

PATRICK HARMS, PG

Education

MS – Geology, California State University, East Bay, 2015
BA – Environmental Studies, University of Santa Cruz, 2008



Professional Licenses

Professional Geologist – California (No. 9726)

Specialty Certifications

40-Hour Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations
Emergency Response (HAZWOPER) Certification

Professional Affiliations

Groundwater Resources Association of California
Solid Waste Association of North America

Professional Experience

As a Senior Project Geologist, Mr. Harms is responsible for project management and coordination of routine and non-routine monitoring and investigations, primarily at open and closed solid waste management sites. His responsibilities have included coordination of groundwater monitoring activities, analysis of environmental data, preparation of regulatory compliance reports, and communications with regional and local regulatory agencies. He has also prepared and implemented work plans for subsurface investigations, including borings and well installations, trenching, and remedial excavations. He is skilled in environmental sampling, including groundwater, surface water, leachate, soil, and soil vapor. Mr. Harms holds an MS degree in Geology, with thesis research in isotope hydrology.

Notable projects that Mr. Harms has been involved in are described below.

Environmental Assessment

Environmental Site Assessments (ESAs), West Sacramento Area Flood Control Agency (WSAFCA).

Mr. Harms assisted with Phase I ESAs and preparation of a soil management plan for a WSAFCA project involving multiple parcels along the Sacramento Riverfront.

Brownfields Inventory, City of Sacramento. Mr. Harms assisted with an ESA of 48 parcels along the Sacramento Riverfront. He performed review of historical records, procured underground utility plans, performed site surveys, and assisted with graphical data creation and a site assessment report.

Subsurface Investigation of Leaking Underground Storage Tank, Walnut Creek, CA. Mr. Harms prepared a work plan and provided field supervision for the advancement of 12 direct push borings across multiple parcels in support of a leaking underground storage tank investigation. He collected

soil and groundwater samples for analysis and prepared a Report of Results for the RWQCB, including interpretation of geologic and chemical data.

Phase I ESAs, Multiple Locations. Mr. Harms performed multiple Phase I ESAs, including site investigations, client and tenant interviews, historical site research, and preparation of Phase I ESA reports.

Site Remediation

Remedial Excavation, WSAFCA. Mr. Harms assisted with preparation and field supervision of the excavation of petroleum-contaminated soil from two excavation areas. He collected confirmation soil and water samples and directed excavation activities based on analytical results, field PID readings, and visual observations. Excavation activities included coordination with multiple agencies.

Remedial Excavation, Oakland, CA. Mr. Harms provided field supervision for the excavation of approximately 140 tons of soil. He collected confirmation soil samples from excavation and imported fill, emplaced in situ chemical oxidation compound in the excavation, and prepared a summary report for the RWQCB.

Dry Cleaner Remedial Injection, San Rafael, CA. Mr. Harms performed semiannual injection of in situ permanganate chemical oxidation liquid and sampling of groundwater monitoring wells, and prepared monitoring reports for compliance with RWQCB requirements.

Landfill Monitoring and Investigations

Monitoring and Reporting, Various Sites. As Senior Project Geologist and Project Manager, Mr. Harms is responsible for coordination of quarterly or semiannual sampling of various media, including groundwater, leachate, surface water, and soil gas. He prepares quarterly, semiannual, and annual compliance reports, including statistical analysis and graphical data creation, in compliance with Regional Water Quality Control Board (RWQCB) or local enforcement agency requirements. His sites include multiple active and closed landfills in Alameda, Butte, Kings, Placer, Sacramento, San Mateo, and Stanislaus Counties.

PFAS Sampling and Reporting, Various Sites. As Project Manager, Mr. Harms was responsible for preparing PFAS sampling work plans for compliance with the RWQCB at California landfills and airports. After acceptance of the work plans, he coordinated the collection of groundwater and leachate samples for PFAS analysis using rigorous protocols to reduce cross-contamination, and prepared Reports of Results for multiple active and closed landfill sites in California.

Landfill Impact Study, Placer County. Mr. Harms was responsible for completion of a study of historical water and gas monitoring data to assess if waste management units at a landfill were releasing leachate or landfill gas (LFG) to the subsurface. After completing the initial study and providing recommendations to the landfill authority, Mr. Harms prepared and implemented a work plan to collect additional LFG and liquid samples for analysis of stable isotopes, to provide additional evidence of water provenance in the unsaturated zone.

Groundwater Extraction Study, Placer County. As Project Manager, Mr. Harms was responsible for preparation and implementation of a groundwater extraction study at a closed landfill in Placer County. The study was designed to aid in the determination of the appropriate correction action method for groundwater capture. The study included geologic investigation using three boreholes drilled to shallow bedrock and conversion of two boreholes: one into an extraction well, and the other into an observation well. After pressure transducers were installed in the new wells and

adjacent wells, a 24-hour step-drawdown aquifer test was performed. Mr. Harms analyzed the resulting data and presented the County with a report of results and recommendations.

Groundwater Investigation, City of Sacramento. Mr. Harms was responsible for performing a groundwater investigation that included advancement of 78 direct push borings and installation of 3 permanent groundwater wells at both the landfill and surrounding residential and commercial areas. He also collected groundwater samples from borings and wells, and assisted with data analysis and reporting.

Publication

Harms, P. A., Ate Visser, Jean E. Moran, Brad K. Esser, 2016. Distribution of Tritium in Precipitation and Surface Water in California. *Journal of Hydrology*. 534. 63-72.