



ADVANCED REACTOR SUPPORT KEY CAPABILITIES AND EXPERIENCE

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Design Optimization

- Buildings and Support Structures
- Material Selection, Processing, and Testing
- Design for Analysis (Optimize Transients, Reduce Conservatism)
- Pre-Conceptual to Final Design Maturation and Integration
- Digital Twin Development

Seismic Methodology

- Seismic Performance Criteria
- Seismic Risk Assessment/PRA
 - Soil/Structure/Fluid Interaction
 - Structure and Component Fragility
 - Geotechnical Fragility

Seismic/Structural Evaluation

- FEA Modeling, Dynamic Analysis
 - Modal, Response Spectrum, and Time History Analysis
 - Soil-Structure Interaction (SASSI)
- Equipment Qualification
 - By Testing and/or Analysis
- Building Structure Code Evaluations
- Aircraft Impact and Tornado Missile Evaluations
- Large Component Drop Evaluations

Licensing Support

- Analytical and Inspection Program Development
- Advisement for PSAR/FSAR
 - Health Physics Support
 - Dose Evaluation Support
 - Methods Qualification, Testing, Validation
- Regulatory Interactions (RAIs)
- Emergency Plan and EAL Development
- Pre-Op Environmental Monitoring and Meteorology

Risk Assessment

- Target Reliability Assessments (PRA)
- Deterministic and Probabilistic Flaw Tolerance Evaluations
- Leak-Before-Break Evaluations
- Flaw Acceptance Standards and MANDE Strategies/Credit
- Bounding Flaw Evaluations (planar vs. non-planar)
- Emergency Planning / Procedures

Quality Assurance

- Program and Procedure Development
- Commercial Grade Dedication (NQA-1)

Fuel Design and Analysis

- Fuel Performance Codes/Methods and Independent Validation
- Accident/Transient Analyses
- Neutronics and Thermal Hydraulics
- Source Term and Consequence Analysis
- Spent Fuel Storage (Design/Analysis)
- Fuel Handling and Conditioning
- Develop/Implement Test Programs

DESIGN

ANALYSIS

LICENSING

CONSTRUCTION

OPERATION

Design Analyses

- System and Component Evaluations
 - ASME Section III, including Div-5
 - Piping Analysis (Sec-III or B31)
 - Thermal Hydraulics including CFD
- Methods and Analysis Qualification/Testing
- Controls and Integration
- Loading Specifications
- Embrittlement and Aging Effects
- Constitutive Material Modeling (examples)
 - Irradiation hardening, creep, stress relaxation
 - Void Swelling, Creep-Fatigue
 - Environmentally Assisted Stress Corrosion Cracking

Vibration Analysis/Testing

- Transportation Analysis/Testing
- Program Support (CVAP, Dynamic Effects)
- Wear Testing

Engineering Programs

- ASME OM 3/7 Piping Programs
 - Thermal and Vibration Analysis
 - Design Mitigation
 - Startup Monitoring
 - Analysis Reconciliation
- ASME Sec-III Fatigue Management
- ASME Sec-XI, Div-2 (RIM Programs)
 - Program Management
 - Expert Panel Support
 - Degradation Mechanism Assessments
 - NDE Procedure Qualification/Execution
- MANDE Technology Maturation
 - Robotic Delivery
 - Technical Justification, Specification, Demonstration
- CVAP for RPV Internals (R.G.1.20)
 - Mechanism Screening
 - Forcing Functions and Fatigue Wear
 - Develop/Implement Test Programs
 - Pre-Operational/Startup Testing
- Effluent and ODCM Program Development

Conventional Island Systems

- Turbine and Generator Performance
- Process Steam Evaluations (FAC, Chemistry, etc.)
- Process/Chemistry Control Equipment
- Pre-Operational Risk Assessments
- Cathodic Protection
- Full Service Engineering and Electrical and Instrumentation Construction

Operational Support Services

- Process and Temperature Control Skids
 - Modeling and Implementation
- Radioactive Waste Treatment
- Occupational Dose Assessment
- E-Plan and ALARA Software Implementation
- Radiological Engineering and Protection

SIA ASSET PERFORMANCE MANAGEMENT — SOFTWARE AND SOLUTIONS

Our integrated digital platform serves as a single source of truth that captures, analyzes, and displays data and actionable recommendations.