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Regulatory Developments Impacting Utility Site Cleanups

The NPL Site Listing Process; NESHAP Requirements for CERCLA/RCRA Cleanups

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ASTM Standard Guide for Greener Cleanups
Free access until November 30

www.astm.org/E2893-16

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Hazard Ranking System Scoring and the NPL Listing Process:

EPA's Proposal to Add a Subsurface (Vapor and Groundwater) Component to the HRS

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Background: The National Priorities List and the HRS

- **National Priorities List (NPL)** – List of contaminated sites prioritized for further investigation and potential cleanup action under CERCLA
  - EPA: NPL sites potentially pose the most serious threats to public health and the environment
  - May warrant remedial investigation and cleanup under CERCLA
- Only NPL-listed sites are eligible for Superfund-financed remediation

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How is a site listed on the NPL?

- Currently three listing mechanisms:
  - HRS site inspection: Score of 28.5 or higher = NPL eligible
  - State priority designation (one per state)
  - ATSDR health advisory

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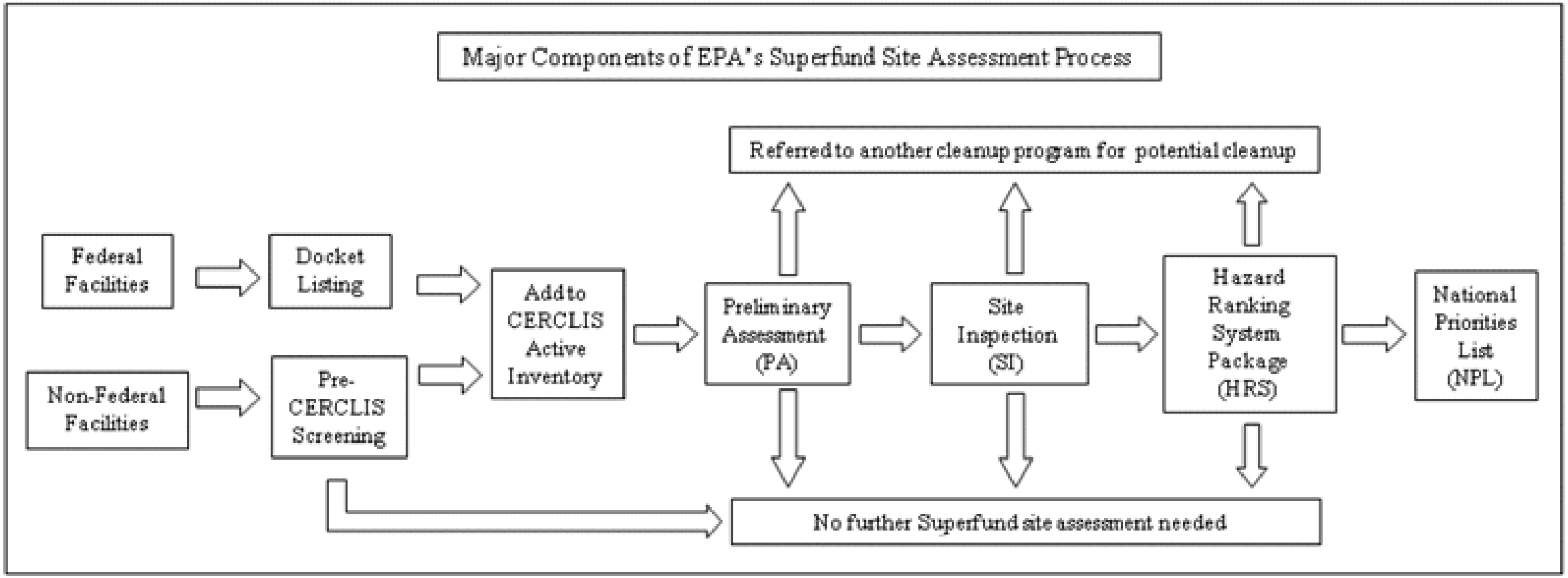

EPA Diagram of Superfund Site Assessment Process
(source: http://www.epa.gov/superfund)

