

ASTM E1527-21

STANDARD PRACTICE FOR ENVIRONMENTAL ASSESSMENTS

2021 Revision Summary



**BUREAU
VERITAS**

Phase I ESA Process Revised

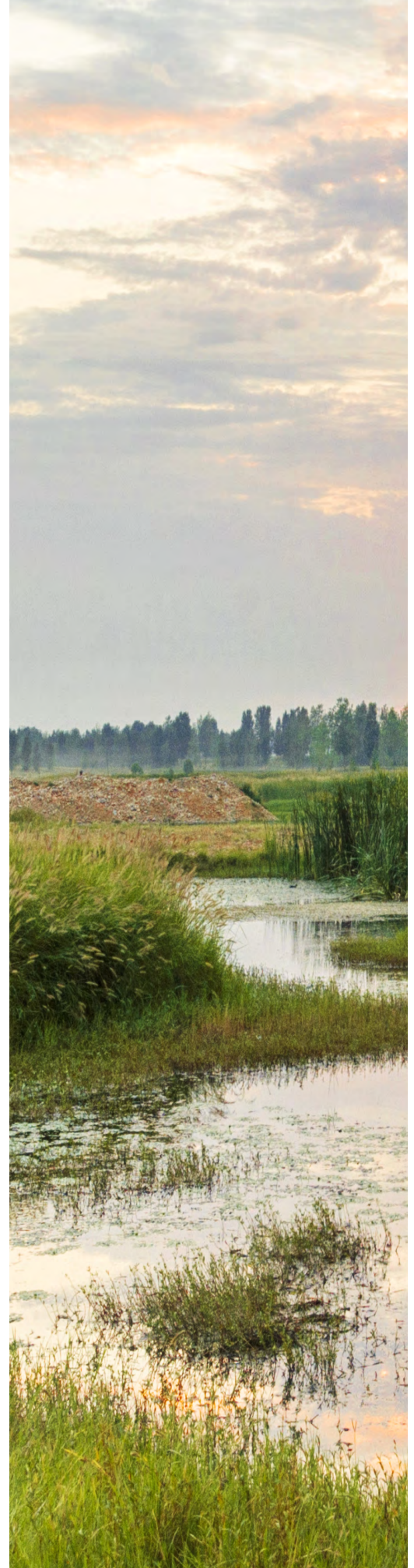
On November 1, 2021, ASTM International’s environmental assessment, risk management and corrective action committee (E50) approved the latest revision of the standard practice for Phase I environmental site assessments (E1527). A balanced task group of over 150 members of Subcommittee E50.02 on Real Estate Assessment and Management collaborated for over three years to achieve consensus on the revision, which was published by ASTM on November 15th.

Background

First introduced in 1993 to define “good commercial and customary practice” for conducting ESAs, the standard has been revised on five previous occasions (1994, 1997, 2000, 2005, and 2013). In November 2006, the EPA incorporated the E1527-05 by reference into the All Appropriate Inquires Final Rule (40 CFR 312) as meeting the requirements to establish a defense against CERCLA liability. As with the 2013 revision, the EPA is expected to review the latest changes to confirm that they are as stringent as the AAI rule, and then issue a new proposed/final rule or direct final rule to reference E1527-21 as compliant with AAI.

Overview

E1527-21 has been revised to reflect current commercial practice, and streamlined throughout to reduce redundant, self-evident, and non-essential language. Terminology and notes/discussions have been revised to better conform to ASTM’s Form and Style Manual. The definitions of *REC*, *CREC*, *HREC* and *de minimis condition* have been updated to better clarify and differentiate the concepts, which are reinforced by an instructive new REC Logic Diagram (X4.2) and detailed examples (X4.3). New terms “*property use limitation*” (PUL); and “*significant data gap*” have been added. Lien/AUL search guidance has been improved. The historical research section has been restructured to make it easier to follow and updated to mandate specific standard sources. It also strengthened the procedures for researching subject, adjoining, and surrounding properties. Reporting will be enhanced by new requirements for site reconnaissance details, photos, and site maps, as well as more detailed findings and opinions. Finally, the practice features an updated and expanded legal appendix (X1), suggested table of contents and report format (X5), and revised discussion of business environmental risk (BER) considerations for non-scope issues and “emerging contaminants” (X6).



