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Status of PFAS Guidance from ASTM International

23 September 2020

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Presentation Outline



ASTM PFAS Guidance

- Overview of ASTM International
- Environmental Site Assessments
- Corrective Action and Conceptual Site Models
- Analytical Method Selection and Data Evaluation
- Assessment of Water Treatment Effectiveness
- Management Practices for PFAS Impacts
- Management of Wastewater from Impacted Sites
- Management of Investigation Derived Waste

Helping Our World Work Better



12,700 ASTM standards operate globally

Applied to just about everything from steel to sustainability

They improve the lives of millions every day

Over a Century of Openness



How We Work

- Worldwide acceptance and trust comes from the principles of openness and voluntary consensus
- Experts, individuals, organizations, academia, governments, trade associations, consultants and consumers come together
- Over 30,000 members from 146 countries
- Exchanging expertise and knowledge
- Participating in a transparent process – open to anyone, anywhere
- Timely and relevant. Fully representative of sectors. An aid to innovation, not a hurdle to overcome



Universal Equality of Opportunity



Operating Globally

- ASTM is one of the world's largest Standards Developing Organizations, with global reach and influence
- Embracing all the principles of the World Trade Organization's Agreement on Technical Barriers to Trade
- Working across political, cultural and geographic borders
- Recognizing expertise, not country of origin
- Trusted for market relevance and technical quality
- The choice for many global industries
 - 50% outside USA
- Our global outreach activities increase understanding
- Our Memorandum of Understanding Program provides tangible encouragement to developing economies



Committee E50



Environmental Assessment, Risk Management, and Corrective Action

- One of ASTM's 146 Main Committees
- Has 5 subcommittees

- These Standards are being revised or developed within 3 of the 5 subcommittees



Environmental Site Assessments



Commercial Real Estate Transactions E1527

- Standard Practice for Environmental Site Assessments:
- Phase I Environmental Site Assessment Process
 - Most common pre-transaction environmental evaluation in the US
 - EPA deems E1527 consistent with their All Appropriate Inquiry (AAI) Rule for liability protection under CERCLA (Superfund).
 - E1527 references the CERCLA definition of hazardous substances, which is amended from time to time, but currently does not include any PFAS

- Working with E50.02 PFAS Real Estate Task Group to alert environmental professionals to potential risks posed by so-called “Emerging Contaminants” such as PFAS that might be regulated at the state or local level but are not CERCLA hazardous substances.

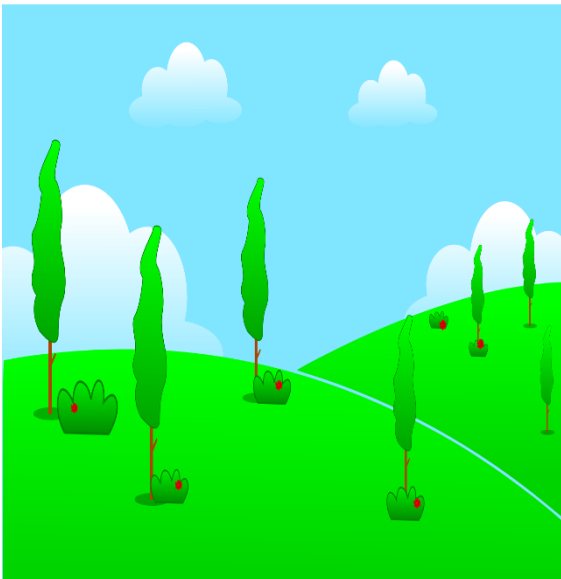
- Currently in routine revision/update process
- Proposed additions to two sections of the Standard Practice itself and another addition to an explanatory appendix.
- Language balloted once with minor changes. Second ballot responses being compiled now.



Environmental Site Assessments



Forestland and Rural Property E2247/Transaction Screen E1528



- ESA designed specifically for large tracks of low intensity or undeveloped land
- The E2247 Task Group is also in its routine updating process, but 1-2 years behind the E1527 Task Group
- E50.02 Real Estate Task Group will propose the same language as proposed to or accepted by E1527
- E1528 – Limited Environmental Due Diligence: Transaction Screen Process
- E1528 Task Group is currently considering significant revisions
E50.02 Real Estate Task Group will propose similar language as proposed to or accepted by E1527, but there will be additional commentary and guidance to explain the emerging contaminant issue to E1528 providers who are not necessarily Environmental Professionals

Corrective Action

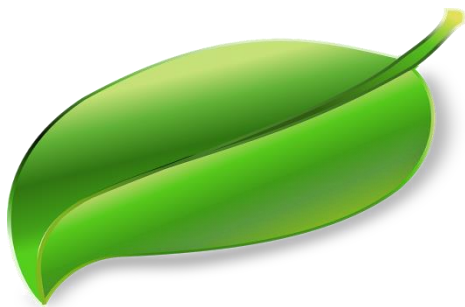


Risk-Based Corrective Action for Chemical Releases E2081

- Adding an Appendix with lookup tables for some PFAS compounds
- Adding USEPA reference documents
- Adding International reference documents
- Subcommittee (E50.04) ballot expected in October 2020



