

RADIOLOGICAL SITES

Cradle to Grave Support for Successful Site Investigation and Remediation



HGL offers a full array of services for safely and efficiently investigating and remediating sites with radioactive or mixed waste contaminants. HGL's technical approach focuses on obtaining timely and cost-effective site closures (end states) by using innovative technologies that result in beneficial reuse of the properties. HGL can support radiological assessment and cleanup projects from cradle to grave, creating project continuity that allows for cost savings, streamlined schedules, and regulator buy-in for use of innovative remedial and decision-support modeling and optimization technologies.

HGL is an experienced federal contractor that delivers the radiological support services required to implement remedial actions and decontamination/decommissioning projects for the U.S. Environmental Protection Agency (U.S. EPA), the U.S. Department of Energy (DOE), and the U.S. Army Corps of Engineers (USACE), specifically for sites under the Formerly Utilized Sites Remedial Action Program (FUSRAP). HGL's radiological expertise encompasses the following:

- Complex Groundwater and Vadose Zone Flow and Transport Modeling and Optimization Technologies
- Historical Document Reviews and Records Management
- Investigation and Radiological Surveys of Media and Structures
- Radiological Risk Assessments
- Feasibility Studies and Remedial Designs
- Field Engineering, Quality Control (QC), and Safety
- Remediation of Radiologically Contaminated Environmental Media
- Building Decontamination and Demolition (D&D)
- Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) Final Status Survey Planning and Execution



HGL DISTINCTIONS

Unique experience conducting field gamma scanning surveys focused on detecting low activity radiological contamination in rough terrain.

Specialized experience designing, constructing, and testing state-of-the-art gamma scanning equipment.

Proven success executing radiological background studies and developing radiological cleanup goals.

Demonstrated experience completing MARSSIM surveys and Historical Site Assessments for complex sites with extensive stakeholder involvement.

Unsurpassed expertise in the development and application of models to simulate radionuclide transport.

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HGL has over 25 years of experience providing radiological support services to U.S. Government agencies, various operation and maintenance (O&M) contractors, and power generators. Clients include the following:

- Battelle Pacific Northwest National Laboratory (PNNL)
- Bechtel Hanford
- CH2M Hill Plateau Remediation Company
- Consolidated Nuclear Security, LLC
- DOE EM-50
- Fluor Daniel Fernald
- Fluor Hanford
- Los Alamos National Laboratory
- Navarro Research and Engineering, Inc.
- Nuclear Regulatory Commission (NRC)
- Ontario Power Generation, Inc. – Pickering Nuclear Generating Station
- Ontario Power Generation, Inc. – Western Waste Management Facility
- USACE
- U.S. EPA
- Westinghouse Savannah River Co.

CASE STUDIES

FUSRAP Sites, St. Louis, MO – HGL is executing a large-scale remedial action to clean up low-level radioactive waste (uranium, thorium, and radium) on numerous commercial, municipal, and residential properties in two separate areas of St. Louis. The dedicated team of over 60 on-site personnel perform radiological characterization and remediation efforts, which includes using two railcar loading areas. Since beginning the project, HGL has excavated and shipped nearly 115,000 cubic yards of impacted soil. Project work is completed under CERCLA and is managed by USACE in accordance with the Clean Air Act, the Clean Water Act, the National Contingency Plan, the National Historic Preservation Act, and the Toxic Substances Control Act, as well as with Missouri Department of Natural Resources and Missouri Department of Transportation regulations. HGL has received interim CPARS ratings of “Exceptional” and “Very Good.”

DOE Hanford Site, Benton Co., WA – HGL has provided services to DOE at the Hanford Reservation for over two decades under multiple projects. These services have included supporting Remedial Investigations (RIs), conducting innovative technology and remediation demonstrations, designing and developing a virtual library, designing a risk communication tool, and providing technical and modeling support for the Basalt Waste Isolation Plant.

DOE Savannah River Site (SRS), Aiken, SC – Under contract to Westinghouse Savannah River Company (WSRC), HGL has provided a broad range of technical services to support site investigation and environmental restoration activities at different areas of the SRS. The SRS is a DOE nuclear materials processing center that has been operating since the early 1950s. Site contaminants include chlorinated solvents and various radionuclides (Am-241, C-14, Cs-137, I-129, Pu-238, Pu-239, Sr-90, and Tc-99). Environmental cleanup began

in 1981. HGL identified, developed, and applied model simulation technologies to conduct comprehensive analyses of groundwater flow and contaminant transport in the unsaturated zone and underlying groundwater systems. The analyses supported risk assessments and engineering design evaluations.

Santa Susana Field Laboratory (SSFL) Site, Ventura Co., CA – HGL’s work at SSFL entailed conducting an RI of a 470-acre portion of the site, the location of a former research facility that included 10 nuclear reactors and testing facilities. Site characterization activities required using a variety of surface radiation scanning techniques and instrumentation to scan surface soils in 100 percent of accessible parts of the Area IV operational area and adjacent Northern Buffer Zone. Multimedia sampling of groundwater, surface water, and sediment as well as risk assessment and community relations support were conducted to support the radiological study and background evaluation led by EPA Region 9.

DOE Nevada National Security Site (NNSS), NV – For the last 6 years, HGL has provided radiological modeling, subsurface data analysis, geologic modeling, 3-D visualization, and regulatory interaction activities for the Underground Test Areas (UGTA) Corrective Action Units (CAUs) with known and potential groundwater contamination on NNSS due to underground nuclear testing. HGL has supported development of UGTA CAU-specific models of GW/vadose zone flow and radionuclide transport. HGL is part of the team recently notified to provide continued support at NNSS until 2030.

DOE Pantex Plant Site, Amarillo, TX – HGL is providing support to Pantex under a 5-year Basic Ordering Agreement (BOA) for fate and transport modeling and optimization services. Under the BOA, HGL has updated the conceptual and numerical models, employed parameter estimation and Ensemble Kalman Filter (EnKF) approaches during model calibration, and reproduced 10 years of observed water level and water quality data, including operation of large scale groundwater pump and treat and in situ bioremediation systems. HGL’s PMBO™ technology was used to evaluate alternatives and develop an optimal remedy (in situ bioremediation system with limited pump and treat) for an offsite groundwater plume. HGL provided on call support during system installation, including modifications to the design resulting variations in the hydrogeologic framework as treatment system wells were installed. HGL has also supported other projects at Pantex Plant including:

- Prepared second 5-Year Review including performance evaluation and optimization recommendations for multiple soil and groundwater remedies.
- Evaluated potential alternatives and recommended expansion of in situ treatment system using a re-circulation approach to mitigate potential plume migration around end of system
- Evaluated/optimized both the spatial distribution and frequency of monitoring for a well network of 112 active monitoring locations monitoring 143 analytes in the perched groundwater flow system.