Revision Summary

The following key revisions are summarized in the order in which they occur in standard:

1. Sect. 1.1.1 (Scope/Purpose) – Recognized Environmental Conditions

(REC). The REC concept was revised to eliminate redundancy with Sect. 1.1, emphasize the connection of RECs to a release, *likely* release, or material threat of a future release in, on, or at the *subject* property, and to address minor editorial comments. The corresponding definition was revised to:

3.2.73 Recognized Environmental Conditions—(1) the presence of hazardous substances or petroleum products in, on, or at the subject property due to a release to the environment; (2) the likely presence of *hazardous substances* or *petroleum products* in, on, or at the subject property due to a *release* or likely release to the environment; or (3) the presence of *hazardous substances* or *petroleum products* in, on, or at the *subject property* under conditions that pose a material threat of a future *release* to the environment.

The Task Group debated adding a definition for “likely” but ultimately agreed to add a discussion section to the REC definition (3.2.73.1) which asserts that likely “*is that which is neither certain nor proved, but can be expected or believed by a reasonable observer based on the logic and/or experience of the environmental professional, and/or available evidence, as stated in the report to support the opinions given therein.*”

2. Sect. 1.1.4 Note 3 (Scope/Purpose) – Other Federal, State, and Local

Environmental Laws – Note 3: The note was added to address numerous task group member comments regarding jurisdiction-specific terminology and regulatory considerations, including provisions for emerging contaminants such as PFAS, as further discussed in Section 13.1.2.

3. “Subject” Property (throughout) –

The term *property* was revised to *subject property* where applicable to achieve consistency, and to emphasize the goal of the practice to identify RECs on “*the property that is the subject of the environmental site assessment*”. Further, predicate references to conditions “*on*” a subject property were revised to “in, on, or at” throughout to provide further clarity and to align with language used in the EPA’s AAI rule (40 CFR Part 312).

4. Sect. 3.2.17 (Terminology/Definitions) Controlled recognized environmental condition (CREC).

The CREC term was revised to better align with ASTM’s Form and Style Manual, which recommends keeping definitions to one sentence and moving other elements into discussion sections. The streamlined one sentence definition references new examples in Appendix X4 and is supported by a four-part discussion (3.2.17.1) that details the process for identifying a finding as a CREC and documenting that rationale in the Findings and Opinions section of the report. The prior “Note 1” and “Note 2” were deleted.

5. Sect. 3.2.20 (Terminology/Definitions) de minimis condition.

The definition of de minimis condition was clarified to stipulate that the concept is a condition related to a *release*. This unanimously supported revision was brought over from the Forestland ESA standard (E2247).

6. Sect. 3.2.39 (Terminology/Definitions) historical recognized environmental condition (HREC). The HREC definition was simplified and updated to include the new *property use limitation* concept. In a manner consistent with the revised CREC definition, the updated HREC definition is supported by new examples in Appendix X4, and a new 2-part discussion section (3.2.39.1). The discussion details the process for identifying a finding as an HREC and then documenting that rationale in the Findings and Opinions section(s) of the report.

7. Sect. 3.2.67 (Terminology/Definitions) property use limitation (PUL). The term PUL was added to clarify the existing concept of “property use restrictions” that was incorporated into the E1527-13 definition of CRECs (3.2.18). A PUL is now defined as “*limitation or restriction on current or future use of a property in connection with a response to a release, in accordance with the applicable regulatory authority or authorities that allows hazardous substances or petroleum products to remain in place at concentrations exceeding unrestricted use criteria.*” The concept is important for an EP determining whether a finding may or may not be a CREC in the absence of a formal AUL as described in ASTM Guide E2091. The PUL definition is used in the new Opinions section (12.6.1) and in the new Appendix X4 examples of RECs, CRECs and HRECs. EPs and Users should become familiar with the proper use of the new term and application of the PUL concept as it pertains to CRECs.

8. Sect. 3.2.75 (Terminology/Definitions) release. The term was updated to clarify that there may be statutory exclusions from the definition of *release* that may impact the EP’s opinions and conclusions, such as the normal application of fertilizer.

