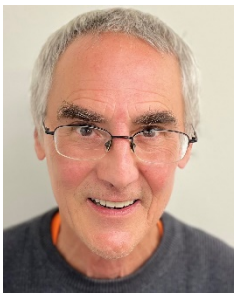
CHARLES HOSTETLER, PH. D.



Education

Ph.D., Planetary Sciences, University of Arizona, 1982
B.S., Geology, University of Arizona, 1978

Specialty Certifications

Certified 40-hour U.S. Army Corps of Engineers Wetland Delineation Assessor
Certified State of Alaska Environmental Sampler
Certified State of Washington Underground Storage Tanks Assessor

Professional Experience

Dr. Hostetler has 38 years of experience as a project manager and subject matter expert in geochemistry, hydrogeology, risk assessment, environmental regulations and permitting, and natural resources assessment. He has also contributed as a manager/leader to multidisciplinary project teams and to cross-cutting initiatives. Dr. Hostetler has served clients in the coal combustion residue (CCR), solid waste, real estate, manufacturing, mining, nuclear waste, and governmental sectors. His core competencies include project management, groundwater modeling, multimedia environmental monitoring, and wetland permitting, construction, and monitoring.

Electric Utilities

Palo Alto, California, Electric Power Research Institute - Metals Aqueous Speciation, Solubility, and Sorption Characterization. Managed a team of groundwater geochemists and technicians that characterized the leaching of metals from coal combustion residues, the speciation and solubility of metals in aqueous solution, and the adsorption of metals onto mineral surfaces. The studies combined conventional laboratory analysis techniques with batch and column leach tests, geochemical speciation/solubility/sorption modeling, and groundwater flow and transport modeling.

Palo Alto, California, Electric Power Research Institute – Fly Ash and Flue-Gas Desulfurization Sludge Transport and Geochemistry (FASTChem™). Led and contributed to the team that developed the FASTChem™ groundwater model. This was a model that coupled groundwater transport and chemistry to predict the movement of reactive solutes in groundwater. Was responsible for algorithm development, user interface, geochemical databases, and Technology Transfer to EPRI.

Palo Alto, California, Electric Power Research Institute – Fossil-Fuel Combustion Waste Leaching (FOWL™) Model Development. Led and contributed to the team that developed the FOWL™ release model. This was a model that calculated the leaching of metals from a variety of coal combustion residues under the effects of aqueous speciation, solubility, and sorption. Responsible for algorithm development, user interface, geochemical databases, and Technology Transfer to EPRI.

Groundwater Modeling and Aquifer Protection

Mahomet, Illinois, Mahomet Aquifer Task Force. Acted as one of two solid-waste industry representatives to the Governor's Task Force for the protection of the Mahomet Aquifer, the only designated sole-source aquifer in Illinois. It underlies central Illinois from the eastern border of the state near Champaign to the Illinois River near Peoria. Chaired the Subcommittee on Identifying Current and Potential Threats to the Mahomet Aquifer and contributed to the Subcommittee for

Evaluating Actions that Could be Taken to Protect the Mahomet Aquifer. Contributed to the final report that was unanimously approved by the Committee and presented to the Governor and State Legislature in December 2019.

Richland, Washington, Vadose Zone and Groundwater Modeling for the Hanford Site. Acted as technical lead for the groundwater impact assessment for the Tank Closure and Waste Management Environmental Impact Statement for the U.S. Department of Energy's Hanford Site. Directed the development of more than 400 local-scale vadoze-zone models for landfills and other disposal units as well, as a regional-scale groundwater flow and transport model. Integrated the results of the vadose-zone and groundwater models into a long-term performance assessment system to evaluate the long-term risks associated with multiple remedial action alternatives.

Southern Illinois, Groundwater Flow Modeling for a Mine Refuse Disposal Area in Southern Illinois. Managed the evaluation of a groundwater flow model for a refuse disposal area at the Monterey Mine in Clinton County, Illinois. Served on an expert panel that provided recommendations for model calibration procedures and application of results to designing a new groundwater monitoring system.

Solid Waste

Hopedale, Illinois, Indian Creek Landfill 2. Directed groundwater monitoring program for the site, including oversight of sampling, analytical, reporting, and permitting. Acted as lead for annual groundwater flow and annual facility reports; and for the groundwater portions of the State of Illinois Five-Year Permit Renewal. Oversaw the Potable Water Well Protection Program. Collaborated on new cell design, phasing plans, construction quality assurance, and annual capacity certification.

