

# DYNAMIC Short-Term Remediation Technologies



#### **Experience Matters**

For almost 35 years, GES has been providing environmental assessment, remediation, engineering, permitting, and compliance solutions, as scientists, engineers, and hands-on technical specialists. Self-performance of environmental services enables GES to manage projects with greater efficiency, resulting in cost savings, accelerated schedules, and enhanced quality.

Our commitment is to design and deliver the right remediation technology — whether it's a traditional technology or an in-situ chemical injection approach.

#### Approach to Safety

GES believes in safeguarding people, property, and the environment and provides a robust Health, Safety, Security, Environment (HSSE) program that involves every aspect of our work. Our goal is to ensure that our employees, clients, and subcontractors make it home safely — every day.









#### DAPL

GES' mobile enhanced feasibility unit is a unique platform for real-time evaluation of remediation technologies. For 25 years, the DAPL program has stood alone as the pinnacle of feasibility testing. The DAPL can also assist with evaluating and optimizing existing remedies. Whatever the contaminants of concern, the DAPL will steer you to the right solution.

- Test multiple technologies in a single mobilization
- Real-time logged and graphed data
- High and low vacuum blower
- Multiple submersible pumps
- Oil/water and vapor/liquid separation
- Air/sparge compressor
- Ozone generator and hydrogen peroxide mixing tank
- Safety and process controls
- · Skilled equipment operator

Compared to traditional feasibility testing methods, the DAPL provides more data to aid you in making critical remedial decisions.

Why wouldn't you DAPL?















## **HypeAir**

Our short-term chemical injection technology for remediation of soil and groundwater combining direct oxidation, advanced oxidation, and enhanced biodegradation.

- Engineered Max-Ox injection wells single and nested
- Injection of ozone, hydrogen peroxide, sodium persulfate, and other amendments
- Generation of multiple oxidizing radicals to destroy contaminants
- Increased distribution and mixing through ozone sparging

Oxidative or reductive? GES has the experience to select and implement the right approach.





### Red-Duc

This reductive remediation technology uses nitrogen gas combined with liquid reducing agents to maximize distribution and minimize oxygenation. Red-Duc technology targets contaminants including chlorinated hydrocarbons, perchlorate, and hexavalent chromium.

- Wide range of reducing agents such as emulsified vegetable oil (EVO) and other oils; zero valent iron (ZVI); lactic and carboxylic acids; molasses and other sugar sources
- Increased distribution and mixing through nitrogen sparging
- Reduces oxygenation and lowers ORP

## HypeAir-EX

For aggressive remediation of larger plumes and recalcitrant compounds, our 24/7 continuously-operating oxidative technology combines ozone and hydrogen peroxide.

- Ozone and hydrogen peroxide combine to create strong oxidizing radicals
- Max-Ox nested injection wells maximize mixing and dispersion of gas (ozone/oxygen/air) and hydrogen peroxide
- Increases in dissolved oxygen promote aerobic degradation of contaminants beyond the area of ozone influence
- Scalable to ex-situ applications

Continuously injected ozone and hydrogen peroxide is one of the most effective treatment technologies for 1,4-Dioxane.







#### Testing • Evaluation • Design • Remediation • Optimization • Monitoring • Closure

capabilities also include bioremediation, injection carbon, and other reagents.

are many facets to environmental issues, and develop alternative and innovative solutions to environmental problems that may be more effective than conventional standard approaches. Our project and program management Best Management solutions to meet project goals and objectives.



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