

February 2011



Spectrum Analytical, Inc.

Treatability Study Services

Treatability studies are used to evaluate existing or innovative remediation technologies and develop site-specific design parameters for field application of the chosen technologies. Treatability studies are conducted at the bench-scale level and are used for the design of pilot or full-scale applications. Bench-scale testing is a time and cost-effective way to evaluate site-specific remediation options. The testing can determine the feasibility of a range of technologies without resorting to expensive pilot tests. Design parameters that are obtained from bench tests can result in significant cost savings during full-scale application.



At the request of a client, the laboratory will design the treatability tests based on field information and the client's recommendations. The laboratory works closely with the client and other stakeholders (as necessary) to design a study that addresses the client's needs. The results of the bench-scale studies include method description, observations, data interpretation, conclusions and recommendations.

Spectrum Analytical, Inc. has been conducting treatability studies since June 2005 when Dr. Amine Dahmani joined Spectrum from the University of Connecticut where he was Director of the Site Assessment and Remediation Laboratories. Treatability studies conducted at Spectrum Analytical include chemical oxidation technologies such as persulfate, catalyzed persulfate, permanganate, hydrogen peroxide, Fenton's Reagent, Modified Fenton's Reagent, ozone, surfactant-enhanced chemical oxidation and solid peroxide-based oxidation technology. The treatability tests Spectrum conducts also include thermal treatment (thermal conductive heating, steam injection and electrical resistive heating), reductive technologies such as emulsified oil, hydrogen release compounds, zero-valent iron (ZVI), nano-scale ZVI, and ZVI-GAC. In addition, Spectrum Analytical conducts bioremediation technology testing such as biostimulation and bioaugmentation, and stabilization/solidification technology testing.



SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

Project Experience

The following is a partial list of the studies conducted at Spectrum Analytical, Inc:

“Aerobic Bioremediation Treatability Study for Coal Tar Contamination” for Burns & McDonnell, IL, 2011.

“Aerobic Bioremediation and Chemical Oxidation Treatability Study for Acetone Contamination” for ERM, NY/NJ, 2010-2011.

“Aerobic Bioremediation of Phenol Treatability Study” for ERM, Chile, 2010-2011.

“Treatability Study for Oxidation Technologies (Solid Peroxides/HP)” for SAIC, TN, 2010-2011.

“Aerobic Bioremediation and Chemical Oxidation Treatability Study” for ERM, NY, 2010-2011.

“Treatability Study for High pH-Persulfate Oxidation of Diesel Fuel contamination” for Berkshire Environmental, CT, 2010-2011.

“Treatability Study for High pH-Persulfate Oxidation of Organochlorine and organophosphate pesticides” for ERM, Colombia, 2010-2011.

“CVOC Bioremediation Treatability Study using Sodium Lactate, EOS, and Bioaugmentation Cultures for Enhanced Reductive Dechlorination in Acidic Conditions,” for SAIC, TN, 2010-2011.

“CVOC Bioremediation Treatability Study using EOS, HRC and KB-1 Enhanced Reductive Dechlorination Products,” for Bechtel Jacobs Company (BJC), TN, 2010-2011.

“Treatability Study for Permanganate Chemical Oxidation Technology and Thermal Conductive Heating” for SAIC, TX, 2010.

“Treatability Study for Permanganate and Persulfate Chemical Oxidation Technologies” for EPS, GA, 2010.

“Treatability Study for the BIOX Technology” for PARSONS, CA, 2010.

“Treatability Study for Reductive Dechlorination Remediation Technologies (Hydrogen Release Compound formulation; Vegetable Oil Based Formulation; Carbohydrate Based Formulation; Volatile Fatty Acid Based Formulation), for Plant Products Co., Ltd, Ontario, CA, 2009-2010.

“Treatability Study for Lead Stabilization Technologies (EnviroBlend, Lime, Portland Cement, Triple SuperPhosphate)” for SAIC, TN, 2009.

“Hexavalent Chromium Biological and Chemical Reduction” for GZA Geoenvironmental, Inc., CT, 2009.

“Treatability Study for Oxidation and Thermal Technologies (Ozone, Peroxone, catalyzed persulfate, Modified Fenton Reagent, Thermal Conductive Heating)” for SAIC, NJ, 2009.

“Treatability Study for Catalyzed Persulfate Oxidation Technologies” for RemedX Ltd, Bristol, United Kingdom, 2009.

