

**SELF-SUSTAINING TREATMENT FOR ACTIVE REMEDIATION (STAR):
SCIENTIFIC PRINCIPLES AND FIELD APPLICATIONS OF THE TECHNOLOGY**

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Coal tar contamination at manufactured gas plant (MGP) sites and hydrocarbon-impacted soils associated with the oil and gas industry are complex problems that only a handful of remedies are capable of addressing in a cost effective and timely manner. STAR – based smoldering combustion – is an innovative approach that has significant potential for the remediation of sites impacted by such non aqueous phase liquids (NAPLs). STAR has been demonstrated to be highly effective through both in situ and ex situ field pilot studies. STAR is also cost effective, by taking advantage of the low energy requirements of the smoldering combustion process and by avoiding the need to inject viscous amendments (e.g., electron donor, chemical oxidants) or recover water or NAPL for subsequent above ground treatment.

This presentation will provide an overview of the scientific principles of the STAR process and discuss the design and latest results of various in situ and ex situ STAR pilot studies. In particular, the presentation will focus on the application of the technology at a former cresol manufacturing facility in New Jersey that was designed to test STAR at a large scale and under saturated conditions (i.e., below ground surface and below the water table).

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