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(he/him)

Andrés Aguirre, Ph.D.

Senior Environmental Scientist

Dr. Aguirre is a senior environmental scientist with experience in geochemistry, environmental chemistry, natural resource damage assessment (NRDA), contaminant fate and transport, and analytical chemistry. He has contributed to a range of projects nationwide, including NRDA assessments at federal laboratories and Superfund sites, and statewide assessments of contamination and remediation for a variety of contaminants, such as polychlorinated biphenyls (PCBs) and per- and polyfluoroalkyl substances (PFAS). At Gradient, he applies his expertise to a variety of projects involving source investigations, site assessments, and cost estimates. Prior to joining Gradient, Dr. Aguirre worked for a consulting company where he focused on NRDA. Additionally, he has a background in trace element geochemistry and analytical chemistry, as well as experience in fieldwork and environmental sampling techniques.

Areas of Expertise

- Geochemistry
- Environmental Chemistry
- Natural Resource Damage Assessment (NRDA)
- Contaminant Fate & Transport
- Analytical Chemistry

Education

- Ph.D., Geology, Cornell University
- B.S., Geography – Environmental Studies, Texas State University – San Marcos

Selected Projects

NRDA: Provided technical and project management support for an NRDA at a US Department of Energy laboratory. Analyzed contaminant data and evaluated technical reports to characterize sources, pathway, and exposure of natural resources to hazardous substances. Summarized findings in technical reports and monthly trustee meetings, and developed recommendations for potential next steps.

NRDA Tool Development: Developed a groundwater NRDA assessment tool that combined resource equivalency analysis (REA) calculations with built-in or user-selected inputs to calculate natural resource damages in an efficient, defensible, and transparent fashion. This effort also included an extensive review of information to design restoration project options.

Groundwater Assessment for Superfund Sites: Conducted groundwater injury and damage assessments for multiple Superfund sites in the northeastern US. Developed REA models to quantify injury and damages, and factored in several restoration project types to compensate for lost resource services.

PCB Contamination and Remediation Assessment: Conducted a statewide PCB contamination and remediation assessment for a state in the midwestern US. Quantified potential damages for remediating PCB contaminated areas.

PFAS Groundwater Exposure Assessment: Conducted a statewide PFAS groundwater exposure assessment for a state in the northeastern US. Quantified potential injury to groundwater resources and potential damages to compensate for lost groundwater resource services.

Selected Publications and Presentations

Aguirre, AA; Weinberg, C; Lewis, C; Martin, N. 2021. "Review of Available Data on Surface Water Flow and Habitats in Assessment Area Canyons." Report to the Los Alamos National Laboratory Trustee Council.

Aguirre, AA. 2019. "Applying Ge/Si ratios to trace weathering reactions, hydrologic pathways and coal fly ash contamination in watersheds across the United States [DOCTORAL THESIS]." Submitted to Cornell University.

Aguirre, AA; Derry, LA; Kurtz, A. 2018. "Ge/Si as a Tracer for Si in Paired Catchments of the Luquillo CZO." Presented at the Goldschmidt Annual International Conference, Boston, MA, August 12-17.

Aguirre, AA; Derry, LA. 2017. "Mechanisms Generating Chemostatic Si-discharge Relationships in Granitoid Catchments of the Critical Zone Network." Presented at the American Geophysical Union (AGU) Fall Meeting, New Orleans, LA, December 11-15.

Aguirre, AA; Derry, LA; Mills, TJ; Anderson, SP. 2017. "Colloidal transport in the Gordon Gulch catchment of the Boulder Creek CZO and its effect on C-Q relationships for silicon." *Water Resour. Res.* 53(3):2368-83. doi: 10.1002/2016WR019730.