## KACEY L. GARBER

## Education

M.S., Geoscience, University of Iowa, Iowa City, IA, 2019 B.S., Geology, Illinois State University, Normal, IL, 2017

# Specialty Certifications

Certified Groundwater Monitoring Specialist (CGWMS) Certified Groundwater Sampler (CGS) Certified Monitoring Well Installation Specialist (CMWIS) OSHA 24-hour HAZWOPER Training MSHA 24-hour Surface Miner Training 40-hour Wetland Delineation Training – Wetland Training Institute



## Professional Experience

Ms. Garber is an experienced geologist and hydrogeologist. Her areas of expertise include groundwater program management and related solid waste permitting for landfills (both active and closed/actively within post-closure care period), geologic and hydrogeologic site characterizations, groundwater monitoring well design and installation oversight, and groundwater reporting and special studies for coal combustion residuals (CCR) impoundments and landfills. Ms. Garber works closely with solid waste and CCR facility owners/operators, drilling contractors, local government officers, municipal employees, and private property owners. Ms. Garber is a member of SCS Engineers' Underground Injection Control (UIC) practice, and contributes to Class I and Class VI deep injection well projects.

#### UIC

**National, Confidential, Potential Class VI Deep Injection Well Sites.** Serving as a task lead for the development of Testing and Monitoring Plans, and contributing to the Site Characterization and Area of Review teams for the Class VI deep injection well permitting process with the U.S. EPA for two carbon sequestration projects.

**Florida, Confidential, Existing Class I Deep Injection Well Site.** I am participating in an investigation on the increasing trends in certain geochemical data within a monitored groundwater unit at a landfill in Florida. The purpose of the investigation is to determine whether these trends are the result of operational practices at the landfill or natural variability and/or processes.

## Solid Waste – Groundwater Monitoring

**Illinois, Peoria Disposal Company, Various Affiliated Landfills.** Acted as groundwater project manager for three active landfills (Clinton Landfill 3, Hickory Ridge Landfill, and Indian Creek Landfill 2), two closed landfills (Clinton Landfill 2, Clinton Landfill 1), one closed RCRA Subtitle C landfill (PDC 1), and one landfill undergoing development (Peoria City/County Landfill 3). Handled all routine groundwater monitoring and statistical analyses; compiling and authoring routine reports and Bureau of Land permit applications for submittal to the Illinois EPA; designing sampling and analysis plans; organizing and implementing special groundwater studies; groundwater well construction planning

and design; and field personnel management. Frequently performed routine and special groundwater, leachate, soil, and surface water sampling for all landfills.

Illinois, Various Landfills in Post-Closure Care (Regulated under 35 IAC Part 807). Assisted with groundwater program management for several closed landfills (Metropolis Municipal Landfill, Flora Municipal Landfill 2, Herrin Municipal Landfill, Monmouth Municipal Landfill, LeRoy Municipal Landfill). Handled all routine groundwater monitoring and statistical analyses; compiled and authored routine reports and Bureau of Land permit applications for submittal to the Illinois EPA; designed sampling and analysis plans; and organized and implemented special groundwater studies, groundwater well construction planning and design, routine engineering inspections of final cover and monitoring wells/devices, and field personnel management. Frequently performed routine and special groundwater, leachate, soil, and surface water sampling for all landfills.

Alton, Illinois, Alton Steel, Inc., Groundwater and Engineering Services. Assisted with groundwater program management for Consolidated Waste Pile (CWP) and Perimeter wells, engineering activities, and the permit renewal process at this RCRA Subtitle C Facility. Handled all routine groundwater monitoring and statistical analyses; compiled and authored routine reports and Bureau of Land permit applications for submittal to the Illinois EPA; designed sampling and analysis plans; and organized and implemented special groundwater studies, groundwater well construction planning and design, routine engineering inspections of monitoring wells/devices, and field personnel management. Frequently performed routine and special groundwater, soil, and surface water sampling on and around the property.

## Solid Waste – Special Projects

**LeRoy, Illinois, LeRoy Municipal Landfill, Certification of Completion of Post-Closure Care.** Played an integral role in obtaining the Certification of Completion of Post-Closure care. Compiled the Affidavit for Certification of Post-Closure Care Completion and related groundwater quality report. Coordinated the decommissioning of all Facility monitoring wells and devices upon approval of the Affidavit.

