

**JOHN C. LACHANCE**  
**Vice President of Project Quality**

**PROFESSIONAL HISTORY**

TerraTherm, Inc.	(2002 – present)
ENSR Consulting, Engineering, and Remediation	(1986 – 2002)
Gruber, Kirshen and Associates	(1984 – 1986)

**EDUCATION**

MS (Water Resources - Environmental Sciences) College of Environmental Science and Forestry at Syracuse, NY  
BS (Biology - Chemistry) SUNY at Oneonta, NY

**REGISTRATIONS AND TRAINING**

HAZWOPER Training (40-hr. plus annual 8-hr. refresher)

**SUMMARY OF EXPERIENCE**

As Vice President of Project Quality at TerraTherm, Inc., Mr. LaChance has over 22 years of experience characterizing and remediating contaminated sites. His particular focus is on the evaluation and remediation of DNAPL sites. For the last 7 years, Mr. LaChance has been involved with the design, implementation, and assessment of in-situ thermal remediation at numerous sites both in the U.S. and overseas. He currently manages several ISTR projects and research efforts and provides technical leadership in the design and implementation of ISTR systems. Mr. LaChance is also the author of numerous papers and presentations on ISTR and the hydrogeology of DNAPL sites.

**TerraTherm, Inc., Fitchburg, MA. Vice President of Project Quality (2002 – present)**  
Responsible for project management, business development, technical presentations, technical training, and hydrogeologic support.

- Confidential Client, Sauget, IL - Project manager, technical support, and hydrogeologic evaluation for field pilot study to evaluate the most cost-effective approach for using ISTD and Steam Enhanced Extraction for the full-scale remediation of a former chemical manufacturing facility contaminated with chlorobenzenes. Total volume of pilot study area is 500 cy. Over 15,000 lbs of contaminants were removed from the pilot area during the study resulting in greater than 99% reductions in soil concentrations. Total project value is \$900K. Period of performance: February 2008 to September 2009.
- ESTCP Funded Project, W. Trenton, NJ - Project manager, technical support, and hydrogeologic evaluation for research study to evaluate the use of ISTD for the remediation of CVOCs from bedrock. Field implementation of a small pilot was performed at the USGS' CVOCs/Fractured Bedrock research site at the former Naval Air Weapons Center in NJ. Controlled laboratory tests are also being



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performed to verify field results and to examine the removal processes for a variety of bedrock types. Total project value is \$1M. Period of performance: February 2008 to December 2010.

- Confidential Client, Taunton, MA – Project manager, technical support, and hydrogeologic evaluation for remediation of former drum disposal area contaminated with chlorobenzenes, BTEX, and CVOCs using ISTD. Total volume of treatment zone was ~3,000 cy to 20 ft depth. Remedial goals were mass reduction in treatment zone and thermally enhanced biodegradation in downgradient zone. Period of performance: April 2006 to May 2007. Total project value: \$1.2M. Project was successfully completed on time and within budget. Over 14,500 lbs of contaminant mass removed from the source zone.
- Confidential Client, SE US – Project manager, technical support, and hydrogeologic evaluation for remediation of former solvent tank area contaminated with CVOCs (TCE) using ISTD. Total volume of treatment zone was 8,700 cy to 95 ft depth, including 20 feet of fractured bedrock. Clean-up goals for constituents of concern: TCE  $\leq 0.6$  mg/kg. Period of performance: July 2006 – June 2007. Total project value: \$1.3M. Goals were met (95% UCL of mean TCE concentration was 17  $\mu\text{g}/\text{kg}$ ) and project was completed on time and under budget.
- Pioneer Companies, Syracuse, NY - Project technical support and hydrogeologic evaluation for implementation of ISTD system for the remediation of 16,200 cy of soil containing CVOCs. Site soils consisted of low-permeability silts and clays located below the water table. Clean up objectives included attaining 5.6 mg/kg of PCE in soil within treatment the zone. Project duration: July 2006 to September 2007. Total project value: \$2.6M without power. Project successfully completed with 4 additional months of heating due to higher than expected groundwater flux.
- Richmond Redevelopment Agency, Richmond, CA – Project manager/technical support for remediation of former tank farm area contaminated with CVOCs (PCE, TCE, DCE, DCA, VC) using ISTD. Total volume of treatment zone was 6,700 cy to 20 ft depth. Successfully achieved clean-up goals for constituents of concern: PCE – 1 mg/kg; TCE – 2 mg/kg; cis-1,2 DCE – 17 mg/kg; VC – 1 mg/kg. Project was on time and on budget. Period of performance: January 2005 – November 2005. Total project value: \$2M.
- NASA, Huntsville, AL - Project technical support for design and implementation of a large-scale ISTD pilot test for the remediation of soil containing CVOCs. Site soils consisted of silts and clays located below the water table. Project duration: September 2006 to May 2007. Total project value: \$0.6M without power. Project successfully completed on time and within budget.
- Confidential Client Chlorinated VOC Site Located in the Mid-West – Remedial Design and Implementation. Project Manager responsible for oversight and implementation of ISTD system for the remediation of 11,500 cy of soil containing TCE, 1,1,1-TCA, and PCE. Site soils consisted of low-permeability, dense clays that were partially to fully saturated with water. Clean up objectives included attaining 1 mg/kg of TCE in soil within treatment zone. Project duration: September 2002 to December 2003. Total project value: \$1.4M.



