

## **Erich Hinlein**

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PROFESSIONAL INTERESTS: Design and deployment of instrumentation for remote monitoring of groundwater and surface water parameters, remediation system design and implementation for contaminated soils and groundwater, water/soil sampling and analysis techniques.

### **EDUCATION**

Ph.D. Civil Engineering, University of Massachusetts, Amherst 1999  
Dissertation: *Bioventing and Biosparging at a Site Contaminated with JP-4 and TCE*  
Research based on extensive network of field deployed soil gas monitoring and chemical analysis equipment with subsequent modeling and analysis of data to determine effectiveness.

MS, Environmental Engineering, University of Massachusetts, Amherst 1991  
Thesis: *Measurement of Residual Aviation Gasoline Content in Sandy Soils*  
Field work focused research along with laboratory method development and mathematical modeling looking at aviation gasoline behavior in the capillary fringe.

BS, Computer Systems Engineering, University of Massachusetts, Amherst 1985  
Electrical engineering curriculum with a focus on computer hardware development and operating system design.

### **TEACHING EXPERIENCE**

“Hazardous Waste Site Fellowships” US Department of Defense Grant MDA-905-94-0045.  
1995. Mentored students as they followed a curriculum based on remediation of hazardous waste sites.

Teaching Assistant- Introduction to Computer Programming, Eng 104, Fortran and C, 1989-1990  
Grading exams, homework, programs, two formal discussion sections and one help session/wk.

### **EMPLOYMENT HISTORY**

2010-2016      Research Assistant Professor, University of Massachusetts, Amherst, MA

1998-2010      Sr. Post Doctoral Research Associate, University of Massachusetts, Amherst, MA

1991-1993      Environmental Engineer, Tighe & Bond, Inc., Westfield, MA  
Designed and supervised construction of a \$1M LNAPL remediation project at a former oil storage terminal, S. Bronx, NY. , Designed and implemented several remediation systems in different areas of the US, oversight of contaminated site excavations, wetlands projects.

1984-1989 Electrical Engineer, Millitech Corp., South Deerfield MA  
Electrical engineering projects included radiometer backend processing, millimeter wave radio links, microwave paper web measurement devices, phase locked loop microwave sources.

## **RESEARCH PROJECTS/EXPERIENCE**

MADOT multiyear, multimillion dollar Interagency Service Agreements from 1995 to present. Currently funded through FY 2018. A \$1.5M/yr research operation involving five research sites with a focus on road salt contamination.

- Supervision of 2-4 staff personnel: field technicians, and laboratory analysts
- Development and implementation of monitoring well networks
- Sampling plans and equipment
- Method development for laboratory analysis of soil and groundwater samples.
- Design, construction, and installation of remote telemetered, continuous monitoring ground and surface water stations
- Design, construction, and deployment of subsurface soil sampling equipment
- MADOT Private Well Replacement Program- Conduct initial investigations and offer support on issues such as corrosion and water treatment, supervise monthly sampling of client wells.
- Development and construction of equipment to determine viability of new and existing wells.
- Modification and operational responsibility for \$800k remediation system currently operating.

Supervision and guidance of Master's and Ph.D. candidates (up to 7) including assistance with doctoral research experiment and equipment design.

Designed, installed, and operated a pilot scale bioventing/biosparging system at a former Air Force base site contaminated with JP-4 and TCE. Extensive field soil gas analyses were completed.

Characterization and extent of LNAPL contamination in soil and soil gas at a gasoline service station. Field and laboratory soil and soil gas analysis.

Delineation and behavior of an aviation gasoline spill at a USCG station Traverse City, MI. Joint work with EPA on field retrieval of soil and ground water samples, laboratory analysis of soil and ground water.

Method development and troubleshooting/repair of analytical equipment including: Perkin Elmer-Optima 5300DV ICP OES, Dionex DX600 Ion Chromatograph, Shimadzu TOC V CPH Total Organic Carbon Analyzer, HP 5890 Series GC

## **CERTIFICATIONS**

40 hr OSHA Hazardous Waste Site Training Course Certificate 1993. ,EIT 1990 #12779

## **PROFESSIONAL MEMBERSHIPS**

American Society of Civil Engineers  
American Geophysical Union

## PUBLICATIONS

### PEER REVIEWED JOURNALS

William G. Lukas, DeGroot, DJ, Ostendorf, DW and Hinlein, ES. (2015) Multi-Scale Hydrogeologic Characterization of a Leaky Till Mantled Fractured Bedrock Aquifer System. *Canadian Geotechnical Journal*. 10.1139/cgj-2014-0296.

Ostendorf, DW, Lukas, WG, and Hinlein, ES. (2015) Closed Form Flow Model of a Damped Slug Test in a Fractured Bedrock Borehole. *Journal of Hydrology*, Vol. 529, pp. 1116-1128

David W. Ostendorf, Lukas, WG, DeGroot, DJ, and Hinlein, ES. Damped Purge Tests in Monitoring Wells at the Contact Surface of a Till Mantled Bedrock Drumlin. *Water Resources Research*. Submitted June, 2014.

