California GC-FID Method) AND 3) Total Chromium and Lead by EPA 3050 or 3051 AND 4) Pesticides/PCBs by EPA 8080* (**NOT** required if UST is located at service station)

* EPA 8080 has been replaced by a combination of EPA 8081 and 8082 in SW-846 test methods. Continue to analyze for EPA 8080 until laboratories are certified for EPA 8082. (Laboratory certification is already available for EPA 8081).

tanks (USTs) in North Carolina. The state adopted a risk-based approach to the assessment and remediation of soil and groundwater contaminated by releases from USTs. Requirements for UST closures, soil and groundwater sampling, and soil remediation were presented in the *Groundwater Section Guidelines for the Investigation and Remediation of Soil and Groundwater (Volume II - Petroleum Underground Storage Tanks).*

One of the most significant changes from the previous guidelines involved the analytical requirements for samples collected during assessment activities, including closure of USTs. Analytical methodologies required were dependant on the type of petroleum product present in the UST(s) being removed; however, analytical methods were fairly rigorous, and included analysis for volatile petroleum hydrocarbons (VPH) and extractable petroleum hydrocarbons (EPH) by the Massachusetts Department of Environmental Protection (MADEP) method. These analyses are costly and sample collection procedures are more tedious and time-consuming than methods required under previous guidelines.

Due to the high costs and excessive sampling required for UST closure investigations under the January 2, 1998 guidelines, NCDENR has changed the analytical requirements for closure of regulated USTs. Acccording to a letter dated August 24, 1998, NCDENR will allow the use of Total Petroleum Hydrocarbons (TPH) Methods 5030 and 3550 to meet the regulated UST closure requirements. The table at the bottom of the page summarizes the January 2, 1998 analytical requirements and the revised requirements for UST closures.

These changes in analytical methods should significantly reduce the laboratory costs incurred during closure of regulated USTs. Samples must be collected from all locations outlined in the January 2, 1998 guidelines. A "no further action" letter may be issued to sites at which all analytical results are less than 10 milligrams per kilogram (mg/kg) TPH.

If obvious contamination (e.g. petroleum-saturated soil, large hole in tank, free product in excavation, etc.) remains after a regulated UST has been removed, sampling can be reduced to one confirmation sample from beneath each tank plus the required samples beneath the lines and dispensers. Samples should be analyzed by the appropriate TPH method as described in the table above.

It should be noted that this change in requirements for analytical methods applies only to closure of regulated USTs; additional assessment at UST sites (e.g. Limited Site

Contaminant Testing For	**January 2, 1998 Analytical Requirements**	**Revised Requirements as of Aug. 24, 1998**
Low Boiling Point Fuels: gasoline, aviation gasoline, gasohol, etc.	1) Volatile organics by EPA 8260 (including IPE and MTBE) AND 2) MADEP VPH: Alkanes/Aromatics	1) TPH (Low Boiling Point) – 5030 sample preparation with modified 8015 (California GC-FID Method)
Medium/High Boiling Point Fuels: jet fuel, kerosene, diesel, varsol, mineral spirits, naphtha, fuel oil #2, etc.	1) EPA 8260 (as above) AND 2) MADEP VPH: Alkanes/Aromatics AND 3) Semivolatile organics by EPA 8270 AND 4) MADEP EPH: Alkanes/Aromatics	1) TPH (Low Boiling Point) – 5030 sample preparations with modified 8015 (California GC-FID Method) 2) TPH (High Boiling Point) – 3550 sample preparation with modified 8015 (California GC-FID Method)
Heavy Fuels: #4, #5, #6 fuel oils; motor oil, Hydraulic fuel, etc.	1) EPA 8270 (as above) AND 2) MADEP EPH: Alkanes/Aromatics	1) TPH (High Boiling Point) – 3550 sample preparation with modified 8015 (California GC-FID Method)

- *Training programs must be accredited* - involves submittal of application to EPA, and compliance with course and instructor requirements.

- *Contractors must follow work practice standards* - includes requirements regarding recordkeeping, reporting, and use of personal protective equipment and respiratory protection plans.