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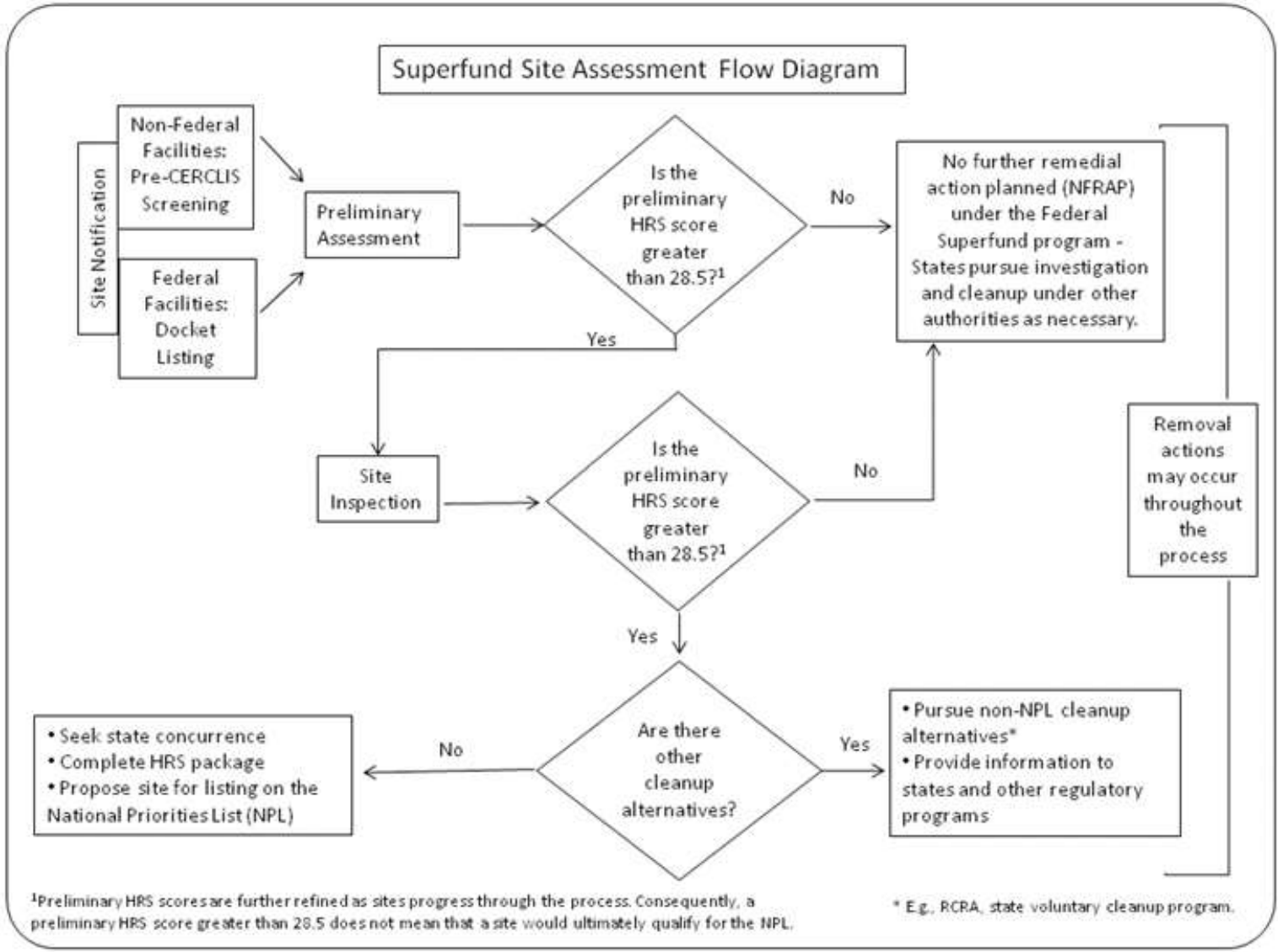
HRS Process: Pre-Remedial Screening

- Pre-remedial screening begins with **pre-CERCLA screening**:
  - Indication of possible significant release?
    If "**YES**" …
  - Is released substance regulated by CERCLA?
    If "**YES**" …
  - Is release already being addressed?
    If "**NO**" …
  - Any statutory limitations on CERCLA applicability?
    If "**NO**" …
- Site entered into Superfund Enterprise Management System

HRS Process: Pre-Remedial Screening (cont'd)

- Next: **Preliminary Assessment**
  - Use readily available data to identify evidence of "unacceptable potential threat"
- Then: **Site Inspection**
  - Sample collection
    - Identify what substances present, whether release occurred/occurring
  - Goals:
    - Identify actual/potential threat to human health or environment
    - Determine if immediate threat to people/environment
    - Collect data to allow HRS scoring