Baylis, Illinois, Hickory Ridge Landfill. Directed groundwater monitoring program for the site, including oversight of sampling, analytical, reporting, and permitting. Acted as lead for annual groundwater flow and annual facility reports; and for the groundwater portions of the State of Illinois Five-Year Permit Renewal. Oversaw the Groundwater Impact Assessment and Siting of a vertical and horizontal expansion. Collaborated on new cell design, phasing plans, construction quality assurance, and annual capacity certification. Conducted evaluations of intermediate and final cover, and participated in landfill gas well dewatering projects.

Clinton, Illinois, Clinton Landfill 1. Directed groundwater monitoring program for the site, including oversight of sampling, analytical, reporting, and permitting. Acted as lead for annual groundwater flow report. Oversaw the Corrective Action Groundwater Monitoring Plan. Corrective actions included replacing damaged wells, developing them, and performing pump and treat for an organic contaminant in one well. Acted as lead on the project to complete all post-closure care requirements including groundwater, landfill gas, leachate, and final cover assessment.

Clinton, Illinois, Clinton Landfill 2. Directed groundwater monitoring program for the site, including oversight of sampling, analytical, reporting, and permitting. Acted as lead for annual groundwater flow report and annual facility reports. Contributed to post-closure care cost estimates and final cover inspection and maintenance.

Clinton, Illinois, Clinton Landfill 3. Directed groundwater monitoring program for the site, including oversight of sampling, analytical, reporting, and permitting. Acted as lead for annual groundwater flow report and annual facility reports; and for the groundwater portions of the State of Illinois Five-Year Permit Renewal. Directed the technical and permitting aspects of the development of a MODFLOW flow and transport model to support Groundwater Impact Assessment. Contributed to post-closure care cost estimates and intermediate and final cover inspection and maintenance. Led the evaluation of chloride concentrations in leachate and characterization of solidified liquid waste streams.

Edwards, Illinois, Peoria City/County Landfill 3. Directed groundwater monitoring program for the site, including oversight of sampling, analytical, reporting, and permitting. Acted as lead for annual groundwater flow report and annual facility reports. Developed background groundwater monitoring program.

Peoria, Illinois, Peoria Disposal Company Landfill 1. Directed groundwater monitoring program for this RCRA Subtitle 2 Hazardous Waste Site Landfill and RCRA-permitted Waste Stabilization Facility, including oversight of sampling, analytical, reporting, and permitting. Acted as lead for annual groundwater flow report. Directed sampling and analysis of leachate to support permitted discharges into the Greater Peoria Sanitary District.

Washington, Illinois, Washington Landfill. Directed groundwater monitoring program for the site, including oversight of sampling, analytical, reporting, and permitting. Acted as lead for annual groundwater flow report and annual facility reports. Contributed to post-closure care cost estimates and final cover inspection and maintenance. Acted as lead for the landfill-gas assessment and gas well dewatering project. Led the effort to complete all post-closure care requirements and obtain an Affidavit of Completion of Post-Closure Care.

Monmouth, Illinois, Monmouth Municipal Landfill. Contributed to the groundwater monitoring program for the site with a focus on assessment monitoring, including groundwater well sampling and well inspection and maintenance. Contributed to post-closure care cost estimates and final cover inspection and maintenance.

Metropolis, Illinois, City of Metropolis Municipal Landfill. Contributed to groundwater monitoring program for the site, including groundwater well sampling and well inspection and maintenance. Contributed to post-closure care cost estimates and final cover inspection and maintenance.

Effingham, Illinois, Landfill 33. Contributed to a subsurface scoping investigation to determine the most suitable area for a horizontal expansion.

Pribilof Islands, Alaska, Site Investigation of a Closed Municipal Landfill on St. Paul Island. Directed site characterization studies at the St. Paul Municipal Landfill on a remote chain of islands in the Bering Sea. Developed a site characterization plan, including the use of remote sensing data as well as conventional field investigation techniques. Managed the mobilization of significant materials and equipment to this remote area.

Real Estate

Seattle, Washington, State of Washington Department of Natural Resources Phase 1 and 2 Environmental Assessments. Acted as the program manager for the eastern region of the state of Washington Department of Natural Resources, which periodically purchased large tracts of undeveloped land to set aside as state-preserved habitat. Led the environmental database searches for these properties, conducted the interviews with local and governmental officials, conducted field surveys, and documented the findings according to ASTM and Washington State guidance.

Richland, Washington, Port of Benton Phase 1 and 2 Environmental Assessments. The Port of Benton periodically purchased facilities near airports and along the Columbia, Snake, and Yakima Rivers for development as Port Projects. Acted as the program manager for these development projects. Led the environmental database searches for these properties, conducted the interviews with local and governmental officials, conducted field surveys, and documented the findings according to ASTM and Washington State guidance.