“Treatability Study for Aerobic Biostimulation Technologies” for SAIC, NJ, 2009.

“Treatability Study for Ozone Oxidation Technology” for URS, TX, 2009.

“Treatability Study for Oxidation Technologies (Permanganate and Catalyzed Persulfate)” for ERM, RI, 2009.

“Treatability Study for Oxidation Technologies (PermeOx® Plus, Klozur® CR, catalyzed persulfate and Modified Fenton Reagent)” for Langan Engineering, PA, 2009.

“Treatability Study for Oxidation Technologies (Conventional Fenton Reagent, catalyzed persulfate)” for URS, NJ, 2009.

“Treatability Study for Oxidation Technologies (solid peroxides, surfactant-catalyzed persulfate,HP- catalyzed persulfate)” for URS, IL, 2009.

“Treatability Study for Permanganate Oxidation Technology” for APEX, CT, 2009.

“Treatability Study for Oxidation Technologies (solid peroxides, persulfate, CFR)” for URS, LA, 2008-2009.

“Treatability Study for Oxidation Technologies (catalyzed persulfate)” for Adventus,, IL, 2008-2009.

“Activated Carbon, Slow Release Carbon-ZVI and Anion Exchange Resin Water Treatment Study” for URS, PA, 2008.

“Enhanced Coal Tar Recovery with Biopolymer Treatment” for Burns & McDonnell, Chicago, IL, 2008.

“Modified Fenton Reagent, Regenox and Persulfate Treatability study” for URS, NJ, 2008.

“Modified Fenton Reagent Oxidation Testing for Soil/Groundwater Treatment” for TetraTech, Oak Ridge, TN, 2008.

“Microscale and Nanoscale Zero-Valent Iron and Emulsified Zero-Valent Iron Reduction Treatment of Groundwater” for Weston Solutions, PA, Calais, France, 2008.

“Fe-EDTA Persulfate Oxidation Study for Groundwater Treatment, for CH2M-HILL, Spain, 2008.

"Treatability Study for Oxidation Technologies (solid peroxides, persulfate, permanganate) and reduction technologies (EHC, ORC, EOS)" for URS, FL and ITT Corporation, 2007-2008.

"Treatability Study for Oxidation Technologies (solid peroxides, persulfate, permanganate)" for URS,, CA, 2007.

"Treatability Study for Oxidation Technologies (hydrogen peroxide)" for ERG, CA, 2007.

"Treatability Study for Persulfate Chemical Oxidation Treatment" for ARCADIS, MI, 2006.

"Treatability Study for Catalyzed Persulfate Chemical Oxidation Treatment" for ENVIRON, CA, 2006.

"Treatability Study for Modified Fenton's Reagent Chemical Oxidation" for GeoCon, CA, 2006.

"Treatability Study for Modified Fenton's Reagent Chemical Oxidation Treatment" for Treadwell and Rollo, CA, 2006.

"Bench-Scale Testing of Acid Neutralization and Metals Stabilization Technologies" for CoxColvin, OH, 2006.

"Treatability Tests of Degradation of Gasoline With Hydrogen Peroxide Chemical Oxidation Technology", for ECS, MA, 2006.

"Treatability Tests of Degradation of Gasoline With Modified Fenton's Reagent Chemical Oxidation Technology", for CEA, MA, 2006.

"Treatability Study for Oxidation and Reduction Remediation Technologies (persulfate, ZVI, ZVI/GAC), for Weston Solutions, PA, 2006.

"Treatability Study for Catalyzed Persulfate Chemical Oxidation Treatment " for ESC, TN, 2006.

"Treatability study for Surfactant/Chemical Oxidation Treatment of an MGP site", for GEI, CT, 2006.

"Bench-scale Testing of Chemical Oxidation with Fenton's Reagent, Permanganate and Persulfate", for TRC, TX, 2005-2006.

"Treatability Tests of Degradation of VOCs (benzene) and TPH with Chemical Oxidation Technologies (Persulfate, Fenton's Reagent)", for BBL, NJ, 2005.

"Bench-Scale Testing of Thermal, Oxidation and Reduction Remediation Technologies (Permanganate, persulfate, biostimulation, bioaugmentation, Electrical Resistive Heating, nanoscale ZVI), for SAIC, NJ, 2005-2006.