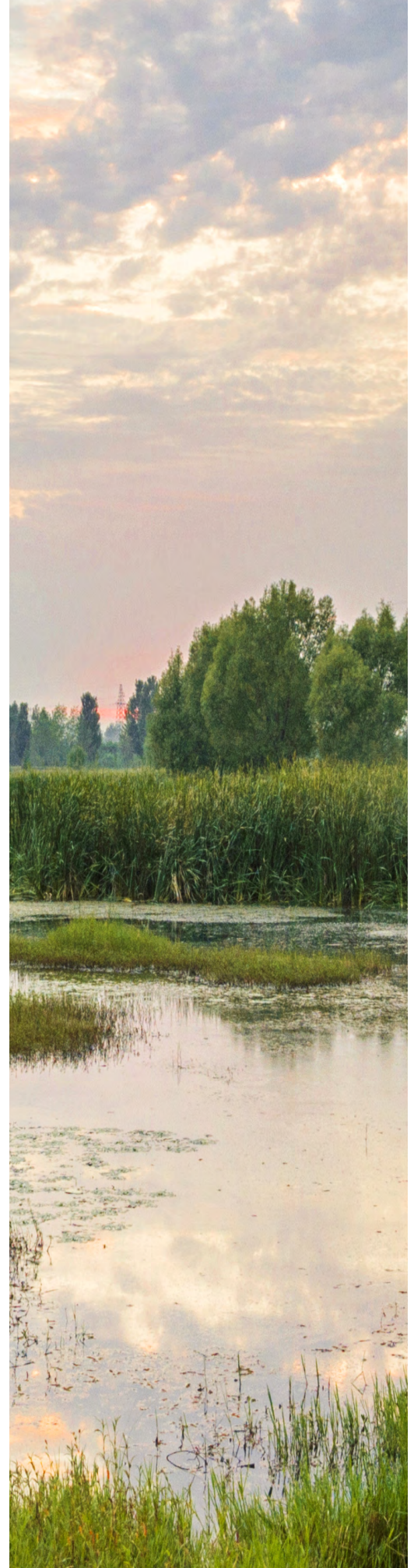
9. Sect. 3.2.78 (Terminology/Definitions) significant data gap. The term has been formally defined as “a data gap that affects the ability of the EP to identify a REC, as described in the new Sect. 12.6.2 governing Opinions.


10. Sect. 4.2.2 (Significance and Use/Clarifications on Use) Residential Tenant/Purchasers and Others. Note 1 was added to this section to reference the 2018 BUILD Act, which amended the CERCLA definition of bona fide prospective purchaser at §101(40) to include certain commercial tenants or lessees who acquire a leasehold interest in a property. EPs and Users conducting leasehold interest transactions should be aware of this new regulatory consideration.

11. Sect. 4.5.3 (Significance and Use/Principles) Level of Inquiry is Variable. The section was expanded to include a standard of care reference to 42 U.S.C. §9601(35)(B), and a new clarification that future intended uses of the subject property disclosed to the EP may guide the appropriate level of ESA.

12. Sect. 4.5.5 (Significance and Use/Principles) Point in Time. The section was added as a precursor to the revised Sect. 4.6 Continued Viability provisions and specifically references Sect. 7.2 (Elements of a Phase I ESA). It states that the ESA is based upon conditions at the time of completion of the individual elements.

13. Sect. 4.6 (Significance and Use) Continued Viability of Environmental Site Assessment. This section was divided into four new subsections to expand and clarify the concepts of *Presumed Viability* (4.6.1), *Updating of Certain Components* (4.6.2), *Compliance with All Appropriate Inquiries* (4.6.3), and *User’s Responsibilities* (4.6.4). Importantly, 4.6.1 now requires that the dates that of specific components (interviews, review of government records, visual inspections, and declaration by the EP) be identified in the report (components 4.6.2(i), (iii), (iv), and (v), respectively). Additionally, if the user engages the EP to complete searches for environmental cleanup liens (4.6.2(ii)) then that date shall also be identified in the report. Subsection 4.6.2 is a simplified version of the previous Sect. 4.6 that stipulates the five elements of the ESA that must





be updated within 180 days prior to the date of purchase or the date of the intended transaction (if other than a purchase), including:

- i. interviews with owners, operators, and occupants;
- ii. searches for recorded environmental cleanup liens
- iii. reviews of federal, tribal, state, and local government records;
- iv. visual inspections of the *subject property* and of *adjoining properties*; and
- v. the declaration by the *environmental professional* responsible for the assessment or update.