EPA Flowchart of Superfund Site Assessment Process
(source: http://www.epa.gov/superfund)

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HRS Process: Limitations of the HRS Site Inspection

- Site inspections performed at large number of sites
- "Relatively modest in scope and cost"
- EPA: Need to "carry out initial studies expeditiously" … so:
  - HRS data generally readily available, or can be collected quickly
  - HRS not based on data that require "extensive sampling or repeated sampling over a long period of time"
  - HRS "designed so that it can be applied **consistently** to a wide variety of sites"
  - HRS designed to be "a measure of relative risk among sites"

Current HRS Scoring Methodology

- Scores range from 0 – 100
- Based on four migration pathways (each can score up to 100):
  - Groundwater migration
  - Surface water migration
  - Soil exposure
  - Air migration
- Current HRS system does not expressly include VI pathway
  - Contamination may be captured by existing pathways – not always.

Current HRS Scoring Methodology (cont'd)

- Four pathways scored based on factors grouped into categories:
  - Likelihood of release/exposure
  - Waste characteristics
  - Exposure targets
- Individual factors scored and combined to produce "factor category values"
- Factor category values drive individual pathway score

Current HRS Scoring Methodology (cont'd)

$$S = \sqrt{\frac{S_{gw}^2 + S_{sw}^2 + S_{se}^2 + S_a^2}{4}}$$

S = site score

S_{gw} = groundwater migration pathway score

S_{sw} = surface water migration pathway score

S_s = soil exposure pathway score

S_a = air migration pathway score

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Current HRS Scoring Methodology (cont'd)

- Because of how HRS site score is calculated, site that does not score 28.5 or higher for at least one of the exposure pathways cannot achieve an NPL-eligible (≥ 28.5) HRS score
- Site that scores 0 on three pathways can still be eligible if it scores ≥ 57 on fourth pathway
- EPA: Less than 5% of sites that go through site assessment/site inspection process are ultimately added to NPL

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Proposal to Add Subsurface Component to Hazard Ranking System

February 29, 2016

EPA Subsurface Intrusion Diagram
(source: http://www.epa.gov/superfund/hrs-subsurface-intrusion)

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Background

- EPA signaled interest in rulemaking in 2011
- Public notice: Considering addition of "vapor intrusion" component; requested public input
- EPA public meetings
  - Several industry groups commented:
    - Significantly contaminated sites already being captured under HRS scoring system (impacts to groundwater, soil)
    - Drawn-out NPL process inappropriate for immediate VI concerns
    - Uncertainties in VI sampling; frequency of false positives
  - Environmental groups active in public hearings

EPA's Proposed Approach

- "Vapor Intrusion" → "Subsurface (vapor and groundwater)"
  - Encompasses broader range of concerns
  - Would address migration of hazardous substances from subsurface into overlying structures via **vapor** and/or **groundwater**
- Proposed as new component of Soil Exposure pathway
- Scored using same factor categories as existing pathways:
  - Likelihood of Exposure
  - Waste Characteristics
  - (Exposure) Targets

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EPA's Basis for the Proposal – VI aspect

- EPA: "HRS is not a complete assessment and omits a known pathway of human exposure to contamination"
- Points to **1,073 sites** that "may or may not qualify for the NPL but are suspected of having vapor intrusion issues"

But…

- Only **11 sites** (1%) have documented exposure of a "sufficient number of targets" and other HRS-required factors "to suggest the site may qualify for the NPL"

EPA's Basis for the Proposal – Groundwater aspect

- Very little support for groundwater intrusion component
- EPA points to **one incident** where chromium-contaminated groundwater entered residential basements
  - After water receded/evaporated, chromium residue remained
- Regional programs have identified **seven sites** where contaminated groundwater intrusion is "potential issue"
  - Very little detail provided on these sites

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Rationale for Including in Soil Exposure Pathway

- Not a new pathway; included in Soil Exposure
  - Pathway renamed "Soil exposure and subsurface intrusion (SESSI) pathway"
  - Two components:
    - (Current) soil exposure pathway +
    - Proposed subsurface intrusion (SSI) pathway
    - Maximum score for soil (now SESSI) pathway still 100
- Explanation: Focused on **direct contact** versus **migration**

How would the proposed SSI scoring work?