**Clinton, Illinois, Clinton Landfill 1, Groundwater Corrective Action.** Acted as Technical Lead for the permitted Corrective Action program. Organized and conducted corrective action activities as specified by the Facility permit, developed and implemented new corrective action measures, and authored annual corrective action reports. Designed a new well development program targeted at getting wells removed from corrective action.

**Clinton, Illinois, Clinton Landfill 3, Groundwater Impact Assessment Revisions.** Acted as Technical Lead for a supplemental subsurface hydrogeologic field investigation and characterization of the uppermost aquifer for revisions to the Groundwater Impact Assessment. Handled all contractor oversight; logged and interpreted all field borings; managed exploratory groundwater well design, installation, and development; collected and interpreted water levels from nearby potable water wells; and reported findings of field investigations to contractors for incorporation into MODFLOW.

**Peoria, Illinois, Team Member of Peoria Disposal Company's PFAS Internal Work Group.** Attended periodic group meetings and contributed to discussions internally and with Illinois EPA on emerging PFAS regulations and their potential effect on the Solid Waste industry.

#### Waste Water and Waste Water Treatment Projects

**Bradley, Illinois, CSL Behring.** Conducted field sampling at a major pharmaceutical manufacturing facility to support the revision of an industrial waste-water discharge permit. CSL Behring discharged

industrial waste water into the Kankakee Municipal Sanitary District and needed to prepare updated permit limits for this discharge. Deployed ten composite samplers per day over a two-week period to gather samples from various parts of an extensive waste water discharge network. Worked with facility technicians to locate and obtain access to these outfalls. Delivered samples under chain-of-custody procedures to the analytical laboratory and met all short holding time requirements.

**Peoria, Illinois, PDC1 Waste Water Treatment Plant.** Conducted a field investigation of incoming waste water loads to determine which loads may be contributing to elevated hydrogen sulfide levels within the plant. Sampled all incoming loads over a two-week period for sulfide analysis and tested for pH and redox potential upon collection. Plotted pH and Eh values on a sulfur stability diagram and reviewed analytical data to determine whether the loads appear to be under reduced conditions. Compiled a report describing loads that appear to be under reduced conditions based on field and analytical data.

#### **NPDES** Projects

**Park Hills, Missouri, Piramal Glass.** Conducted a field investigation and client visits to review two outfalls with problematic discharge levels. Created new methods for field technicians to measure flow parameters in the field and created a spreadsheet for field technicians to calculate appropriate discharge levels for reporting to the client.

### **General Environmental Field Services**

Various Landfills and LUST sites, Groundwater, Leachate, Soil, and Surface Water Sampling, Illinois. Served as technical lead for routine and special groundwater and surface water sampling at several active and closed landfills (including RCRA Subtitle C, Superfund) and LUST sites.

Various Coal Combustion Residue (CCR) Landfills and Coal Mine Sites, Groundwater and Surface Water Sampling, Illinois. Served as technical lead for routine and special groundwater and surface water sampling at several CCR landfills and MSHA-regulated coal mining facilities.

Various Industrial Facilities, Waste Water, Storm Water, Drinking Water, and Surface Water Sampling, Illinois and Missouri. Served as technical lead for sampling various media for many industrial facilities in Illinois and Missouri via grab sampling or composite auto-sampling systems.

Various Streams, NE USA, Delaware River Watershed. Visited 15 different sites within the Delaware River Watershed (Maryland, Pennsylvania, New York, Delaware, and New Jersey) and conducted measurements on stream channel cross sections, bank erosion, and sediment deposition on floodplains and collected soil and tree core samples to determine nutrient content. Used collected field data in conjunction with LiDAR datasets and Digital Elevation Models (DEMs) in ArcGIS to assess and quantify geomorphic changes and water quality in floodplains and stream channels and ultimately target conservation of areas with high ecosystem services values.

## Wetlands and Navigable Waters of the U.S.

**Illinois, Indian Creek Landfill 2, Mitigation Site Monitoring.** Conducted routine monitoring at the mitigation site, primarily to document vegetative species present and assess the quality of wetland vegetation in the mitigation area.

**Illinois, Clinton Landfill 3, Jurisdictional Determination and Mitigation Site Permitting.** Conducted a hydrologic field investigation in forested wetland areas for jurisdictional determination of an

ephemeral stream that drains to Salt Creek (Navigable Waters of the U.S.). Conducted an additional field investigation along Salt Creek to assess natural stream bank stabilization. Handled oversight and review of subcontractor submittals of 401 and 404 permit applications to Illinois EPA and U.S. Army Corps of Engineers.