Essentially, the only elements not requiring an update are certain historical resources (e.g., historical aerial photographs, topographic maps, historical fire insurance maps, historical city directories, etc.) that would not be expected to yield different results between 180 days vs. one year prior to the date of the intended transaction. However, Section 4.6 could not be revised to explicitly state this because the language is tied directly to the EPA's AAI Rule and therefore cannot be substantially altered. Subsection 4.6.3 restates the 180-day viability provision as it narrowly applies to compliance with *all appropriate inquiries* related to acquisitions. Subsection 4.6.4 isolates the previous Sect. 4.6 provision related to use of ESAs by a user different than the user for whom the report was originally prepared, with reference to their obligation to satisfy the user's responsibilities in Sect. 6. Both prior Sect. 4.6 Notes (5 and 6) were deleted.

14. Sect. 4.7.1 (Significance and Use/Prior Assessment Usage) Use of prior Information. This section was strengthened to explicitly stipulate that “*Nothing in this practice is intended to convey a right to use or to rely upon resources, information, findings, or opinions provided in prior assessments.*” This provision should enhance the legal defense for users and providers of prior assessments that have not granted contractual reliance for its subsequent use.

15. Sect. 5 – Significance of Activity and Use Limitations. This section was revised and enhanced to provide greater clarity to the often-misinterpreted concept of recorded AULs and where they can be found. The basic guidance on what constitutes an AUL is essentially unchanged in Sections 5.1 and 5.2., with minor terminology edits in Sect. 5.3. Former Sect. 5.4 (*Where AULs Can Be Found*) has been divided into two sections to differentiate *AULs and Environmental Liens in Land Title Records or Judicial Records* (5.4) from *AULs in State IC/EC Registries* (5.5). Sect. 5.4 provides new insight into the search process for AULs beyond standard land title records and refers users to supporting references in Sect. 6.2 and the new Appendix X1.7 (providing additional discussion of Land Title Records, Judicial Records, and the title search process). Sect. 5.5 isolates and updates the discussion of institutional control/engineering control (IC/EC) site registries. The revisions should improve the industry's awareness of how AULs should be researched and identified.

16. Sect. 6 – User Responsibilities. This section pertains to tasks performed by or on behalf of a user seeking to qualify for an LLP to CERCLA liability in accordance with the EPA's AAI Rule (40 CFR Part 312). Sect. 6.1 is essentially unchanged. Sect. 6.2 (*Review Land Title Records and Judicial Records for Environmental Liens and AULs*) has been divided into two new subsections to provide an overview of the two primary research methods available to users. Subsection 6.2.1 describes *Method 1 Transaction-Related Title Insurance Documentation Such as Preliminary Title Reports and Title Commitments*. Subsection 6.2.2 describes *Method 2 Title Search Information Reports Such as Condition of Title, Title Abstracts, and AUL/Environmental Lien Reports*.

Subsection 6.2.2 has a further subsection (6.2.2.1) to detail the Scope of Title Search Information Reports, which includes identification of “*environmental covenants, environmental easements, land use covenant and agreements, declaration of environmental land use restrictions, environmental land use controls, environmental use controls, environmental liens, or any other recorded instrument that restricts, affects, or encumbers the title to the subject property due to restrictions or encumbrances associated with the presence of hazardous substances or petroleum products.*” The subsection further requires that “*Title search information reports shall review land title records for documents recorded between 1980 and the present. If judicial records are not reviewed, the title search information report shall include a statement providing that the law or custom in the jurisdiction at issue does not require a search for judicial records in order to identify environmental liens.*”

Sect. 6.2.3 (Role of the Environmental Professional) has been added with two subsections to clarify the frequently misinterpreted EP role in assisting the user in the identification of Lien/AULs. The new provision emphasizes that “*Unless this task is expressly added by a change in the scope of work to be performed by the environmental professional, the user requirements set forth...do not impose on the environmental professional the responsibility to undertake a review of land title records or judicial records for environmental liens or AULs.*” The first subsection pertains to the User’s responsibility to report environmental liens and AULs to the EP, and the second subsection details the EP’s reporting requirements to describe the results of the search, limited to “*whether they received land title records from the user and whether the user identified AULs or environmental liens*” without the “*need to review, assess, or otherwise evaluate the land title records or the user’s conclusions as to whether AULs or environmental liens were identified.*”

17. Sect. 7 – Phase I Environmental Site Assessment. The previous concept of “*four components*” has been updated to eight “*elements*”, which are similarly described with corresponding references to Sections 8-12 of the standard.

