

An In-Situ Chemical Oxidant that utilizes “Green Chemistry” for the Treatment of Both Petroleum Hydrocarbons and Chlorinated Solvents

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Environmental sustainability considerations are now increasingly main-stream in many parts of the world with words such as “green”, “sustainable and “renewable” becoming widespread within industry, government and popular press. The applicability of such phrases without a common basis is relatively meaningless however, and invites public-relations ‘green-washing’ of a variety of products, services and technologies which may have varying degrees of true green standing.

Application of green considerations to contaminated site remediation has relevance on many levels ranging from the project strategy to the remediation technologies applied and the products and materials used within these. Each of these levels has differing degrees of impact on net environmental benefit of the project as a whole, and should ideally be considered in balance. Whilst consideration of green at the level of product used may either be a small or a large part of the whole, the impact over multiple projects becomes significant. Moreover, green evaluation at this level is arguably one of the easier determinations to make as highlighted by the growing number of accredited eco-label schemes and other such devices.

At the level of the products and materials used, the USEPA definition of “Green Chemistry” provides a basis on which the green-standing of reagents employed for remediation may be evaluated. The present paper explores the application and relevance of twelve EPA Green Chemistry Principles to a proprietary in-situ chemical oxidation (ISCO) product that has been deployed to date on over 600 sites in North America and Europe.

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Mr. Herrington provides engineering design and oversight services to Regenesi clientele in the southern and western U.S. Mr. Herrington has over 11 years of environmental remediation experience. He began his career in bioremediation as a research scientist at the U.S. EPA in Cincinnati where he developed oil-spill bioremediation technologies and he co-patented an oil-spill bioremediation amendment. Mr. Herrington served as a project manager for Parsons Corporation where he specialized in low-cost in situ remediation technologies for fuels and chlorinated solvents. Mr. Herrington contributed to the detailed protocols published by AFCEE (1995 and 1997) for assessing natural attenuation at fuel hydrocarbon and chlorinated solvent sites, respectively. Mr. Herrington earned his B.S. in Civil Engineering from Colorado State University and his M.S. in Environmental Engineering from the University of Cincinnati. Mr. Herrington is a registered P.E. in his home state of Colorado.