Kennewick, Washington, Banner Bank Phase 1 and 2 Environmental Assessments. Banner Bank was a regional bank in eastern Washington that financed the development of a number of commercial properties in Washington, Oregon, and Idaho. Acted as the program manager for these development projects. Led the environmental database searches for these properties, conducted the interviews with local and governmental officials, conducted field surveys, and documented the findings according to ASTM and Washington State guidance.

Manufacturing & Facilities

Peoria, Illinois, Industrial Waste Water Treatment Plant Investigation. Led the investigation to characterize and track the industrial discharges from the Peoria Disposal Company's Waste Water Treatment Plant into the Greater Peoria Sanitary District. The Wastewater Treatment Plant took discharges from a number of different customers in central Illinois, treated them in batches, and discharged the batches into the Greater Peoria Sanitary District. Contributed to the development of procedures and treatment studies to ensure that permit requirements were met and treatment was effective.

Pribilof Islands, Alaska, Site Investigation of Industrial Facilities on St. Paul Island. Directed site characterization studies at 17 government-owned and formerly-used defense sites at a remote chain of islands in the Bering Sea. Developed site characterization plans for the 17 sites, including the use of remote sensing data, as well as conventional field investigation techniques. Managed the mobilization of significant materials and equipment to this remote area. Developed interim response actions and a long-term risk assessment model for the tidally influenced island-aquifer system.

Pocatello, Idaho, Eastern Michaud Flats Superfund Risk Assessment. Led the Baseline Risk Assessment for the Eastern Michaud Flats Remedial Investigation/Feasibility Study (RI/FS). This RI/FS focused on metal contamination in soil, groundwater, and air at the JR Simplot Company and the FMC Corporation's facilities west of Pocatello, Idaho. The activities included development and refinement of the multimedia sampling and analysis plan, evaluation of the nature and extent of contamination, assessment of exposure pathways, and determination of the dose and risk to human health and to the ecosystem. This study was used to select remedial action objectives and remedy selection for the site.

Kemmerer, Wyoming, FMC Corporation Kemmerer Coke Facility. Led the groundwater team that performed the Resource Conservation and Recovery Act (RCRA) Facility Investigation for FMC Corporation's Kemmerer Coke Plant. This study focused on determining the nature and extent of metal contamination in soil and groundwater. The activities included development and refinement of the multimedia sampling and analysis plan, evaluation of the nature and extent of contamination, assessment of exposure pathways, and determination of the dose and risk to human health and to the ecosystem.

Wetlands

Hopedale, Illinois, Indian Creek Landfill 2. Directed wetland mitigation program for the site. Contributed to wetland design for the mitigation site including hydrogeologic investigation, grading plan, and engineering controls. Oversaw implementation of state-required Construction Quality Control Plans. Performed monthly and annual modeling and annual reporting to the Rock Island District of the Corps of Engineers and the Illinois EPA.

Baylis, Illinois, Hickory Ridge Landfill. Directed wetland delineation and requested jurisdictional determinations from the St. Louis District office of the Army Corps of Engineers.

Clinton, Illinois, Clinton Landfill 3. Directed wetland delineation and requested jurisdictional determinations from the St. Louis District office of the Army Corps of Engineers. Oversaw the preparation and obtained approval for the necessary Clean Water Act Section 401 and 404 Permits. Selected the mitigation approach and area and contributed to the mitigation design.

Edwards, Illinois, Peoria City/County Landfill 3. Directed wetland delineation and requested jurisdictional determinations from the St. Louis District office of the Army Corps of Engineers. Oversaw the preparation and obtained approval for the necessary Clean Water Act Section 401 and 404 Permits. Selected the mitigation approach and area and contributed to the mitigation design.

Effingham, Illinois, Landfill 33. Contributed to a wetland survey to determine the most suitable area for a landfill horizontal expansion.

Natural Resource Surveys

Wallowa-Whitman National Forest, Oregon and Washington, Photointerpretation of Existing Vegetation. Directed the preparation of an existing vegetation map for the Wallowa-Whitman National Forest. Developed and implemented the photointerpretation procedures and the field-checking procedures according to U.S. Forest Service Guidance. Compiled information into a GIS layer containing polygons representing the existing vegetation.

Wallowa-Whitman National Forest, Oregon and Washington, Photointerpretation of Historical Vegetation. Directed the preparation of an historic vegetation map for the Wallowa-Whitman National Forest in an area that had been impacted by forest fire. Developed and implemented the photointerpretation procedures and the field-checking procedures according to U.S. Forest Service Guidance. Compiled information into a GIS layer containing polygons representing the historic vegetation and prepared recommendations for reestablishment of impacted ecosystems.

Mount Hood National Forest, Oregon, Forest Inventory and Analysis (FIA). Directed the survey of 155 plots according to FIA procedures. Responsible for training of field staff, logistical support of remote field teams, development of electronic data recording units, and quality assurance of all data before reporting to the U.S. Forest Service.