Sect. 7.5.1 (Who May Conduct a Phase I ESA) Environmental Professional’s Duties. Proposed revisions to this controversial section initially included a requirement for site reconnaissance to be performed by an EP. Ultimately, the language was strengthened only to require that “*the person performing the interviews and site reconnaissance shall possess sufficient education, training, and experience to assess the nature, history, and setting of the subject property,*” and that the EP “*...shall review and interpret the information used to form the basis of the findings, opinion and conclusions in the report.*” Editorially, in this and other sections, the term “*performed*” was revised to “*conducted*” where applicable and not in conflict with statutory language.

18. Sect. 8 – Records Review. The historical records review section has been restructured and updated to reconcile previous inconsistencies, clarify existing concepts, and reflect current commercial and customary practice for gathering historical information to identify RECs. The revisions address the evolution and availability of historical sources and establish updated parameters for mandatory and discretionary research of the subject property, adjoining properties, and surrounding areas. New to the standard is a requirement to review reasonably ascertainable aerial photographs, fire insurance maps, local street directories, and topographic maps (colloquially referred to within the Task Group as the “*Big 4*”) for the subject and adjoining properties as described in Sections 8.3.8 and 8.3.9. If the required records are not reviewed, the EP must now indicate in the report why such a review was not conducted. Sect. 8.3.9 was added to specifically address adjacent property research, and states “*During research of the subject property, as described in 8.3.8, uses of*



the adjoining properties that are obvious shall be identified to evaluate the likelihood that past uses of the *adjoining properties* have led to *recognized environmental conditions* in connection with the subject property. The report shall describe identified obvious uses of *adjoining properties*, and indicate the earliest dates identified.

Another key improvement to Sect. 8 is a major restructuring of the subsections, which now follow a more logical order, starting with Objectives (8.1); sources of historical info (8.2); historical research parameters including intervals, data failures and types of use (8.3); use of the subject property (8.3.8); uses of adjoining properties (8.3.9); uses of properties in surrounding areas (8.3.10); prior assessment usage; and referencing of historical resources used (8.3.11). While subsections 8.3.8 and 8.3.9 include the most significant changes, other notable revisions include:

Sect. 8.2.1 Physical Setting Resources was moved from former Sect. 8.2.4 to emphasize the mandatory review of a USGS topographic map showing the subject property (current USGS Topo or historical 7.5-Minute Topographic Series). The subsection details the map usage requirements and adds a requirement that “*site-specific physical setting information obtained pursuant to agency file reviews set forth in 8.2.3 shall also be reviewed.*” EPs are encouraged to obtain one or more additional physical setting resources at their discretion, and are required to do additional research when “(1) *conditions have been identified in which hazardous substances or petroleum products are likely to migrate to the subject property or from or within the subject property into the groundwater or soil, and (2) more information than is provided in the most recent USGS 7.5 Minute Topographic Map (or equivalent) is generally obtained, pursuant to local good commercial and customary practice in initial environmental site assessments for the type of commercial real estate transaction involved, to assess the impact of such migration on recognized environmental conditions in connection with the subject property (Table 1).*”

Sect. 8.2.2. The previous table of *Standard Environmental Record Sources with Approximate Minimum Search Distances* has been replaced by an updated Table 1 (*Mandatory Standard Physical Setting Resources*), and Table 2 (*Types of Government Records to be Reviewed*). Table 2 has been updated to remove obsolete references (CERCLIS, CORRACTS, and their state/tribal equivalents), and a column was added to identify *Common Sources for Government Records* (e.g., US EPA websites, EPA databases, etc.).

Former Sect. 8.2.3 (Additional Federal, State, Tribal, and Local Environmental Record Sources) is now Sect. 8.2.4 and has been revised and amended with an updated Table 3 (*Types of Records*).

Sect. 8.4 Prior Assessment Usage. The reference to standard historical sources was revised to *historical resources obtained from prior assessments*. The updated provision gives EPs discretion to review such resources as part of the current assessment *provided that legible copies are appended to the prior assessment*, and if the EP independently determines that the information conforms to Section 8.3. EPs are also newly encouraged to use their discretion to consider anecdotal information reported in a prior assessment to evaluate historical conditions.


Sect. 8.5 Referencing Historical Information. This is a new section creates a mandatory requirement for documenting each historical resource used to analyze the land use history of the subject property, adjoining properties and surrounding properties in sufficient detail *“to facilitate reconstruction by another environmental professional.”* The section references 12.2 (documentation), and provides four examples of adequate resource referencing.