Ostendorf, DW, Hinlein ES, and Judge, AI. (2012) Floodplain Hydraulics in a Glaciated Riverbed Valley. *Hydrology Research*. In press

Ostendorf, DW, Hinlein ES, and Choi, SK. (2012) Case Study: Reduced Road Salt Spillage Due to Indoor Delivery and Loading. *Journal of Environmental Engineering*.

Ostendorf, DW, Palmer, RN, and Hinlein, ES. (2009) Seasonally Varying Highway De-icing Agent Contamination in a Groundwater Plume from an Infiltration Basin. *Hydrology Research*, Vol: 40:6. 520-532.

Ostendorf, DW, Rotaru, C, and Hinlein, ES. (2008) Steady Groundwater Transport of Highway Deicing Agent Constituents from an Infiltration Basin. *Journal of Irrigation and Drainage Engineering-ASCE* . Vol: 134:5. 630-637.

Ostendorf, DW, DeGroot, DJ, and Hinlein, ES. (2007) Unconfined Aquifer Response to Infiltration Basins and Shallow Pump Tests. *Journal of Hydrology*. Vol: 338 :1-2. 132-144.

Ostendorf, DW, Schoenberg, TH, Hinlein, ES, and Long, SC. (2007) Monod Kinetics for Aerobic Biodegradation of Petroleum Hydrocarbons in Unsaturated Soil Microcosms. *Environmental Science and Technology*. Vol: 41:7. 2343-2349.

Ostendorf, DW, Hinlein, ES, Ahlfeld, DP, and DeJong, JT. (2006) Calibrated Models of Deicing Agent Solids, Pavement Texture, and Specific Conductivity of Highway Runoff. *Journal of Environmental Engineering-ASCE* Vol: 132:12. 1562-1571.

Ostendorf, DW, Hinlein, ES, Rotaru, C, and DeGroot, DJ. (2006) Contamination of Groundwater by Outdoor Highway Deicing Agent Storage. *Journal of Hydrology*. Vol: 326 :1-4. 109-121.

Nevin, KP, Holmes, DE, Woodard, TL, Hinlein, ES, Ostendorf, DW, and Lovley, DR. (2005) *Geobacter bemidjensis* sp nov and *Geobacter psychrophilus* sp nov., Two Novel Fe(III)-

Reducing Subsurface Isolates. *International Journal of Systematic and Evolutionary Microbiology*. Vol: 55. 1667-1674.

Ostendorf, DW, Hinlein, ES, Lutenegger, AJ, and Tehrany, JP. (2003) A Simple Model of Soil-Gas Concentrations Sparged into an Unlined Unsaturated Zone. *Ground Water Monitoring and Remediation*. Vol: 23:2. 73-83.

Ostendorf, DW, Hinlein, ES, Lutenegger, AJ, and Kelley, SP. (2000) Soil Gas Transport Above a Jet fuel/Solvent Spill at Plattsburgh Air Force Base. *Water Resources Research*. Vol: 36:9. 2531-2547.

Ergas, SJ, Hinlein, ES, Reyes, PO, Tehrany, JP, and Ostendorf, DW. (2000) Near Surface Soil Vapor Clusters for Monitoring Emissions of Volatile Organic Compounds from Soils. *Journal of Air and Waste Management Association*. Vol: 50:1. 118-124.

Ostendorf, DW, Leach, LE, Hinlein, ES, and Xie, YF. (1991) Field Sampling of Residual Aviation Gasoline in Sandy Soil. *Groundwater Monitoring Review*. Vol. 11. 107-120.

## **PROCEEDINGS, BOOK CHAPTERS AND COMMUNICATIONS**

Ostendorf, DW, Rotaru, C, and Hinlein, ES. (2006) Groundwater Plume from an Infiltration Basin. Proceedings World Water and Environmental Resources Congress 2006. American Society of Civil Engineers, Omaha, NE, CD-ROM.

Ostendorf, DW, DeGroot, DJ, Mitchell, TJ, and Hinlein, ES. (2006) Groundwater Dispersivity Induced by Stormwater Runoff. Proceedings Annual International Meeting , American Society of Agricultural and Biological Engineers, Portland, OR. CD-ROM.

Ostendorf, DW, Mackey, JR, and Hinlein, ES. (2001) Impact of Highway Deicing Agent Loading on Water Quality. 33<sup>rd</sup> Mid Atlantic Industrial and Hazardous Waste Conference, Riverdale, NY, 153-161.

Ostendorf, DW, Hinlein, ES, and Schoenberg, TH. (2000) Aerobic Biodegradation Kinetics and Soil Gas Transport in the Unsaturated Zone. Bioremediation of Contaminated Soils, Wise et al. (eds.), Dekker, New York, 607-632.

