

Phase I Environmental Site Assessment

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A **Phase I Environmental Site Assessment** is a report prepared for a



Any piece of real estate can be the subject of a Phase I ESA.

real estate holding which identifies potential or existing environmental contamination liabilities. The analysis, often called a **Phase I ESA**, typically addresses both the underlying land as well as physical improvements to the property; however, techniques applied in a Phase I ESA never include actual collection of physical samples or chemical analyses of any kind. Scrutiny of the land includes examination of potential soil contamination, groundwater quality, surface water quality and sometimes issues related to hazardous substance uptake by biota. The examination of a site may include: definition of any chemical residues within structures; identification of possible asbestos containing building materials; inventory of hazardous substances stored or used on site; assessment of mold and mildew; and evaluation of other indoor air quality parameters^[1].

Actual sampling of soil, air, groundwater and/or building materials is typically not conducted during a Phase I ESA. The Phase I ESA is generally considered the first step in the process of environmental Due Diligence. This type of study is alternatively called a **Level I Environmental Site Assessment**. Standards for performing a Phase I site assessment have been promulgated by the US EPA^[2] and are based in part on ASTM in Standard E1527-05.^[3] If a site is considered contaminated, a **Phase II Environmental Site Assessment** may be conducted, ASTM test E1903, a more detailed investigation involving chemical analysis for hazardous substances and/or petroleum hydrocarbons.

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History

As early as the 1970s specific property purchasers in the USA undertook studies resembling current Phase I ESAs, to assess risks of ownership of commercial properties which had a high degree of risk from prior toxic chemical use or disposal. Many times these studies were preparatory to understanding the nature of cleanup costs if the property was being considered for redevelopment or change of land use.



Leaking underground storage tanks are one source of hazardous substance liability

In the United States of America demand increased dramatically for this type of study in the 1980s following judicial decisions related to liability of property owners to effect site cleanup. Interpreting the

Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), the U.S. courts have held that a buyer, lessor, or lender may be held responsible for remediation of hazardous substance residues, even if a prior owner caused the contamination; performance of a Phase I Environmental Site Assessment, according to the courts' reasoning, creates a safe harbor, known as the 'Innocent Landowner Defense' for such a new purchaser or his lenders. HTS Environmental Group, of Columbia, Maryland compiled the first discrete scope of work to address the scope of services required to meet the 'innocent purchaser defense'. The HTS work was registered with the United States copyright and trademark office in 1988. This was the work that became the basis of the modern ASTM standard.

In 1998 the necessity of performing a Phase I ESA was underscored by congressional action in passing the Superfund Cleanup Acceleration Act of 1998^[4]. This act requires purchasers of commercial property to perform a Phase I study meeting the specific standard of ASTM E1527: Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.

The most recent standard is "Standards and Practices for All Appropriate Inquiries" 40 Code of Federal Regulations, Section 312^[5]

which drew heavily from ASTM E1527-05 which has become known as 'All Appropriate Inquiry' (AAI). Previous guidances regarding the ASTM E1527 standard were ASTM E1527-97 and ASTM E1527-00.

Residential property purchasers need only conduct a site inspection and chain of title survey.

Actions triggering the Phase I ESA

A variety of actions^[6]

can cause a Phase I study to be performed for a commercial property, the most common being:

- Purchase of real property by a person or entity not previously on title.
- Contemplation by a new lender to provide a loan on the subject real estate.
- Partnership buyout or principal redistribution of ownership.
- Application to a public agency for change of use or other discretionary land use permit.

- Existing property owner's desire to understand toxic history of the property.
- Compulsion by a regulatory agency who suspects toxic conditions on the site.
- Divestiture of properties

Scope of the Phase I ESA



Asbestos-containing materials are not typically surveyed or sampled in a Phase I site inspection, but suspect building materials may be noted

Depending upon precise protocols utilized, there are a number of variations in the scope of a Phase I study. The tasks listed here are extremely common to almost all Phase I ESAs:

- Performance of an on-site visit to view present conditions (chemical spill residue, die-back of vegetation, etc) ; hazardous substances or petroleum products usage (presence of above ground or underground storage tanks, storage of acids, etc.); and evaluate any likely environmentally hazardous site history.
- Evaluation of risks of neighbouring properties upon the subject property
- Interview of persons knowledgeable regarding the property history (past owners, present owner, key site manager, present tenants, neighbours).
- Examine municipal or county planning files to check prior land usage and permits granted
- Conduct file searches with public agencies (State water board, fire department, county health department, etc) having oversight relative to water quality and soil contamination issues.
- Examine historic aerial photography of the vicinity.
- Examine current USGS maps to scrutinize drainage patterns and topography.
- Examine chain-of-title for Environmental Liens and/or Activity and Land Use Limitations (AULs).

In most cases, the public file searches, historical research and chain-of-title examinations are outsourced to information services that specialize in such activities. Commercial enterprises that conduct such activities include Environmental Data Resources (EDR), FirstSeach Technologies, and several major title insurance businesses.