19. Sect. 9.0 Site Reconnaissance. This section has been restructured and updated to simplify the objectives and observation parameters by an EP *“or the person under the supervision or responsible charge of the environmental professional.”* Activity exclusions have been separated out into a new two-part subsection (9.2.4). The most significant revision to the section is a new requirement for the EP to document not only *“the specified features, activities, uses, and conditions identified in, on, or at the subject property”*, but also describe and document in the report any of the specified elements **not** found to be present in, on, or at the subject property. The purpose of this change is to ensure that all Sect 9 elements are thoroughly considered and specifically documented as either applicable or not applicable.

20. Sect. 10 Interviews with Past and Present Owners, Operators, and Occupants. The Helpful Documents subsection (10.8.1) has been updated to add “Environmental site investigation reports” (10.8.1.2) and “Reports regarding any self-directed or other cleanup activities conducted at the subject property” (10.8.1.11).

21. Sect. 12 Evaluation and Report Preparation. Sect. 12 has been restructured and updated to improve the consistency and level of reporting detail, including documentation of newly required items in E1527-21. The report format guidance is now offered as a *“suggested format”* with a reference to updated appendix X5, as opposed to the previous guidance that the report *“should generally follow the recommended report format.”* The report must now document the date(s) the site reconnaissance and interviews were conducted; include a site plan showing the approximate location of features, activities, uses, and conditions of the subject property; and *“photographs of features, activities, uses, and conditions indicative of recognized environmental conditions and de minimis conditions.”* Sect. 12 also details updated requirements for both Findings and Opinions, which may be presented in a combined section. The new Findings section (12.5) must identify *“those features, activities, uses, and conditions that, in the judgment of the environmental professional, may indicate the presence or likely presence of hazardous substances or petroleum products at the subject property.”* The Opinions section (12.6) must include the EP’s opinions and supporting rationale regarding the likely impact to the subject property from each of the findings. It further requires that *“the opinions shall specifically include the environmental professional’s rationale for concluding that a finding is or is not a recognized environmental condition, controlled recognized environmental condition, historical recognized environmental condition, or de minimis condition insofar as the findings pertain to each of these conditions.”* Subsection 12.6.1 details the requirements for concluding that a finding is a CREC, including any identified AULs or PULs, and Subsection 12.6.2 describes how significant data gaps must be presented, including a new requirement for EPs to comment on how the missing information affects their ability to provide an opinion regarding releases or threatened releases. Any such significant data gaps must also now be identified in the Conclusions section (12.7). The EP declarations have also been expanded to include CRECs and significant data gaps in addition to RECs. While recommendations are still not required by the practice, a new provision





for Additional Investigation (12.8) was added that states EPs “*should provide an opinion regarding additional appropriate investigation, if any, to detect the presence of hazardous substances or petroleum products.*” To emphasize that such opinions for additional investigation neither renders the assessment incomplete or requires the EP to recommend a Phase II or other assessment activities, a note was added (Note 6) to clarify that “*an opinion pursuant to 12.8 is a statement by the environmental professional that additional investigation may be appropriate, which is different than a recommendation that provides a specific course of action which is outside the scope of this practice.*”


22. Sect. 13 Non-Scope Considerations – The section was broadened to address “environmental conditions” as opposed to “substances” that do not present potential CERCLA liability and are beyond the scope of the practice. Revisions were made to the provisions relating to Asbestos-containing building materials and lead-based paint (to address potential CERCLA releases in to the environment); and PCB-containing building materials were added. The most notable addition is the inclusion of “emerging contaminants”, with references to 1.1.4 and appendix X6.10.

■ Other Terminology Revisions

- 1. Section 3 – Terminology** (editorial). To conform with ASTM’s Form & Style Guide, the terminology section was revised throughout to include the parts of speech for each term (e.g., “abandoned property, n”).
- 2. Section 3.2.2.1 – Activity and use limitations, Discussion.** This key provision referencing Guide E2091 was moved from “Note 1” into the body of the standard as a discussion item, without edit. Generally, a footnote is considered to carry less weight than a sub-section discussion.
- 3. Section 3.2.5 – aerial photographs.** Definition was simplified to remove the explanatory second sentence that was not required to define the term.
- 4. Section 3.2.10 – building department records.** Definition was simplified to remove the explanatory second sentence that was not required to define the term.
- 5. Former Section 3.2.14 – Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS).** Definition was deleted, as the CERCLIS list is no longer published by the EPA.
- 6. Former Section 3.2.19 – CORRACTS list.** Definition was deleted, as the CORRACTS list is no longer maintained by the EPA.
- 7. Former Section 3.2.35 – Federal Register (FR).** Definition was deleted because it is no longer referenced in the body of the standard.
- 8. Section 3.2.34 – fire insurance maps.** Definition was updated to reflect the historical context of the maps and was simplified to one sentence in accordance with the ASTM Form & Style Guide.
- 9. Section 3.2.40 – IC/EC registries.** Definition was updated to reflect the names of additional state-specific IC/EC registries.
- 10. Section 3.2.43 – interviews.** Definition was updated to include broader references to interviews with various parties (not limited to owners and operators) by any reasonable means (in person, by telephone, in writing, or via other electronic means).