Ostendorf, DW, Barrette, KJ, and Hinlein, ES. (2000) Adsorption of Hydrocarbon Vapors in Intact Core Sleeves. 32<sup>nd</sup> Mid Atlantic Industrial and Hazardous Waste Conference, Troy, NY, 713-721.

Ostendorf, DW, Moyer, EE, and Hinlein, ES. (1993) Petroleum Hydrocarbon Sparging from Intact Core Sleeve Samples. Proceedings Petroleum Hydrocarbons and Organic Chemicals in Groundwater, National Water Well Association/ American Petroleum Institute, Houston, TX, 415-427.

## ABSTRACTS and PRESENTATIONS

Houbao Li, Hinlein, E.S., Rotaru, C. (2013). "Temporal Variability in Groundwater Hydrochemistry Induced by Salt Water Intrusion at a Road Salt Facility. NGWA Summit-The National and International Conference on Groundwater, San Antonio, TX (May 2013)

Ostendorf, DW, DeGroot, DJ, Judge, A, and Hinlein, ES. (2009) Cascade Calibration of Subsurface Hydraulic Properties from Multi scale Groundwater Monitoring Networks. Abstract presented at *2009 Groundwater Monitoring Conference, Groundwater Resources Association, Anaheim, CA.*

Ostendorf, DW, Hinlein, ES, and Judge, A. (2009) Management of Continuous and Discrete Data from a Highway Runoff Monitoring Network in Eastern Massachusetts. Abstract presented at *Coastal Environmental Sensing Networks Conference, University of Massachusetts, Boston, MA.*

Ostendorf, DW, Rotaru, C., and Hinlein, ES. (2005) Remediation of Chloride Contamination at a Salt Storage Facility in a Massachusetts Coastal Watershed. Abstract presented at *3<sup>rd</sup> Annual Massachusetts Water Resources Research Center Conference, Amherst, MA.*

Hinlein ES, Nevin, KP, and Woodard, T. (2004) Selection for Novel, Rapidly Growing Geobacteraceae During Long Term Addition of Acetate to a Shallow Aquifer. Poster Presented at *2004 Conference American Society for Microbiology, New Orleans, LA.*

Hinlein ES, Nevin, KP. (2003) Initial Characterization of Three Isolate of Geobacteraceae from a Highway Runoff Recharge Basin in Plymouth, MA. Presented *2003 Water Resources Seminar, Amherst, MA.*

Hinlein, ES. (1999) Bioventing at a Site Contaminated with JP4 and TCE. Presented at *1999 Mid Atlantic Hazardous Waste Conference, University of Connecticut, Storrs, CT.*

Ostendorf, DW, Lutenecker, AJ, and Hinlein, ES. (1996) A Tutorial of the Sampling and Analysis of Soil Gas at LNAPL Spill Sites. Abstract presented at *Third International Symposium, International Society for Environmental Biotechnology, Boston, MA.*

Hinlein, ES., Ostendorf, DW, and Taylor, R. (1996) Field Documentation of Aerobic Cometabolism of Chlorinated Compounds in Jet Fuel. Abstract presented at *Conference on Intrinsic Remediation of Chlorinated Solvents, Battelle, Hill Air Force Base, UT.*

Ostendorf, DW, Hinlein, ES, and Leach, LE. (1991) LNAPL Fate, Transport, and Distribution at Traverse City Michigan, Abstract presented at *1991 Groundwater Research Seminar*, RS Kerr Environmental Research Laboratory, Oklahoma City, OK.

## **REPORTS**

Ostendorf, DW, Lutenegger, AJ, Hinlein ES, Fauteux, RF, Ward, CJ, Doherty, BM, Poirier, SE, Cerato, AB, and Landon, MM. (2003) Evaluation of Highway Deicing Agents. Final Report. Massachusetts Highway Department ISA 1 MS 9130. Environmental Engineering Program, University of Massachusetts, 417 pp.

Ostendorf, DW, Lutenegger, AJ, Ergas, SJ, Suchana, J, Tehrany, JP, Reyes, PO, Glass, RC, Charkow, B, Meyer, MM, Kelley, SP, and Mitchell, TJ. (1997) Natural Attenuation of Hydrocarbon and Trichloroethylene Vapors in the Subsurface Environment at Plattsburgh Air Force Base. Final Report AFCEE, Environmental Engineering Program, University of Massachusetts. 352 pp.

Ostendorf, DW, Moyer, EE, Richards, RJ, Hinlein, ES, Xie, YF, and Rajan, RV. (1992) LNAPL Distribution and Hydrocarbon Vapor Transport in the Capillary Fringe. EPA/600/R-92/247, US Environmental Protection Agency, Ada, OK. 122 pp.

## **REFERENCES**

Available upon Request