CONSIDERATIONS WHEN APPLYING IN SITU THERMAL REMEDIATION UNDER OCCUPIED BUILDINGS

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Background/Objectives:

In situ thermal remediation (ISTR) involves heating up a subsurface formation to volatilize organic contaminants, removing the vapors via vacuum extraction and treating them above ground using conventional treatment methods, such as granular activated carbon or thermal oxidizers. ISTR technologies are extremely robust and effective in tight matrices with typical concentration reductions exceeding 99.9%. Further, ISTR can be implemented in a controlled and targeted manner to remediate contaminated source zones below occupied buildings and other sensitive infrastructure, such as railroad tracks and roads. The design of ISTR systems under buildings must ensure the safety of the occupants without disruption to facility operations or damage to the building.

Approach/Activities:

ISTR has been implemented under occupied buildings at numerous sites throughout the United States, including at certified clean facilities. ISTR contractors can incorporate numerous design elements to address stakeholder concerns, which may include evolved vapors negatively influencing indoor air quality, building settlement and damage, impacts to utilities, disruptions to facility operations, safety issues related to contact with electricity, and building temperature and ventilation. While the design elements can reduce or eliminate adverse impacts, some may be expensive. Thus, the stakeholder team should evaluate perceived and actual risks to develop a safe, efficacious solution.

Results/Lessons Learned:

The presentation will include design elements to consider when evaluating ISTR for the remediation of organic contaminants under occupied buildings. The presentation will include case studies and lessons learned for guiding the design and implementation process.

About The Author

Susan Avritt, TRS Project Manager, has over 20 years of experience in the environmental consulting and remediation industry, including managing complex thermal remediation projects in the US and Europe. She collaborates with stakeholders to implement electrical resistivity heating (ERH) or thermal conductive heating (TCH) to remove source area contamination. Prior to joining TRS, she was a Senior Engineer at an environmental consulting firm, focusing on soil, groundwater, and indoor/ambient air investigations and remediation. Susan is a licensed Professional Engineer and Professional Geologist (both in North Carolina), with a B.S. in Civil Engineering and a M.S. in Hydrogeology from Clemson University.