11. **Section 3.2.45 – *land title records***. Definition was added in support of the expanded use of the term in Sections 5, 6, 8 and Appendix X1.
12. **Section 3.2.47 – *landowner liability protections***. Definition was updated to clarify the legal application of the defense to CERCLA available to bona fide prospective purchasers, contiguous property owners, and innocent landowners. Additionally, an incorrect reference to 42 USC 9607(b) was removed.
13. **Section 3.2.49 – *local street directories***. Definition was simplified and broadened to reflect current commercial practice.
14. **Section 3.2.52 – *LUST sites***. Definition was deleted because it is no longer referenced in the body of the standard.
15. **Section 3.2.51 – *material safety data sheet (MSDS)***. The definition was replaced with a reference to “see safety data sheet” (Sect. 3.2.77) to reflect current industry terminology. The MSDS term is not used in the body of the standard, but was retained for cross-reference because it is still a widely term as the industry transitions.
16. **Former Section 3.2.52 – *material threat***. Definition was clarified to address any obvious threat likely to lead to a release and that would likely result in impact to public health or the environment.
17. **Section 3.2.53 – *migrate/migration***. To be consistent with the ASTM Form & Style Guide regarding definitions, “Note 4” regarding vapor migration as described by Guide E2600 was replaced by the new Sect. 3.2.53.1 Discussion (with no change to the provision).
18. **Former Section 3.2.57 – *National Contingency Plan (NCP)***. Definition was deleted because it is no longer referenced in the body of the standard.
19. **Section 3.2.58 – *other historical sources***. Changed to “other historical resources”, the corresponding definition was updated and revised as to support the standard-wide clarifications of “sources” vs. “resources” as described in Sect. 8 (Records Review).
20. **Section 3.2.63 – *physical setting sources***. Updated and revised as to support the standard-wide clarifications of “sources” vs. “resources” as described in Sect. 8 (Records Review).
21. **Section 3.2.66 – *property***. Definition was updated to generically define property as opposed to the subject property, which was added as a new definition (3.2.88).
22. **Section 3.2.68 – *property tax files***. Definition was updated to simplify and broaden the concept to reflect good commercial practice.
23. **Former Section 3.2.74 – *RCRA generators list***. Definition was deleted because it is no longer referenced in the body of the standard.
24. **Former Section 3.2.75 – *RCRA TSD facilities***. Deleted and consolidated with former definition 3.2.71, which was updated to remove the outdated reference to the EPA.
25. **Former Section 3.2.79 – *recorded land title records***. Term was deleted because it is no longer referenced in the body of the standard (replaced by the new land title records definition in 3.2.45).
26. **Former Section 3.2.80 – *records of emergency release notifications (EPCRA)***. Term was deleted because it is no longer referenced in the body of the standard.
27. **Section 3.2.77 – *safety data sheets***. Term was added as a replacement for the outdated MSDS definition in 3.3.22. The updated reference cites OSHA’s Hazard Communication Standard (HCS), 29 CFR § 1910.1200.



