



NSA[®]

Proven • Effective • Solutions

**SPECIALTY DESIGN
ENGINEERING**

2001-2011

*Celebrating 10 years of
engineering excellence
and exceeding client
expectations.*

CORPORATE OVERVIEW

Nuclear Safety Associates (NSA) launched in 2001 and in just a little over a decade has become an industry leader in fields related to nuclear safety.

From its earliest days, NSA was uncompromising in its commitment to hiring only the most qualified engineers and scientists in the industry. As a result, NSA quickly developed a reputation throughout the nuclear industry for providing innovative solutions, a high level of client satisfaction and for enabling client success. NSA has expanded its initial core capabilities in nuclear criticality safety to include other disciplines required to define and defend the safety basis for nuclear operations including: nuclear facility safety, chemical and radiological consequence analysis, risk assessment, readiness, and licensing. In 2008, NSA marked a significant milestone in its strategic direction and growth with the addition of two new business lines, *safeguards & security and design engineering*.

Today, NSA offers clients turnkey capabilities to perform safety-related work for the nuclear facility lifecycle, from conceptual design through construction, operations, and ultimately, to decontamination and decommissioning. In response to rapidly evolving political and technological environments, NSA's Safeguards & Security Services business has become the company's fastest growing sector, providing security services to a diverse pool of commercial and government clients.

NSA offers engineering excellence and client customization through four business sectors:

- Nuclear Safety and Licensing
- Readiness Assurance and Operations Management
- Safeguards & Security
- Design Engineering

A privately held company with more than 100 employees throughout North America and with plans to expand into Europe and Asia, NSA serves a broad client base within the U.S. Department of Energy (DOE), the commercial nuclear industry, the public utilities sector and, is well positioned for expansion into new public and private markets.

OUR EXPERIENCE IN SPECIALTY DESIGN ENGINEERING

NSA has provided mechanical design and analysis services, including conceptual and detailed design, for a proposed new fuel cycle facility, for facilities at the Y-12 National Security Complex, and to Nuclear Assurance Corporation to support new shipping casks as well as modifications to existing casks. NSA has extensive experience performing Criticality Accident Alarm System (CAAS) detector placement analysis, and has provided these services to NFS, Westinghouse, AREVA, and for ISOTEK at the Oak Ridge National Lab. We have designed temporary and mobile shielding for worker protection at Brunswick, Wolf Creek, Callaway, and Fermi 1. NSA provides core design and reactor physics services to Westinghouse, B&W, GE-HITACHI, and the Advanced Test Reactor at the Idaho National Lab. Our shipping cask design & analysis experience is extensive and includes support to GNF, NAC, BNFL Fuel Solutions, and AREVA-NP.

SPECIALTY DESIGN ENGINEERING

NSA performs specialty mechanical design engineering from design concept to detail fabrication and assembly. Our highly trained staff members hold advanced engineering degrees from accredited universities, are expert users of a myriad of CAD/Analysis software and Life Cycle Management (LCM) programs, and appreciate the need for simplicity in design for manufacturability. NSA has extensive experience supporting classified programs. NSA nuclear engineers support design of portable shielding used in projects at numerous power reactors, perform reactor core design for a major reactor vendor, and performed an extensive reliability analysis of a nuclear power plant in support of its license extension request.

OUR SERVICES

- **Mechanical Design Engineering**
 - Commercial Nuclear Fuel Cycle Facilities
 - Nuclear Fuel Shipping Cask Design
 - Safety Systems/Items Relied on for Safety
 - DOE Building/Facility Structural Analysis
- **Process and Equipment Design**
 - Conceptual Design
 - Detailed Design
 - Computer Aided Design and Analysis
 - Life Cycle Management
 - Constructability Evaluation
 - Fabrication and Assembly
 - Structural/Impact Analysis
- **Shielding Design & Analysis**
 - CAAS Detector Placement
 - Temporary Shield Design for Worker Protection
 - Reactor & Hot Cell Shielding Designs
- **Reactor Core Design & Fuel Management**
 - CASMO/SIMULATE, ANC, MCNP
 - Core Startup and Core Follow
- **Reactor Physics**
 - New Reactor Design
 - Vessel Fluence
 - Power Distribution & Peak Pin Power
 - Gamma Heating
 - Neutron Flux Mapping
- **Independent Spent Fuel Storage Installation Design & Analysis**
- **Fresh and Spent Fuel Shipping Container Design & Analysis**
 - Dynamic Impact Analysis
 - Crash Analysis
 - Stress Analysis
 - Heat Transfer Analysis
 - Thermal Stress Analysis
 - Shielding Analysis
 - Nuclear Criticality Safety Analysis
 - SARP Preparation



***For information about NSA's Specialty
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