

NUCLEAR ENGINEERING & SECURITY

Expert solutions and high value capabilities for development and protection of critical programs and infrastructure.



Boston Government Services, LLC

BGS is a highly respected provider of mission-focused solutions for Nuclear Safety, Nuclear Criticality Safety, Specialized Design Engineering, and Safeguards and Security in the nuclear industry. We touch virtually all market segments in the nuclear fuel cycle and nuclear security industries.

BGS has assembled a team of highly skilled professionals with experience in complex, secure, and highly regulated environments. Our experts deliver tailored solutions to effectively address unique challenges—making us a valued and trusted partner to our clients.

We support projects ranging from innovative small modular reactor design and licensing to D&D of the nation's nuclear weapons complex legacy facilities.

NUCLEAR SAFETY

- Nuclear safety analysis for Hazard Category 2 and 3 nuclear facilities
- Hazards identification, screening, and evaluation
- Chemical and radiological dispersion and consequence analyses
- Hazard control development and implementation
- DSA/TSR development and revision per DOE-STD-3009-2014
- Integrated safety analysis for commercial nuclear facility licensing
- SMR licensing strategy and safety basis development

OPERATIONS SUPPORT

- Training program development and implementation
- Operating procedures, CONOPS, and driver for a rigorous safety culture
- Industrial safety and health
- Waste management, packaging, and transportation compliance
- Operational readiness and startup

SAFEGUARDS & SECURITY

- Security program surveys and assessments
- Information security and classification
- Emergency management
- Security program planning and optimization

NUCLEAR CRITICALITY SAFETY

- NCS program development, implementation, and assessments
- Criticality code verification and validation
- NCS evaluations of fissile material operations per DOE-STD-3007-2017
- Criticality incredible (CI) determinations to support deactivation activities
- Criticality accident alarm system detector placement and shielding analysis

SPECIALIZED DESIGN ENGINEERING

- Engineering design services – Mechanical, Electrical/I&C, Civil/Structural
- 3D CAD design package development
- Design analysis and calculations
- Fabrication/construction support
- Test plan development, implementation, and performance

QUALITY & COMPLIANCE

- NQA-1 quality assurance program for safety software and engineering processes
- Compliant processes and approved facility for generation and handling of CUI
- Project management and integration capability

Highlighted Assignments

- Develop a licensing strategy, Safety Design Strategy and DSA/TSR for a new 3D-printed SMR to be built at the Oak Ridge National Laboratory
- Perform a gap analysis and cost estimate for implementation of DOE-STD-3009-2014 for a hot cell facility at the Oak Ridge National Laboratory
- Provide complete design, fabrication, and testing services for a unique gas capture system at the Oak Ridge National Laboratory
- Perform a Hazard Category 3 to Hazard Category 2 DSA/TSR upgrade for the U1A facility in support of future subcritical experiments (NNS)
- Support DOE-EM in the development and implementation of a complex-wide Safeguards and Security Roadmap to guide program enhancement and consistency (DOE EM-3.114)
- Support the strategy, planning, and management of cross-cutting issues for the full range of waste managed by DOE EM (EM-30)
- Develop NCS evaluations to allow characterization and deactivation activities at the former uranium enrichment facilities (FRNP and FBP)
- Develop the basis for criticality credible for D&D activities at the former uranium enrichment facilities (FRNP and FBP)
- Provide engineering design services for new facilities and infrastructure at the LANL EM site (N3B)



ENGINEERING | TECHNOLOGY | SECURITY

CAPABILITIES AND SOLUTIONS

NUCLEAR SAFETY CENTER OF EXCELLENCE

BGS has established a Nuclear Safety Center of Excellence to provide Nuclear Safety Analysis and Nuclear Criticality Safety services to clients across the country from our dedicated team of engineers and nuclear safety professionals located in our Oak Ridge, TN office.

The challenge: There is a chronic shortage of nuclear safety specialists available to support challenging and complex projects. This problem is especially severe for nuclear facilities at remote locations with little attraction for long-term relocation of highly sought-after personnel.

Our solution: BGS capitalized on our set of unique capabilities (discipline knowledge coupled with project management expertise) and leveraged the large talent pool available in the Oak Ridge area to provide a stable base for remote operations. Our Nuclear Safety Center of Excellence provides clients with the high quality resources needed to efficiently support nuclear safety projects, regardless of location.

Our goal was to provide better talent, at reduced cost, and improve efficiency. Working from a centralized location is cost-effective, by avoiding travel and relocation costs, and allows BGS to share work among qualified professionals. Working remotely allows professionals to focus on the task at hand and avoid potential distractions from client site operational activities or other unrelated issues. We carefully manage tasks and workloads so program/project managers, task leads, and functional leads can collaborate effectively, reduce project time, and make optimal use of unique resources.

Clients can use the BGS Nuclear Safety Center of Excellence in concert with their own site resources, ensuring they are never short of the nuclear safety expertise required to successfully fulfill their mission.

THE BGS DIFFERENCE

BGS personnel have extensive experience in complex, secure, and highly regulated environments. We understand the requirements and unique challenges of both the federal and commercial nuclear sectors and deliver support, services, and solutions tailored to each client's needs.

We have a highly talented group of engineers and scientists with experience across the entire nuclear facility life cycle. We leverage the best science and engineering to enable fresh and innovative solutions to challenging problems.

The result is strategic and technical solutions that resolve issues, improve performance, and reduce cost.