Various Locations, Montana, Idaho, and Oregon, National Resources Conservation Service Rangeland Surveys. Directed and conducted the survey of 45 rangeland plots according to NRCS guidance. Responsible for training of field staff, logistical support of remote field teams, development of electronic data recording units, and quality assurance of all data before reporting to the NRCS.

Various Locations, Montana, Bureau of Land Management (BLM) Rangeland Surveys. Directed and conducted the survey of 23 rangeland plots according to BLM guidance. Responsible for training of field staff, logistical support of remote field teams, development of electronic data recording units, and quality assurance of all data before reporting to the BLM.

National Environmental Policy Act (NEPA)

Richland, Washington, Hanford Site – Tank Closure and Waste Management Environmental Impact Statement. Acted as chapter lead for the groundwater impacts analysis for the alternatives analysis and the cumulative impacts analysis. Developed the cumulative impacts analysis inventory from historical data. Contributed to the public comment process including presenting at Public Meetings, analyzing public comments, and writing appropriate portions of the Comment Response Document. Authored significant sections of the Executive Summary and the Record of Decision.

Kennewick, Washington, Highway 397 Bypass Environmental Impact Statement. Chapter lead for the traffic accident impacts analysis for the alternatives analysis of the development of routing a truck-bypass from a major highway into an industrial park. Contributed to the public comment process including presenting at public meetings, analyzing public comments, and writing appropriate portions of the Comment Response Document.

PFAS

Peoria, Illinois, Team Lead for Peoria Disposal Company's PFAS Work Group. Developed conceptual designs for treatment of PFAS in liquid waste streams and sequestration in landfills; developed field sampling methods and tested various sampling materials; advised and coordinated laboratory analytical techniques. Developed and submitted comments on proposed changes to Illinois Potable Water Supply Protection Act.

Publications and Presentations

Garber, K., and Hostetler, C., 2021, Implications of Proposed Changes of Illinois 620 Groundwater Rule to the Solid Waste Industry. Presented by C. Hostetler at the SWANA Land of Lincoln Chapter Conference in Glen Ellyn, IL, October 2021.

Preston, M.K., Nelson, S.R., Hostetler, C.J., and M.E. Burandt, 2014, The Effects of Site Complexity on Model Performance: Long-Term Groundwater Performance Assessment. Waste Management 2014.

Nelson, S.R., Preston, M.K., Hostetler, C.J., and M.E. Burandt, 2014, Coupled Vadose Zone/Saturated Zone Models for Nearfield Analysis. Waste Management 2014.

DOE (U.S. Department of Energy), 2013, Technology Transfer Document for the Tank Closure and Waste Management Environmental Impact Statement for the Hanford Site, Richland, Washington, Prepared by SAIC Under Contract DE-AM04-02AL67954 for CHPRC.

DOE (U.S. Department of Energy), 2012, Final Tank Closure and Waste Management Environmental Impact Statement for the Hanford Site, Richland, Washington, DOE/EIS-0391, Office of River Protection, Richland, WA, November.

DOE (U.S. Department of Energy), 2009, Draft Tank Closure and Waste Management Environmental Impact Statement for the Hanford Site, Richland, Washington, DOE/EIS-0391, Office of River Protection, Richland, WA, October.

Bergeron, M.P., Holford, D.J., Kemner, M.L., & Hostetler, C.J. (1991). Hydrogeologic performance assessment analysis of the low-level radioactive waste disposal facility near Sheffield, Illinois. NRC (U.S. Nuclear Regulatory Commission), Division of Low-level Waste Management, Office of Nuclear Material Safety and Safeguards, NUREG CR-5714.

Erikson, R.L., Hostetler, C.J., Kemner, M.L. 1990. "Mobilization and transport of uranium at uranium mill tailings disposal sites: application of a chemical transport model," NRC (U.S. Nuclear Regulatory Commission), Division of Low-level Waste Management, Office of Nuclear Material Safety and Safeguards, NUREG CR-5169.

Hostetler, C.J., and Erikson, R.L., 1989, "FASTCHEM Package." Vol. 5. Rep. EA-5870- CCM. Elec. Power Res. Inst., Palo Alto, CA.

Erikson, R. L., and Hostetler, C.J., 1989. "Coupling of Speciation and Transport Models." Presented at the Workshop on Metal Speciation and Transport in Groundwaters, U.S. Environmental Protection Agency, Jekyll Island, Georgia.

Peterson, S.R., Hostetler, C.J., Deutsch, W.J., & Cowan, C.E. (1987). MINTEQ user's manual NRC (U.S. Nuclear Regulatory Commission, NUREG/CR--4808.