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Key Characteristics of SSI Scoring

- Proposal would **not** impact sites that do not have "regularly occupied structures"
- Distinguishes between **area of observed exposure** (AOE) and **area of subsurface contamination** (ASC)
- Potential future migration **not considered**
- Site score derived from scoring of three factor categories

Calculation of SSI Component: Likelihood of Exposure Factor Category

- 550 max score
- Based on either:
  - Value assigned to "**observed exposure**" (up to 550); or, if no observed exposure:
  - Value assigned to "**potential to exposure**" (up to 500), based on:
    - Structure containment (score of 0 – 10)
    - Depth to containment (score of 0 – 10)
    - Vertical migration (score of 0 – 15)
    - Vapor migration potential (score of 0 – 25)

Calculation of SSI Component: Waste Characteristics Factor Category

- 100 max score
- Based on:
  - Toxicity/degradation of documented substances
  - Hazardous waste quantity
  - Waste characteristics

Calculation of SSI Component: Targets Factor Category

- No max score
- Based on:
  - **Exposed Individual**: Whether at least one individual present in regularly occupied structure (has been or could be) exposed to hazardous substances/at what levels
  - **Population**: Value based on number of residents, students, daycare attendees, workers
  - **Resources**: Value based on additional indoor spaces (e.g., libraries, recreational facilities, religious or tribal structures)

Implications of Proposed Addition

- Likely minor, if any, impact on sites that would already score 28.5 based on existing pathways
- Could have greatest impact where groundwater can't be used for drinking water (groundwater pathway not scored)
- Likely would have **minimal impact** where petroleum/ petroleum-like substances primary concern
- Highly volatile/highly toxic substances will drive highest scores
- Open question: Practical impact of groundwater aspect

Implications of Proposed Addition (cont'd)

- Not expected to impact sites already listed on NPL
- EPA: Proposal should not increase number of preliminary assessments/site inspections per year
- And: Proposal not expected to increase number of sites listed on NPL each year

NESHAP Site Remediation Rule:

EPA's Proposal to Remove CERCLA and RCRA Exemptions from Site Remediation NESHAP

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Background: NESHAP Site Remediation Rule

- 1992: EPA initially lists site remediation activities as "**source category**" per Clean Air Act Section 112
  - "Any facility taking action to remove, store, treat, and/or dispose of hazardous substances that have been released into the environment"
- 2003: Emissions standards promulgated for Site Remediation source category
  - EPA exempted site remediations under CERCLA/RCRA
  - Rationale: Those programs "serve as the **functional equivalents**" of the NESHAP

Legal Challenge; Current Rulemaking

- 2003: Petition claimed EPA has statutory obligation to apply NESHAP to (all parts of) listed source categories
  - EPA's description of the source category expressly included CERCLA/RCRA cleanup sites
- Now: EPA states it agrees that it has a statutory obligation to extend the Site Remediation NESHAP …
  - Despite Agency's finding that **no hazardous air pollutant (HAP) emission reductions expected** if proposal issued as final rule
- Proposal issued May 13, 2016

Impact for Utilities?

- Utilities (and others) conducting cleanups under CERCLA or RCRA would now be subject to the NESHAP Site Remediation Rule if they emit or **have the potential to emit** sufficient HAP:
  - 10 tons per year of a single HAP, or
  - 25 total tons per year combined HAPs
- Requirements include:
  - Emission limitations
  - Work practice standards
  - Monitoring, recordkeeping and reporting
- Limited applicability for sites with < 1 megagram/year of listed HAP in material to be excavated/remediated

USWAG Comments on NESHAP Proposal

- Original exemption of CERCLA/RCRA cleanup activities was appropriate
  - CERCLA/RCRA processes "require consideration of the same HAP emissions" and "provide opportunity for public involvement"
  - Allow for protection of public health, environment on a site-specific basis
- EPA has fulfilled its statutory obligation to promulgate emissions standards with the existing Site Remediation Rule
- EPA should revise the preliminary source category description to carve out CERCLA/RCRA remediation activities

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Additional Elements of Proposal

- Proposal would also remove provision limiting applicability of Site Remediation Rule to remediation sites **co-located** with a facility regulated by another NESHAP
- Proposed effective dates:
  - Recordkeeping and reporting requirements: Immediate (when final rule published in Federal Register)
  - Substantive requirements depend on whether existing (18 months) vs. new (immediate upon FR publication)
- Target date for final rule has slipped to **January 2017**