

ASTM E1527-13 Standard Update

The ASTM published the new standard for conducting Phase I Environmental Site Assessments, ASTM E1527-13 on November 6th, 2013. ASTM E1527-13 is in effect and replaces the E1527-05 standard as the industry best practice for Phase I Environmental Site Assessments.

Key Revisions to E1527-05 Impacting Phase I Investigations

Major

- Recognized Environmental Conditions (RECs)
- Vapor Migration
- Regulatory File Review

Minor

- User Responsibilities : LIEN Search
- Industrial/Manufacturing Properties
- Appendices

Simplified REC Definition

Old Definition:

*“The presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property, or **into the ground, ground water, or surface water of the property.** The term includes hazardous substances or petroleum products even under conditions in compliance with laws.”*

New Simplified Definition:

*“The presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to **the environment**; (2) under conditions indicative of a release to **the environment**; or (3) under conditions that pose a material threat of a future release to **the environment.**”*

CERCLA Definition of “Environment”

*The term “environment” includes (A) the navigable waters, the waters of the contiguous zone, and the ocean waters...and (B) any other surface water, groundwater, drinking water supply, land surface or **subsurface strata...**”*

(Refer to New Legal Appendix in Revised E 1527, XI.1.1.1)

Revised HREC Definition

Old Definition:

“An environmental condition which in the past would have been considered a REC, but which may or may not be considered a REC currently.”

New Definition:

*“A past release of any hazardous substances or petroleum products that has occurred in connection with the property and has **been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted residential use criteria** established by a regulatory authority, **without subjecting the property to any required controls** (e.g., property use restrictions, AULs, institutional controls, or engineering controls). Before calling the past release an HREC, the EP must determine whether the past release is a REC at the time the Phase I ESA is conducted (e.g., if there has been a change in the regulatory criteria). If the EP considers this past release to be a REC at the time the Phase I ESA is conducted, the condition shall be included in the conclusions section of the report as a REC.”*

New CREC Definition

*“A REC resulting from a past release of hazardous substances or petroleum products that has been **addressed to the satisfaction of the applicable regulatory authority** (e.g., as evidenced by the issuance of a NFA letter or equivalent, or meeting risk-based criteria established by regulatory authority), **with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls** (e.g., property use restrictions, AULs, institutional controls, or engineering controls)... a CREC shall be listed in the Findings Section of the Phase I ESA report, and as a REC in the Conclusions Section of the report.”*

Vapor Migration Clarified as Included in Phase I Investigation

- CERCLA/AAI do not differentiate the form (e.g., solid, liquid, vapor) of the *release* to the *environment* (refer to CERCLA definition of “*release*” and “*environment*”)
- *Migrate/migration* now defined in E1527 (as it is used in many places in E1527)
- E2600-10 is a referenced document in E1527
- Addressed in revised AUL definition
- Contaminated vapor migration/intrusion now specifically excluded from IAQ (which is a non-scope consideration)

Migrate/Migration Definition Added

“Refers to the movement of hazardous substances or petroleum products in any form, including, for example, solid and liquid at the surface or subsurface, and vapor in the subsurface.”

E2600-10 Included as a Referenced Document

- Referenced in Section 2.1 of ASTM E1527 Standard*

****Vapor migration must be considered no differently than contaminated groundwater migration in the Phase I investigation. While E2600-10 provides an industry consensus methodology to assess vapor migration, use of E2600-10 methodology is not required to achieve compliance with AAI – an EP may use alternative methodology as deemed appropriate, but this must be documented in the Phase I report (i.e., it must be “capable of being reconstructed by an EP other than the EP responsible for the Phase I”).***

Revised AUL Definition

“Activity and use limitations – legal or physical restrictions or limitations on the use of, or access to, a site or facility: to reduce or eliminate potential exposure to hazardous substances or petroleum products in the soil, soil vapor, groundwater, and/or surface water on the property...”

IAQ Non-Scope Consideration Clarified

- IAQ exclusion had been used as a rationale NOT to consider vapor migration/intrusion in the Phase I investigation, e.g., vapor migration/intrusion is an IAQ issue and as such is a non-scope consideration in the Phase I
- The following words were added after IAQ: “*unrelated to releases of hazardous substances or petroleum products into the environment*”
- The words imply that if the IAQ issue is related to releases of hazardous substances or petroleum products into the environment (i.e., vapor intrusion), then this would be within the scope of the Phase I

Regulatory File Review

- New section 8.2.2 added on *Regulatory Agency File and Records Review*
- ***If the TP or any adjoining property is identified in government records search, “pertinent regulatory files and or records associated with the listing should be reviewed” - at the discretion of the environmental professional***
- If in the EP’s opinion such a file review is not warranted, the EP must provide justification in the Phase I report
- EPs may review files/records from alternative sources such as on-site records, user-provided records, records from local government agencies, interviews with regulatory officials, etc.