In addition, the North Carolina Lead-Based Paint Hazard Management Program requires an *abatement permit*, issued by the Department of Environment and Natural Resources, for lead abatement projects.

While these regulations fall under the jurisdiction of several different agencies, the resulting focus is to protect the health and safety of workers involved in lead-based paint activities.

Knowing Exposure Levels Key to Complying With Regulations

If lead is identified on a construction, renovation or demolition project, industrial hygiene sampling must be performed to demonstrate that lead concentrations in air are below the OSHA Permissible Exposure Level (PEL) of 50 micrograms per cubic meter of air (50 ug/m^3).

While the PEL for lead is 50 ug/m^3, if exposure is determined to be at or above the Action Level of 30 ug/m^3 over an eight-hour period, employers are required to provide the following:

- Appropriate respiratory protection;

- Appropriate personal protective clothing and equipment;

- Clothing change areas;

- Hand washing facilities;

- Biological monitoring to consist of blood sampling and analysis; and

- Training regarding HAZCOM and safety requirements.

According to 29 CFR 1910.1025 Appendix C, workers shall receive a baseline physical which should include the following:

- Detailed work and medical history;

- Thorough physical examination; and

- Blood sample and analysis.

If initial determination or subsequent monitoring reveals employee exposure to be at or above the action level but below the PEL (50 ug/m^3), the employer shall repeat monitoring every six months. If exposure is above the PEL, quarterly monitoring is required until such a time that two consecutive tests reveal a decrease in levels below the PEL.

Furthermore, an annual examination must be performed for those employees for whom a blood sampling test indicated a blood lead level at or above 40 micrograms per deciliter (40 ug/dl) within the past 12 months. If an employee□s blood level exceeds 50 ug/dl, then temporary removal from the site is required.

NCDENR EASES ANALYTICAL REQUIREMENTS FOR UNDERGROUND STORAGE TANK CLOSURE

On January 2, 1998 the North Carolina Department of Environment and Natural Resources (NCDENR) made significant changes in the procedures and requirements for the closure of regulated underground storage

Environmental Investigations ALERT

Vol. 8, No. 9 *A Publication of Environmental Investigations, Inc.*

LEAD-BASED PAINT RULES AND REGULATIONS IN NC; APPLICABILITY TO COMMERCIAL CONSTRUCTION AND RENOVATION

Due to recently proposed regulations under the Toxic Substances Control Act (TSCA), and other federal and state regulations which address lead-based paint issues, some confusion has arisen regarding the applicability of the various laws and regulations to activities in commercial buildings.

The current Lead-Based Paint Hazard Management Program in North Carolina was established August 1, 1998, and follows all federal lead requirements enacted on August 29, 1996 as required by Title X of the Residential Lead-Based Paint Hazard Act of 1992 (40 CFR Part 745). These standards generally address only *Target Housing* and *Child Occupied Facilities*.

Recent regulations proposed by the U.S. Environmental Protection Agency define hazardous conditions for lead in soil, paint and dust (see EPA Releases Proposed Lead Hazard Identification Rule in *EI Alert, Vol. 8. No. 8*.) However, these proposed regulations and the associated guidance documents also apply to most housing built before 1978 and to child-occupied facilities, such as day-care centers.

Requirements Applicable to Activities in Commercial Buildings

While most of the focus of regulations involving lead-based paint has historically been centered on child exposure to lead, all construction work involving commercial or public buildings where an employee may be occupationally exposed to lead are subject to requirements of OSHA's construction industry standard 29 CFR 1926.62. In addition, EPA and North Carolina regulations also have provisions which extend to activities involving lead-based paint in commercial buildings.

Key elements of the OSHA standard include:

- *Establishment of Permissible Exposure Levels and Action Levels* - include monitoring requirements to ensure worker safety and control exposure.

- *Medical surveillance* - specific requirements to monitor worker's health, including blood sampling to determine blood lead levels.

More detailed information on these OSHA requirements is presented below.

EPA requirements relating to lead-based paint activities are as follows:

- *Contractors must be trained and certified* - includes successful completion of accredited training program, and additional experience and/or education.