

# REMEDIATION

Site Closure: Your Goal, Our Goal

HGL delivers the full range of services required to develop and implement any environmental cleanup program. HGL's multi-disciplined team provides the knowledge and expertise required to develop and implement any remediation program—from design, to construction, to operation. HGL has a solid track record of expediting effective investigations, designing innovative systems, and successfully and safely completing soil and groundwater remediation efforts, while constantly seeking system improvements to shorten the duration and cost of each project. HGL's focus has always been on obtaining regulatory site closure while balancing economic and environmental benefits.

HGL offers a full array of remediation services for safe and efficient remediation of sites contaminated with hazardous, toxic, radiological, and munitions constituents. HGL's remediation approach is focused on obtaining timely and cost-effective site closure through use of both innovative remediation technologies and proven methods that result in sustainable and beneficial re-use of the site property. HGL's remediation expertise encompasses the following:

- Landfill Cap Construction
- Soil Vapor Extraction/Biosparging
- In Situ Oxidation/Enhanced Bioremediation
- Permeable Reactive Barrier Construction
- Contaminated Soil/Sediments Removal
- DNAPL/LNAPL Remediation
- Emerging Contaminants of Concern
- Community Relations Support
- Pesticide- and PCB-Contaminated Soils Remediation
- Optimized Pump and Treat
- Operation and Maintenance and Long-term Monitoring Optimization
- Regulatory Negotiation
- Long-term Monitoring/Long-term Operations
- Enhanced Product Recovery
- Explosives-Contaminated Soils Bioremediation
- Construction Support



## HGL DISTINCTIONS

ENR Top 200 Environmental Firm

Performance-Based Remediation Industry Leader

Leader in Environmental Optimization Technology

2017 Recipient of Two American Academy of Environmental Engineers & Scientists® Grand Prize awards

- For Innovative Research – Excellence in Environmental Engineering and Science™ Competition
- For Successful Execution of Challenging PBR Project – Excellence in Environmental Engineering and Science™ Competition

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Performance-Based Remediation (PBR) – Over the past 17 years, HGL has become a PBR industry leader, successfully managing and executing single- and multiple-installation PBR projects ranging in size from \$5 million to \$45 million under both RCRA and CERCLA. HGL has completed these projects for Department of Defense clients, including the U.S. Army Corps of Engineers, Army Environmental Command, and Air Force, and it has successfully managed performance risk and liability for them using various remedial technologies. Additionally, HGL has 30 years of experience executing firm fixed price projects with challenging milestone performance schedules. With their extensive experience executing PBR projects, HGL's staff has developed expertise in negotiating and securing consensus on all aspects of environmental remediation projects from the investigation through closure (end state) phases.



**PBR at MacDill Air Force Base and Avon Park Air Force Range, Florida.** Project highlights:

- Conducted site remediation and developed and implemented an Optimized Exit Strategy.
- Implemented in situ remedies, including in situ chemical oxidation, bioremediation, biosparging, and enhanced reductive dechlorination (ERD) at 15 sites to treat POL contaminants, VOCs/semivolatile organic compounds, PAHs, and pesticides.
- Implemented innovative thermal ERD and deep soil excavations using large-diameter augers to remediate DNAPL beneath the water table.
- Excavated over 76,000 tons of source materials, including POL- and DNAPL-contaminated soils.
- Completed over 150,000 hours of work without a safety incident.
- Received National Safety Council Perfect Record Awards for 2014 through 2020.
- Received “Exceptional” ratings in all categories in 2017–2020 CPARS evaluations.

**Environmental Remediation Services at Scott Air Force Base, Illinois.** Project highlights:

- Completed CERCLA remediation at 20 separate sites, including construction of groundwater and soil remedies, source treatment (excavation and soil amendment to stabilize lead), in situ technologies (ISOC and bioremediation). Exceeded contract objectives by obtaining RIP or site closure at all 20 sites.
- Effectively negotiated the disposal of soil from additional removal actions at the on-base landfill to eliminate off-base disposal, limit on-base truck traffic, minimize carbon footprint, and accelerate schedule.
- Designed and implemented a pilot study to evaluate enhancing reductive dechlorination through injection of EHC, an amendment that combines a carbon substrate with ZVI. The field test results demonstrated the amendment's potential effectiveness, and provided the data needed to prepare and implement the full-scale RD.
- Received the “USACE Project Safety Recognition Award” for safe execution of all work without a single lost time incident.