Risk-Based Corrective Action for the Protection of Ecological Resources E2205



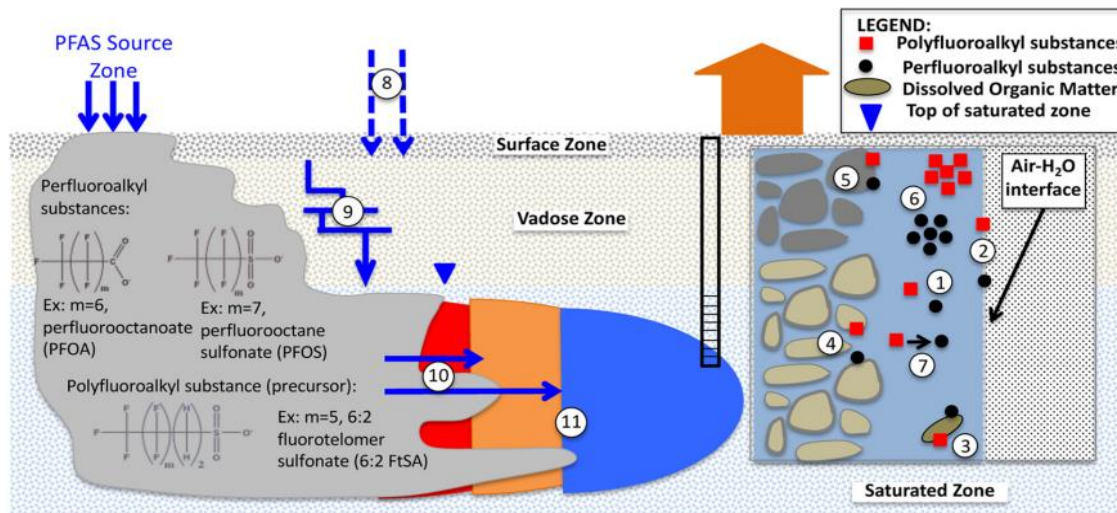
- Adding US EPA reference on Generic Ecological Assessment Endpoints (2016)
- Adding reference to Canadian Ecological Risk Assessment Guidance
- Subcommittee (E50.04) ballot expected in October 2020

Conceptual Site Models



E1689

- Revised Standard balloted in 2020; Final version to be published in October 2020
- Added Department of Defense references
- Added USEPA and State references
- Added additional figures focusing on PFAS (see example below)
- Stresses the importance of PFAS physical/chemical characteristics



Analytical Method Selection Standard Guide



—Compares methods on their analysis of targeted PFAS compounds

—US EPA – 537, 537.1, 533, 8327

—ASTM – D7968, D7979

—ISO – 25101, 21675

Method #, Version, Date Published	Applicable Media, Preservative	Hold time Extract / Analyze	Sample Preparation	Instrumentation, Calibration	Analyte Quantitation
# of extractable internal standards	Branched Isomer Quantitation included?	Reporting Limit	Modification allowed?	Target Analytes	Validation Status

—Also compares analyte lists

Analytical Method Selection Standard, continued



- Presents Qualitative Methods for “Total” PFAS
 - TOP (total oxidizable precursors)
 - TOF (total organic fluorine)
 - PIGE
 - Combustion Gas Analyzer
- Research Developments
- First ballot in October 2020

Data Evaluation Guide

- Project Planning
- Data Quality Assessment Considerations
- Data Usability Considerations
- Data Evaluation and Validation
- Data Validation Checklist
- First ballot in April 2021



PFAS Water Treatment System Effectiveness



WK73683

This guide describes best management practices for potable water treatment systems/ It covers:

- testing and confirmation sampling of water supply wells, periodic monitoring, providing alternative water sources
- assessing usage and exposure, flow and volumes
- selecting appropriate treatment systems
- identifying the locations for the treatment systems, obtaining access and permission
- operating and maintaining the treatment systems
- collecting, regenerating and disposing of treatment materials
- Balloting in December 2020