Summary of information obtained from the file review shall be included in the Phase I report and EP must include opinion on the sufficiency of the information obtained

Revisions to User Responsibilities

- Environmental liens and AULs are commonly found in recorded land title records.
- Environmental liens and AULs recorded in any place other than recorded land title records are not considered to be reasonably ascertainable - unless applicable statutes or regulations specify a place other than recorded land title records.
- Environmental liens and AULs imposed by judicial authorities may be recorded or filed in judicial records only.
- In jurisdictions where environmental liens and AULs are only recorded or filed in judicial records, these records must be searched.
- Chain of title reports will not normally disclose environmental liens
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- In jurisdictions where environmental liens and AULs are only recorded or filed in judicial records, these records must be searched.
- Chain of title reports will not normally disclose environmental liens
- Although user is responsible to provide known environmental lien and AUL information to EP (unless EP given responsibility through a change in the scope of work), the search for environmental liens and AULs under User Responsibilities Section does not preclude the EP from still conducting a search of institutional control and engineering control registries in the EPs government records search (under 8.2).
- Commonly known or reasonably ascertainable information within the local community about the property which could be material to the REC determination by the EP must be taken into account by the user and communicated to EP
- If user does not communicate to the EP the information in Section 6, User Responsibilities, the EP needs to consider the significance of this shortcoming similar to any other data gap.

Use of ASTM E2600-10 for Vapor Migration Assessment in Phase Is

Steps for Conducting a Tier 1 VEC Screen in a Phase I

(assuming no preferential pathways direct to the TP from contaminated sites)

1. Identify AOC and minimize to the maximum extent possible based on experience

- Start out with 1/3rd mile or 1/10th mile (for petroleum hydrocarbons), BUT
- Can reduce significantly when GW flow direction known or can be inferred (from topographical data or nearby Phase II data or hydrologic data, etc.)
- Can further reduce by using professional judgment based on local knowledge
 - Hydraulic barriers (such as rivers and wetlands)
 - Sub-surface man-made physical barriers (preventing vapors from reaching TP such as utility lines in a main road that can intercept migrating vapors moving toward a TP)
 - Sub-surface natural barriers (preventing vapors from reaching the TP such as confining layers, e.g., low permeability soil (e.g., clay layer) or fresh water lens)

Net Reduction in AOC for Tier 1 Screening of Known or Suspect COC SOURCES if Groundwater Flow Direction is KNOWN or Can Be INFERRED

E 2600-10 w/

<u>Source Location</u>	<u>E 2600-10</u>	<u>Buonicore Methodology*</u>
Up-gradient	1,760'	1,760'
Down-gradient	1,760'	100'
Cross-gradient	1,760'	365'

*Buonicore, A.J. , *Methodology for Identifying the Area of Concern Around a Property Potentially Impacted by Vapor Migration from Nearby Contaminated Sources*, Paper No. 2011-A-301, Proceedings, Air & Waste Management Association, 104th Annual Meeting, Orlando, Florida, June 20-24, 2011.

Net Reduction in AOC for Tier 1 Screening of Known or Suspect PHC SOURCES if Groundwater Flow Direction is KNOWN or Can Be INFERRED

E 2600 Revised w/

<u>Source Location</u>	<u>E 2600-08</u>	<u>Buonicore Methodology*</u>
Up-gradient	528'	528'
Down-gradient	528'	100' (LNAPL) 30' (dissolved)
Cross-gradient	528'	165' (LNAPL) 95' (dissolved)

*Buonicore, A.J. , *Methodology for Identifying the Area of Concern Around a Property Potentially Impacted by Vapor Migration from Nearby Contaminated Sources*, Paper No. 2011-A-301, Proceedings, Air & Waste Management Association, 104th Annual Meeting, Orlando, Florida, June 20-24, 2011.

2. Are there any known or suspect COC-contaminated sites in the EP-defined AOC?

- Government records
- Historical research
- Other (?)

3. Evaluate each site remaining in the EP-defined AOC

- Remediation status?
- Did remediation consider vapor pathway?
- Regulatory file review may help
- Review AULs – contamination left on-site?
- Other (?)

4. Identify VEC status

- exists (physical evidence)
- likely (within close proximity, e.g., two properties?)
- can not be ruled out (further away, beyond two properties?)
- can be ruled out because it does not or is unlikely to exist

5. If VEC exists/likely/cannot be ruled out, determine if

6. VEC is a REC If VEC can be ruled out, vapor migration evaluation is completed

- State VI Guidance
- E 1527-05 de minimus criteria in REC definition
- Soil characteristics, subsurface confining layers and depth to water table
- Hydraulic barriers
- Physical barriers
- Building design and location on property
- Building operation (positive pressure?, etc.)
- Chemical vapor barrier already exists?
- Other?

Bottom Line

- **Vapor migration should be treated no differently than the way contaminated groundwater migration is considered in a Phase I**
- **EP can evaluate vapor migration using whatever methodology the EP determines to be appropriate (if not E 2600-10, then EP needs to document “alternative” methodology and include documentation in the Phase I)**
- **E 2600-10 Tier 1 screening methodology is an industry consensus methodology**
- **E 2600-10 allows for EPs professional judgment and is therefore able to “cover” virtually any “alternative” vapor migration methodology (*making a strong case for using Tier 1 in E 2600-10*)**

Considerations

- **EPA’s Comparison of E 1527-05 and E 1527-13 describes changes and primarily in the nature of clarification**
- **Interpretation of E1527-05 as a low cost alternative to E 1527-13 requirements takes the risk that future Phase I ESAs inconsistent with the clarifications in E 1527-13 may be found not to be compliant with AAI**
- **Potential loss of CERCLA defenses**

New standard available for purchase from the ASTM:

<http://www.astm.org/Standards/E1527.htm>