

**REMEDICATION OF SOILS AND GROUND WATER USING
COMBINED IN-SITU CHEMICAL OXIDATION AND BIOREMEDIATION**

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Combining a biotic and abiotic remediation processes substantially enhances the effectiveness of the remediation effort without increasing cost. This presentation describes the chemical and biological fundamentals followed by field applications. The approach is particularly applicable to petroleum contamination but, also works well on chlorinated and brominated organic compounds that may be contaminated with petroleum products.

This presentation further describes the laboratory and field application results using a select modified calcium peroxide process as an in-situ chemical oxidant. Unlike Fenton reactions that require a low acidic pH, this oxidation can be applied under native pH conditions (i.e. 5 to 9), extending the longevity of hydrogen peroxide. Moreover, in conventional Fenton processes, the liquid hydrogen peroxide reacts with iron salts to produce the oxidizing radicals. Such a reaction is largely uncontrollable and produces excessive heat. The oxidant selected for the site does not require the injection of metal catalysts to activate the production of oxidizing radicals in the substrata. The reaction does not create heat; therefore, there is no volatilization of organic compounds. This is an important safety factor particularly, at this active retail market that includes a meat processing facility.

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