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- Confidential Client Chlorinated VOC Site Located in Southern California – Remedial Design and Implementation. Project technical support responsible for oversight of implementation of ISTD system for the remediation of 6,700 cy of soil containing 1,1-DCA. Site soils consisted of low-permeability, dense clays located below the water table. Clean up objectives included attaining 1 mg/kg of 1,1-DCA in soil within treatment zone and reducing concentrations in groundwater in underlying permeable aquifer. Project duration: November 2003 to June 2005. Total project value: \$1M.
- National Grid, North Adams, MA – Technical support for former Manufactured Gas Plant (MGP) gas holder containing soil, water, debris, coal tar, polyaromatic hydrocarbons (PAHs), BTEX, naphthalenes, and petroleum hydrocarbons. Thermal wells were used to thermally-enhanced free-product recovery, followed by implementation of ISTD. Total volume of gas holder was ~2,000 cy to 18 ft depth. Clean-up goals: all constituents of concern less than Massachusetts Contingency Plan (MCP) “Upper Concentration Limits” (UCLs). Period of performance: September 2003 – March 2005.

**ENSR Corporation, Acton, MA. Sr. Program Manager/Hydrogeologist (1986-2002)**

Served as nationwide technology leader for hydrogeology and DNAPL remediation. Example projects include:

- TEXACO Inc., Superfund Site - Chlorinated Solvent/DNAPL in Overburden and Fractured Bedrock, Clinton, IA, EPA Region 5 CERCLA Site. Technical project manager responsible for design and implementation of field investigations and modeling studies for detailed characterization of dissolved and Dense Non-Aqueous Phase contaminants in a fractured karst bedrock setting. Developed design of state-of-the-art groundwater remediation system involving a hydraulic containment system for suspected DNAPL source areas and a pump-and-treat system for areas with dissolved phase contaminants only.
- Naval Weapons Industrial Reserve Plant, Chlorinated Solvent Superfund Site, Bedford, MA, EPA Region 1 CERCLA Site. Senior oversight and management of investigation, modeling, and remedial assessment activities. Activities included: Negotiations with agencies and other PRPs concerning modeling approach and results; nature and extent of contamination; DNAPL occurrence in overburden and bedrock; site hydrogeology; delineation of plumes and responsibility, and implementation of remedial measures; including evaluation and pilot testing of in-situ thermal technologies.
- Zeneca Inc., Evaluation and Remediation of Chlorinated Benzenes/DNAPL, Dighton, MA, EPA Region 1 RCRA Site. Developed detailed conceptual model relating site geology, groundwater flow, surface water flow, contaminant distributions, and contaminant fate and transport for chlorinated benzene/DNAPL site. The conceptual model was presented to the agencies and provided the basis for focusing remaining investigation efforts and developing appropriate remedial objectives and approaches. Remedial technologies and approaches considered included: phytoremediation for source degradation/stabilization and containment; groundwater extraction for containment, and high temperature in-situ thermal desorption for source zone treatment (chlorinated benzenes).



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- U.S. ACOE, Cold Regions Research and Engineering Laboratory, Design and Implementation of  $\text{KMnO}_4$  ISO Pilot Test, Hanover, NH. Design and implementation of in situ chemical oxidation (ISO) pilot test to evaluate the effectiveness of injecting potassium permanganate into the subsurface to remove immiscible phase trichloroethene (DNAPL) from low permeability silt layers in the unsaturated zone. The conceptual design included injection of the potassium permanganate into permeable sand zones above and below the silt layers containing the DNAPL and allowing advective/diffusive processes to deliver the permanganate. Activities included: detailed profiling of the pilot areas to refine subsurface geology and contaminant distributions; installation and sampling of suction lysimeters for collection of in situ pore water samples from the unsaturated zone; and evaluation and design of the pilot systems.
- U.S. ACOE, Cold Regions Research and Engineering Laboratory, Deep Subsurface Hydrogeologic Characterization and Delineation of DNAPL, Hanover, NH. Developed and managed detailed subsurface characterization program for determining the presence of DNAPL in the subsurface and collecting information for the evaluation and design of two deep in situ air sparging pilot tests. Activities included: collection of over 1,000 feet of continuous soil cores, to depths of 170 feet, using roto-sonic drilling methods; and field screening and sampling of soil cores for DNAPL, contaminant distributions, and physical and hydraulic soil properties. Developed detailed conceptual model of site geology and DNAPL/contaminant distributions. Data and conceptual model provided basis for evaluation of air sparging pilot test results and evaluation of alternative remedial measures.
- Naval Air Station South Weymouth, Superfund Site - Evaluation of Hydrogeology and Review of ISO Pilot Test, Weymouth, MA. Senior hydrogeologist responsible for: 1) Review of hydrogeologic and contaminant data and development of conceptual models of groundwater flow and contaminant fate and transport; 2) Development of Phase II hydrogeologic investigation work plans; 3) Negotiations with agency relative to site conceptualization, nature and scope of hydrogeologic investigations, and remedial strategies; and 4) Development and oversight of monitoring program to evaluate the effectiveness of an in situ oxidation pilot test for the remediation of chlorinated solvents in a fractured bedrock setting.