**Illinois, Hickory Ridge Landfill, Jurisdictional Determination.** Conducted a field investigation of forested wetlands to determine connectivity of the on-site wetlands to Navigable Waters of the U.S. and confirm jurisdictional determinations. The field investigation allowed Illinois EPA and U.S. Army Corps of Engineers to determine that all wetlands in the upcoming expansion area are non-jurisdictional and no mitigation would be required for the initial horizontal expansion phase.

Illinois, Peoria City/County Landfill 3, Mitigation Site Design and Permitting. Handled oversight of subcontractor design and participated in planning for construction of the mitigation site.

#### **Publications and Presentations**

Garber, K. and Hostetler, C., 2022, Construction Dewatering Scenarios and Potential Impacts to Nearby Wetlands. Abstract to be presented at the National Groundwater Association's Groundwater Week in Las Vegas, NV, December 2022.

Garber, K., O'Leary, J., and Hostetler, C., 2022, Sensitivity of Aquifer Chemistry to Changes in Carbon Dioxide Partial Pressure: Implications for Design of Groundwater Monitoring Protocols. Abstract presented at the Groundwater Protection Council Annual Forum and UIC Conference in Salt Lake City, UT, June 2022.

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.

Garber, K., Finzel, E., and Pearson, D., 2019, Provenance of synorogenic foreland basin strata in Southwestern Montana requires revision of existing models for Laramide tectonism: North American Codillera: Tectonics, v. 39, n. 2.

Garber, K., Finzel, E., and Rosenblume, J., 2018, Sedimentology and detrital geochronology of the Late Cretaceous Beaverhead Group, Southwest Montana: Geological Society of America Abstracts with Programs. Vol. 50. Abstract presented at the GSA annual meeting in Indianapolis, IN, November 2018.

Rosenblume, J., Finzel, E., and Garber, K., 2018, Sedimentology and provenance of the Upper Cretaceous (Cenomanian to Sanonian) Frontier Formation, Southwest Montana and East-Central Idaho: Geological Society of America Abstracts with Programs. Vol. 50.

Garber, K., Malone D.H., Craddock, J.P. and Zahm, C., 2017, Detrital zircon U-Pb geochronology and provenance of the basal Amsden Formation, Bighorn Mountains, Wyoming: Wyoming Geological Association 2017 Guidebook, p. 120-129.

Malone, D., Craddock, J., Garber, K., and Trela, J., 2017, Detrital zircon geochronology of the Aycross Formation (Eocene) near Togwotee Pass, Western Wind River Basin, WY: Mountain Geologist, v. 54, n. 2, p. 69-85

Garber, K., Malone D.H., Craddock, J.P. and Zahm, C., 2016, Provenance analysis of the basal Amsden Formation of Wyoming using detrital zircon geochronology by LA-ICP-MS: Geological Society

of America Abstracts with Programs. Vol. 48, No. 7. Abstract presented at the GSA annual meeting in Denver, CO, September 2016.

Happel, A., Tranel, L., Neundorff, J., Garber, K., Schaefer, K., Babin, J., and Cremer, C., 2016, Evaluating fault line escarpment exposure in the Guadalupe Mountains of West Texas and New Mexico: Geological Society of America Abstracts with Programs. Vol. 48, No. 7.

Schoenmann, S., Tranel, L., Garber, K., Neundorff, J., and Schaefer, K., 2016, Evaluating relationships between rock strength and landscape evolution in the Southern Guadalupe Mountains, Texas: Geological Society of America Abstracts with Programs. Vol. 48, No. 7.

Garber, K., and Day, J., 2015, Brachiopod sequence through the uppermost Devonian Hangenberg Extinction interval in the Western Illinois Basin-Central North America: Geological Society of America Abstracts with Programs. Vol. 47, No. 7, p. 341. Abstract presented at the GSA annual meeting in Baltimore, MD, November 2015.

Garber, K., Tranel, L., and Rothschild, T., 2015, Using rock strength analysis to determine the spatial distribution of erosion and evolution of knickpoints in a stream channel within the Sacramento Mountains, NM: Geological Society of America Abstracts with Programs. Vol. 47, No. 7, p. 551. Abstract presented at the GSA annual meeting in Baltimore, MD, November 2015.