

# Hazardous and Industrial Waste Management

Environmental problems that stem from waste are the result of improper disposal and management. GAI Consultants understands the problems industrial waste generators face and the liability that accrues from faulty waste management practices. Our experience investigating problems and designing solutions is extensive and diverse. We apply in-depth knowledge and creative techniques to developing sound waste management plans.

**More than 50 years of successful environmental remediation projects means clients tap into the proven capabilities of dedicated professionals.**

GAI's integrated approach to waste management is supported by a diverse staff of professionals who bring a unique perspective to the environmental, geologic, hydrogeologic, regulatory, economic, and social aspects of each project. We evaluate, plan, design, and manage installation of secure hazardous and industrial waste facilities. GAI also

identifies and develops procedures to mitigate difficulties at existing sites.

GAI conducts field investigations to gather as much site data as possible at the lowest cost to the client, and our field specialists are trained in health and safety according to OSHA requirements. Our subsurface investigations comprise soil gas vapor surveys, drilling, test pit excavation, and soil, rock, and water sampling and testing.

A successful remedial site investigation requires that the following plans be in place before the investigation starts — Preliminary Work Plan, Quality Assurance Project Plan, Field Sampling Plan, and Health and Safety Plan. If the presence of hazardous or industrial waste is determined, GAI conducts a feasibility study to evaluate remediation alternatives for protecting public health and the environment.

For each remediation, GAI looks at the most suitable technologies, balancing effectiveness, ease of implementation, and cost. Often, we combine two or more technologies, some of which include in-situ vacuum extraction, biodegradation, isolation and



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## Service Profile



containment, soil washing, excavation and treatment, fixation, stabilization, and groundwater collection and treatment. Once GAI determines a suitable remediation alternative, we work closely with the client to develop a technical design plan that includes detailed documentation of the process.

GAI's library of treatment technologies includes:

Physical/Chemical Processes—adsorption, ion exchange, soil vapor extraction, air stripping, air flotation, flocculation/sedimentation, reverse osmosis

Chemical Processes—chemical co-precipitation, chemical oxidation, UV/IR processes, neutralization

Biological Processes—in-situ bioremediation, activated sludge treatment, biological filter, wetland treatment

Physical/Chemical Stabilization—pozzolanic stabilization, polymerization, encapsulation

GAI has been developing industrial and hazardous waste treatment solutions for more than 50 years, and our full range of hazardous and industrial waste management services includes construction inspection and management. We support the efforts of federal and state agencies, as well as public and private owners in energy, manufacturing, and industry.

### Hazardous and Industrial Waste Management Services

- Waste management plans/waste treatment studies
- Treatment plant/facility design and permitting
- Remedial Investigations/Feasibility Studies (RI/FS)
- Site assessments/waste characterization studies
- Waste material-liner compatibility studies
- Groundwater and surface water monitoring plans
- Soil, groundwater, and surface water contamination studies
- Independent reviews of proposed remedial designs/action and expert testimony
- Remedial design/RCRA and Superfund
- Spill and site cleanup
- Construction monitoring and management
- Waste minimization plans

### GAI Services Summary

- Airport Planning and Design
- Bridge and Structure Inspection and Design
- Coal Combustion Residuals Management
- Construction Inspection and Management
- Cultural Resources Management
- Economic Analyses and Strategies
- Electric Transmission Design and Siting
- Environmental Engineering
- Environmental Studies, Species Studies, Permitting
- Gas Pipeline Surveying and Mapping
- Geographic Information Systems (GIS)
- Geotechnical Engineering and Geology
- Impoundment and Landfill Permitting and Design
- Land Development Engineering
- Landscape Architecture and Design
- Master Planning and Urban Design
- Mechanical, Electrical, Structural Engineering
- Natural Gas FERC Certification and Permitting
- Nuclear Energy Engineering Support
- Right of Way and Appraisal Support
- Land Surveying and Mapping
- Transportation Planning and Design
- Utility Management Consulting
- Water, Stormwater, Wastewater Management

The scope of professional services that are provided by or offered out of each GAI office including, but not limited to, engineering and surveying services, is governed by the professional and business licensing requirements of each individual State or jurisdiction in which the GAI office is located and whether GAI has the requisite professional and business licenses for that State or jurisdiction. Nothing on GAI's Web Site or marketing materials is intended to be interpreted or construed as offering to perform professional licensed services where prohibited unless the licensing requirements have been met. Surveying services are not offered out of GAI's Kentucky location.