**Environmental Remediation Services at Former Blaine Naval Ammunition Depot, Hastings, Nebraska.** Project highlights:

- The NAD GWTP has extracted, treated, and discharged 13.9 billion gallons at 3,800 gallons per minute while operating at 97% on-stream operating efficiency.
- Design/construction of a 91,000-gallon wet well requiring deep excavation and installation of 2,900 LF of piping was completed within budget and schedule despite losing 12 days to extreme inclement weather.
- Construction of the south irrigation system and grade control structures involved excavating and placing ~116,000 cy of soil; and placing 6,000 cy of riprap for erosion protection.

**Removal Action at Umiat Test Well No. 9 at Umiat Air Force Station, Alaska.** Project highlights:

- Completed removal of over 2,000 tons of TSCA waste from the Umiat, AK located on the North Slope during winter, and sequenced transport by snow cat, truck, rail, and ship over 2,200 miles to disposal facility.
- Obtained approval for ten different permits/authorizations from numerous federal and state government agencies in less than 90 days to facilitate accelerated schedule.
- Established and operated an on-site lab that achieved both ELAP and ADEC certification for PCB soil analysis, this resulted in a project saving of over \$250K.

**Groundwater Treatment Plant and Extraction System Operations at South Jersey Clothing Company/Garden State Cleaners Superfund Sites, Atlantic County, New Jersey.** Project highlights:

- Extracted, treated, and discharged 1.5 billion gallons of groundwater, averaging 485 gallons per minute while operating at 97% on-stream efficiency.
- Reduced plant operations staffing by 50% through effective management of project resources.
- Completed time-critical connection of a new extraction well prior to the beginning of fall sessions at a nearby elementary school.
- Earned New Jersey Department of Labor Safety Awards in 2013–2020 and National Safety Council Safety Awards in 2014–2020.

## CASE STUDIES

### Award Winning Performance-Based Remediation Project

**PBR at the Former Fort Ord, California.** Project highlights:

- Addressed groundwater site with large, diffuse plume in multilayered geological setting and sensitive ecosystem.
- Constructed a hydraulic containment barrier that halted off-post plume migration.
- Constructed and operated a 200-gpm pump and treat groundwater remedy that achieved ROD cleanup goals and received EPA Region 9 and state regulator concurrence that “...all remedial actions have been implemented and completed at this site.”
- Optimized the pump and treat remedy using HGL's innovative Physics-Based Management Optimization (PBMO™) software in conjunction with a calibrated HGL MODFLOW-SURFACT™ groundwater model, reducing the cleanup time for the 4,200-foot plume by approximately 2 years and saving approximately \$310,000 in projected costs.
- Reduced carbon dioxide emissions by 59,000 pounds per year through optimization of the groundwater sampling program and operation of the groundwater treatment plant.
- Implemented measures including mapping plant populations and using temporary mats on roadways to avoid affecting State and Federal threatened and endangered plant and wildlife species in the project area.
- Completed over 21,000 labor hours without a health and safety incident.
- Received client ratings on four completed task orders in 24 total categories (6 per task order: Quality, Schedule, Cost Control, Regulatory Compliance, Business Relations, and Management). HGL was rated “Exceptional” in 22 categories and “Very Good” in two.
- Received a Central Coast Regional Water Quality Control Board (CCRQCB) letter in 2017 stating “...you are to be congratulated that your work has been professional, honest, timely, and most cooperative with all cleanup team members, as well as the greater Ft. Ord community. This is no small accomplishment for a site that's both technically challenging and has a high public profile.” John M. Robertson, Executive Officer, CCRQCB.