Non-Scope Items in a Phase I Environmental Site Assessments can include visual inspections or records review searches for:

- Asbestos Containing Building Materials (ACBM)
- Lead-Based Paint
- Lead in Drinking Water
- Mold
- Radon
- Wetlands
- Threatened and Endangered Species
- Earthquake Hazard
- Vapor Intrusion

Preparers

Often a multi-disciplinary approach is taken in compiling all the components of a Phase I study, since skills in chemistry, atmospheric physics, geology, microbiology and even botany are frequently required. Many of the preparers are environmental scientists who have been trained to integrate these diverse disciplines. Many states have professional registrations which are applicable to the preparers of Phase I ESAs; for example, the state of California has a registration entitled **Registered Environmental Assessor**.

Under ASTM E 1527-05 parameters were set forth as to who is qualified to perform Phase I ESAs. The new parameter defined an Environmental Professional as someone with 1) a current Professional Engineer's or Professional Geologist's license or registration from a state or U.S. territory with 3 years equivalent full-time experience; 2) have a Baccalaureate or higher degree from an accredited institution of higher education in a discipline of engineering or science and 5 years equivalent full-time experience; or 3) have the equivalent of 10 years full-time experience.

A person not meeting one or more of those qualifications may assist in the conduct of a Phase I ESA if the individual is under the supervision or responsible charge of a person meeting the definition of an Environmental Professional when concluding such activities.

Most site assessments are conducted by private companies independent of the owner or potential purchaser of the land.

Examples

While there are a myriad sites that have been analyzed to date within the United States, the following list will serve as examples of the subject matter:

- Auke Bay U.S. Postal Facility, Juneau, Alaska
- Esso Canada Ltd. Former Bulk Fuels Facility, Owen Sound, Ontario, Canada
- Dakin Building, Brisbane, California
- East Elk Grove Specific Plan, Elk Grove, California
- Mariners Marsh Park, Staten Island, New York
- Richmond State Hospital Farm Industrial Park, Wayne County, Indiana
- Sydney Steel Plant Lands, Sydney, Nova Scotia
- Weyerhaeuser Technology Center, Federal Way, Washington

International context

In Japan, with the passage of the 2002 *Soil Contamination Countermeasures Law*, there is a strong movement to conduct Phase I studies more routinely. At least one jurisdiction in Canada (Ontario) now requires the completion of a Phase I prior to the transfer of some types of industrial properties. Some parts of Europe began to conduct Phase I studies on selected properties in the 1990s, but still lack the comprehensive attention given to virtually all major real estate transactions in the USA.

Other types of ESA



Storage and handling of toxics is assessed for each site within a Phase I study.

There are several other report types that have some resemblance in name or degree of detail to the Phase I Environmental Site Assessment:

Phase II Environmental Site Assessment

is an investigation which collects original samples of soil, groundwater or building materials to analyze for quantitative values of various contaminants^[7]. This investigation is normally undertaken when a Phase I ESA determines a likelihood of site contamination. The most frequent substances tested are petroleum hydrocarbons, heavy metals, pesticides, solvents, asbestos and mold.

Phase III Environmental Site Assessment is an investigation involving remediation of a site. This study normally involves assessment of alternative cleanup methods, costs and logistics. The associated reportage details the steps taken to perform site cleanup and the follow-up monitoring for residual contaminants.

Limited Phase I Environmental Site Assessment

is a truncated Phase I ESA, normally omitting one or more work segments such as the site visit or certain of the file searches. When the field visit component is deleted the study is sometimes called a **Transaction Screen**.

Environmental Assessment

has little to do with the subject of hazardous substance liability, but rather is a study preliminary to an Environmental Impact Statement, which identifies environmental impacts of a land development action and analyzes a broad set of parameters including biodiversity, environmental noise, water pollution, air pollution, traffic, geotechnical risks, visual impacts, public safety issues and also hazardous substance issues.

See also

- Environmental scientist
- Remediation

References

1. ^ Martin N. Sara, *Site Assessment and Remediation Handbook*, CRC Press (2003)
2. ^ EPA Standards and Practices for All Appropriate Inquiries -Final Rule (http://epa.gov/brownfields/aai/aai_final_rule.pdf)
3. ^ ASTM official site (<http://www.astm.org>)
4. ^ *Superfund Cleanup Acceleration Act of 1998*, U.S. Congress, March 26, 1998
5. ^ EPA Standards and Practices for All Appropriate Inquiries -Final Rule (http://epa.gov/brownfields/aai/aai_final_rule.pdf)
6. ^ Thomas M Missimer and Missimer M Missimer, *A Lender's Guide to Environmental Liability Management* CRC Press (1996)
7. ^ *Environmental Aspects of Real Estate and Commercial Transactions: From Brownfields to Green Buildings*, American Bar Association, ed. by James B. Witkin (2002)

External links

- US EPA Final Rule for All Appropriate Inquiry (http://epa.gov/brownfields/aai/aai_final_rule.pdf)
- ASTM E1527-05 Standard Guide for Phase I Studies (http://www.astm.org/cgi-bin/SoftCart.exe/DATABASE.CART/REDLINE_PAGES/E1527.htm?E+mystore)
- Report on Japan's Phase I studies (<http://www.mizuho-ir.co.jp/english/knowledge/esa0608.html>)

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