Management of Waste Streams from PFAS-Impacted Sites

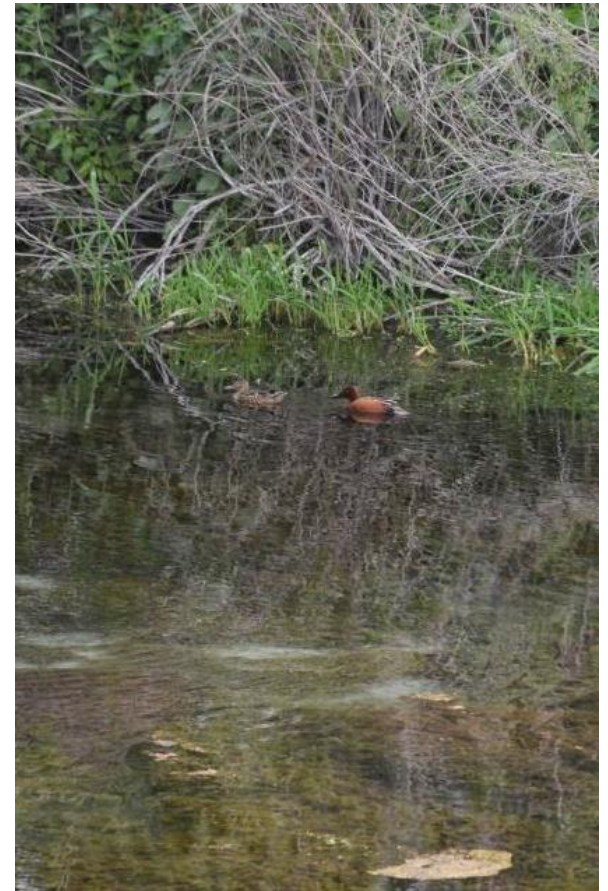


WK74176

This standard will provide guidance on management of discharges containing PFAS.

Topics include:

- Sources – wastewater, stormwater, effluent, landfills
- Challenges of managing PFAS in the waste stream
 - Current methods for PFAS removal
 - Alternatives and innovative approaches
 - Media – liquid, solid and sediment
- Small-scale and large-scale management
- Compliance with applicable regulatory requirements and non-existence of regulations
- Wastewater treatment plants and community water resources
- Cost and other resource considerations



Management Practices for PFAS Impacts



WK70265

- Create a risk-based corrective action Framework
- Develop look-up tables for PFAS compounds routinely found in environment
- Include physiochemical properties
- Focus on solubility and dissociation factors
- Update routinely based upon peer-reviewed reports
- Use to project concentrations in liquids and biosolids
- Ballot by spring 2021

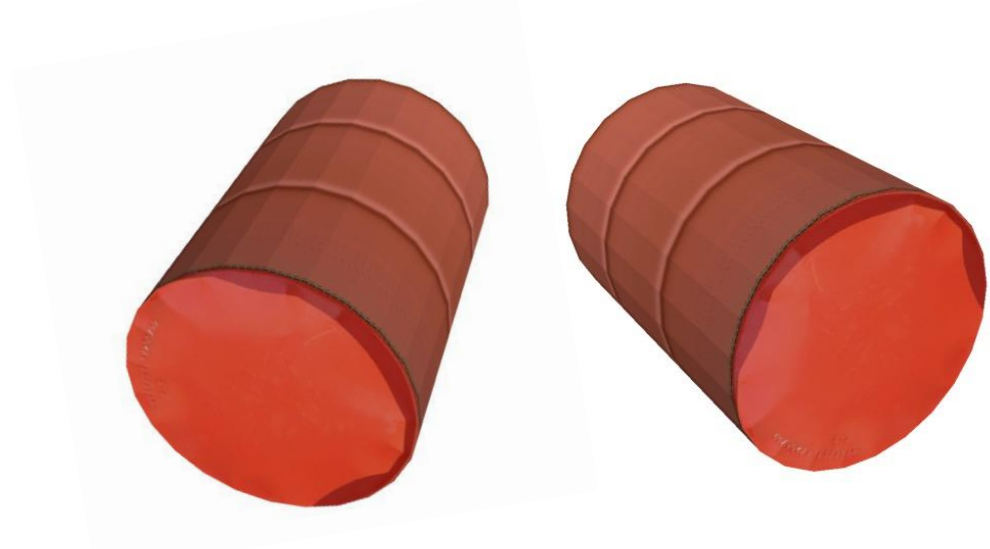


Management of Investigation-Derived Waste from PFAS-Impacted Sites



WK 73328

- Investigation-Derived Waste includes purge water and rinsate
- Guide addresses management of liquid waste
- Guide addresses management of solids in containers
- US EPA engaged in standard development activity
- PFAS not currently regulated under RCRA or CERCLA
- Expect completion of standard development process in 2021



Summary of ASTM Response to PFAS



Multifaceted and timely, revising existing standards and developing new ones

- Updating site assessment practice for sale of commercial real estate and rural undeveloped property to account for emerging contaminants
- Developing management practices for PFAS impacts to the environment, investigation derived waste and water treatment systems
- Updating conceptual site models guidance for PFAS
- Modifying Risk Based Corrective Action for chemical releases and ecological resources to account for PFAS
- Providing guidance for selection of methods for PFAS analysis and data evaluation



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Thank you

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