

Green and Sustainable Remediation

“The Prequel”



Jerry E. Kubal, P.G.—Tampa, FL
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EVOLUTION OF TERMINOLOGY

- ▶ **Green Remediation (became ...)**
- ▶ **Greener Remediation (became ...)**
- ▶ **Green and Sustainable Remediation (GSR)**
- ▶ **GSR– “The Prequel”**

DEFINITIONS/USAGE

- ▶ **Green/Greener**—mechanisms for reducing the environmental footprint of a remedy
- ▶ **Sustain**—to keep in existence; maintain
- ▶ **Sustainable**—able to be maintained at a certain rate or level

REGULATORY REQUIREMENTS

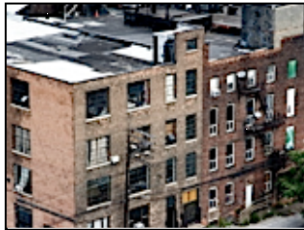
- ▶ **CERCLA**
- ▶ **RCRA**
- ▶ **62-780/62-701**
- ▶ **Brownfields (Climate Change)**

Source: Environment Reporter: News Archive > 2014 > 04/25/2014 > Waste Control & Cleanup > Brownfields: EPA Requires Cleanup-Grant Recipients To Consider Climate Change in Analysis

45 ER 1249

Brownfields

EPA Requires Cleanup-Grant Recipients To Consider Climate Change in Analysis



By Pat Ware

April 22 — The Environmental Protection Agency is now requiring recipients of grants to clean up brownfields to evaluate climate change concerns.

Starting with fiscal year 2013 cleanup and revolving loan fund grants, recipients will be required to “evaluate the resilience of the remedial options in light of reasonably foreseeable changing climate conditions,” such as sea level rise, increased frequency and intensity of flooding and other extreme weather events, the agency said in a “checklist” posted recently on its Brownfields website. The checklist tells parties how to address changing climate concerns in an Analysis of Brownfield Cleanup Alternatives (ABCA).

The ABCA includes a description of the background and current conditions of the site, applicable regulations and cleanup standards, an evaluation of cleanup alternatives and a recommended remedial action, according to the EPA.

Under the EPA's Climate Change Adaptation Plan, the analysis also must include a discussion of observed and forecast climate change conditions for the area of the project and associated site-specific risk factors, the agency said.

EXISTING PERMIT & MODIFICATIONS

“Investigation and remediation are incidental to the paper work involved. Before you start, you have to know where to begin ...”

- ▶ Sampling Parameters/Frequency/DQOs/DQA
- ▶ Reporting Requirements—Frequency/Content
- ▶ Permit Termination/Renewal Requirements

EXIT STRATEGY

“You can’t hit a target you don’t have ...”

- ▶ Is an Exit Strategy necessary?
- ▶ Does the client have an Exit Strategy?
- ▶ Elements of an Exit Strategy



CONCEPTUAL SITE MODEL

- ▶ **Does one even exist?**
- ▶ **Review available site-related reports**
- ▶ **Prepare/revise and/or refine the CSM**
- ▶ **Flow system analysis vs. water quality data**
- ▶ **Vapor Pathways**

Source: Environment Reporter: News Archive > 2014 > 07/18/2014 > Waste Control & Cleanup > Superfund: EPA to Regulate Workers' Exposure To Vapor Intrusion, Lawyer Says

45 ER 2098

Superfund

**EPA to Regulate Workers' Exposure
To Vapor Intrusion, Lawyer Says**



By Pat Ware

July 15 — Reversing an earlier position, the Environmental Protection Agency now says in draft guidance it will take the lead in regulating workers' exposure to vapor intrusion, an attorney told a webinar July 14.

"I don't know where EPA will go from here," Laurence Kirsch, a partner with Goodwin Proctor LLP, said. "But I would love to see EPA's own legal analysis on how it determined it has the authority it thinks it does," he told a webinar held by the American Law Institute's Continuing Legal Education Group.

The webinar addressed the current litigation, regulatory and scientific landscape of vapor intrusion, which refers to the upward migration of volatile organic chemicals from contaminated soil and groundwater into overlying or nearby buildings. The contaminated indoor air is linked to adverse health effects, depending on the levels of the chemicals that are inhaled.

The draft guidance would regulate sites governed by the Comprehensive Environmental Response, Compensation and Liability Act, the Resource Conservation and Recovery Act and the Brownfields Act.

Significant legal issues arise in the EPA's most current draft vapor intrusion guidance as to whether the agency or the Occupational Safety and Health Administration has jurisdiction to regulate exposure to vapor intrusion in commercial and industrial properties, Kirsch said.

Kirsch maintained that such exposures should be regulated by OSHA. "There are very significant differences in the acceptable concentrations based on whether the EPA or the OSHA standards are applied," he said.

OPTIMIZE THE MONITORING SYSTEM

“Consultant Inertia/Regulatory Creep”

- ▶ Long-term monitoring/remediation programs typically “bloated”
- ▶ Usually intuitive/obvious
- ▶ Available optimization programs
 - MAROS
 - AFCEC–GTS Software

OPTIMIZE THE REMEDIATION SYSTEM

- ▶ **Change/modify the existing system**
- ▶ **Optimization Programs**
- ▶ **Consider other “greener” technologies**
- ▶ **Modify elements to make the site “greener”**
- ▶ **Risk–Based Closure Options**
- ▶ **Technical Impracticability Considerations**

CONDITIONAL CLOSURES

“Is Conditional Closure of the site an option?”

- ▶ Institutional controls
- ▶ Engineering controls
- ▶ Anthropogenic considerations

IMPEDIMENTS TO IMPLEMENTATION

“Not everyone shares the same objectives”

- ▶ Regulatory agencies
- ▶ Consultants
- ▶ Corporate EHS Department

QUESTIONS/FURTHER DISCUSSION ?

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