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- 28. Section 3.2.85 – standard physical setting sources.** Term revised to standard physical setting resources as part of the standard-wide clarifications of “sources” vs. “resources” described in Section 8 (Records Review). The term was further updated to clarify the use of USGS 7.5 Minute Topographic Maps or their equivalents, including site-specific physical setting information obtained pursuant to agency file reviews, as further described in Sect. 8.2.1. The Task Group discussion of this section also resulted in the addition of a new definition for the term topographic map (Sect. 3.2.90).
- 29. Former Section 3.2.88 – state registered USTs.** Term was deleted because it is no longer referenced in the body of the standard.
- 30. Section 3.2.88 – subject property.** Newly defined term to describe the property that is the subject of the environmental site assessment described in the E1527 practice. The definition supports the revision of the term property to subject property in all applicable instances in the standard.
- 31. Section 3.2.90– topographic map.** Newly defined term to generically describe graphic representations delineating natural and man-made features of an area or region in a way that shows their relative positions and elevations. The addition solved issues related to referencing only the USGS 7.5 Minute Topographic Map as an acceptable standard physical setting resource, such as unavailability of recent maps or lack of coverage for certain areas. It also acknowledges that online alternatives to the USGS maps are now readily available resources for many locations.
- 32. Section 3.2.94 – user.** Definition was simplified to one sentence in accordance with the ASTM Form & Style Manual, and the second two sentences of the prior version were revised and moved into a new Discussion section (3.2.94.1). The discussion section now clarifies that the referenced Sect. 6 user’s responsibilities apply only to those users seeking to qualify for an LLP to CERCLA liability, or to a user that is an EPA Brownfield Assessment and Characterization grantee.
- 33. Section 3.2.95– USGS 7.5 Minute Topographic Map.** Term was updated to reference both current and historical 7.5-Minute Topographic Series maps available from the USGS that show the subject property.
- 34. Section 3.2.96– visually and/or physically observed.** Term was streamlined and updated to include observations made by auditory and olfactory means in addition to visual means while performing site reconnaissance.
- 35. Section 3.2.98 – zoning/land use records.** Definition was updated and simplified to one sentence in accordance with the ASTM Form & Style Manual.
- 36. Section 3.3 Acronyms.** The section name was expanded to “**Acronyms and Abbreviations**” to correctly reflect that the section is not limited to acronyms.
- 37. Former Section 3.3.3 - CERCLIS.** Outdated acronym was deleted (CERCLIS is no longer maintained by EPA).
- 38. Former Section 3.3.4 CORRACTS.** Outdated acronym was deleted (CORRACTS is no longer maintained by EPA).

OTHER MINOR REVISIONS

39. **Section 3.3.3 CREC.** Newly added acronym for Controlled Recognized Environmental Condition, inadvertently omitted from the previous revision.
40. **Section 3.3.5 EC – Engineering Control** abbreviation added.
41. **Former Section 3.3.10 FOIA – U.S. Freedom of Information Act** deleted because it is not used in the revised standard. Replaced with acronym FR – Federal Register (formerly Sect. 3.3.11)
42. **Section 3.3.11 HREC** – Newly added acronym for Historical Recognized Environmental Condition, inadvertently omitted from the previous revision.
43. **Former Section 3.3.15 MSDS – Material Safety Data Sheet** deleted because it is not used in the body of the revised standard (replaced with safety data sheets).
44. **Former Section 3.3.21 PRP – Potentially Responsible Party** deleted because it is not used in the revised standard.
45. **Section 3.3.21 REC** – Newly added acronym for Recognized Environmental Condition, inadvertently omitted from previous revision.

Other Minor Revisions

Additional revisions were made based on Task Group discussions and ballot results. The changes include general administrative improvements, simple clarifications, and other non-controversial edits.

1. **Section 1.3** (Scope/Units) — Stipulates that unit values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.
2. **(New) Section 1.7** – Sect. 1.7 references the development of the standard in accordance with internationally recognized principles on standardization was added to acknowledge growing international use of the standard.
3. **Section 2 – Referenced Documents.** The list of referenced documents was updated to reflect corresponding revisions to the standard, including the addition of two ASTM Standards (E2247 and E2790); the deletion of one Federal statute (FOIA); the addition of four USEPA publications including the Common Elements Guidance; and other editorial corrections to existing references.
4. **Section 14 Key Words.** A key words section was added to improve search engine optimization.

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CONCLUSION

This change summary highlights notable recent revisions to the ASTM E1527 standard practice and catalogues minor revisions to terminology and other changes, excluding minor editorial revisions, updated section references, and numerous general revisions made to improve consistency. Parties interested in clean and red-line versions of the standard are encouraged to purchase licensed copies from ASTM International, available at www.astm.org.

The changes represent an important evolution for the standard, and further ASTM's goal to continually reflect good commercial and customary practice for conducting ESAs. E1527-21 should have a positive effect on the industry by clarifying key concepts in the identification of RECs and by requiring more thorough reporting of sources, findings, opinions, and detailed conclusions for Users.

ABOUT THE AUTHOR



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