The discovery of alkali-silica reaction (ASR) in concrete structures at the Seabrook Station Nuclear Power Plant (Seabrook) was first documented case of ASR at any U.S. nuclear facility. The...

**Seabrook Station Nuclear Power Plant**

Seabrook, NH

**Project Contacts:** Jesse Beaver, Said Bolourchi, Matthew Sherman

**Services:** Materials Investigation, Structural Investigation

**Markets:** Nuclear

**Keywords:** Concrete, Cracking, Field Testing, Laboratory Testing and Analysis, Nondestructive Testing, Petrography

After the Fukushima Daiichi accident, the U.S. Nuclear Regulatory Commission (NRC) issued 10 CFR 50.54(f), a letter requiring licensees to perform a re-evaluation of seismic hazard and take...

**Columbia Generating Station, Seismic Probabilistic Risk Assessment**

Richland, WA

**Project Contacts:** Philip Hashimoto, Mohamed Talaat

**Services:** Structural Investigation

**Markets:** Nuclear

**Keywords:** Nuclear Facility, Seismic Probabilistic Risk Assessment (PRA), Seismic Walkdown
Pilgrim Nuclear Power Station Frac Tank
Plymouth, MA
Project Contacts: Michael Mudlock

In response to Nuclear Regulatory Commission (NRC) post-Fukushima (FLEX) requirements, Entergy sought to install a 21,000 gal, mobile frac tank for temporary water storage at their Pilgrim Nuclear...

Services: Structural Design
Markets: Nuclear
Keywords: Finite Element Analysis, Nuclear Facility, Seismic Analyses

Idaho National Laboratory, Fuel Manufacturing Facility (MFC-704), Seismic Fragility Evaluation
Idaho Falls, ID
Project Contacts: Philip Hashimoto

The Materials & Fuels Complex (MFC) at the Idaho National Laboratory focuses on research and development of nuclear fuels. SGH developed seismic fragilities for the MFC-704 structure (also...

Services: Structural Rehabilitation
Markets: Nuclear
Keywords: Nuclear Facility, Seismic Engineering and Retrofit, Seismic Probabilistic Risk Assessment (PRA)

Palo Verde Nuclear Generating Station Pipelines
Tonopah, AZ
Project Contacts: Rasko Ojdrovic, Mehdi Zarghamee

Construct in the early 1980s by the Arizona Public Service Company, the water reclamation supply system at Palo Verde Nuclear Generating Plant consists of thirty-six miles of prestressed...

Services: Structural Investigation
Markets: Nuclear
Keywords: Condition Assessment, Corrosion, Cracking, Failure Risk Assessment
Nuclear Power Plant Circulating Water Pipeline

United States

Project Contacts: Murat Engindeniz, Rasko Ojdrovic

At the power plant, 84 in. dia. steel discharge headers transfer water from the condenser to the discharge tunnel. SGH designed internally bonded, carbon fiber-reinforced polymer (CFRP) liners for...

Services: Structural Rehabilitation
Markets: Nuclear
Keywords: Composites-FRP / CFRP / GFRP, Construction Administration, Field Testing, Laboratory Testing and Analysis, Metal-Steel, Mockup, Pipe, Pipe, Steel, Testing/Inspection

Nuclear Station Low-Pressure Service Water System

United States

Project Contacts: Murat Engindeniz, Rasko Ojdrovic

The low-pressure service water system comprises 36 in., 42 in., and 54 in. dia. steel pipe. Approximately 1800 ft of pipe was corroded and required repair. SGH designed internally bonded, carbon...

Services: Structural Rehabilitation
Markets: Nuclear
Keywords: Composites-FRP / CFRP / GFRP, Construction Administration, Laboratory Testing and Analysis, Metal-Steel, Pipe, Pipe, Steel, Pipeline, Testing/Inspection

Fermi 2 Nuclear Power Plant, Circulating Water Pipeline

Monroe, MI

Project Contacts: Murat Engindeniz, Rasko Ojdrovic

The 144 in. dia. circulating water pipeline at Fermi 2 consists of two intake lines between the reservoir and condenser and
two discharge lines between the condenser and two cooling towers. All...

Services: Structural Investigation, Structural Rehabilitation
Markets: Nuclear
Keywords: Composites-FRP / CFRP / GFRP, Concrete Rehabilitation, Failure Risk Assessment, PCCP, Pipe, Pipeline

Diablo Canyon Power Plant

Avila Beach, CA

Project Contacts: Gregory Hardy

Diablo Canyon Power Plant, in operation since 1985, uses two Westinghouse Pressurized Water Reactor units to produce 18,000 gigawatt-hours of electricity. PG&E retained SGH to support the re-...

Services: Structural Investigation
Markets: Nuclear
Keywords: Nuclear Facility, Seismic Probabilistic Risk Assessment (PRA), Seismic Walkdown, Soil-Structure Interaction

Idaho National Laboratory (INL) Analytical Laboratory (ALAB)

Idaho Falls, ID

Project Contacts: Said Bolourchi, Michael Mudlock

The one-story Analytical Laboratory building is located on the Materials and Fuels Complex at Idaho National Laboratory (INL). The building is a concrete and masonry structure with a high bay...

Services: Structural Rehabilitation
Markets: Nuclear
Keywords: Fire, Fire Protection, Roofing, Seismic Analyses, Seismic Engineering and Retrofit, Structural Strengthening
**Chinshan, Maanshan, and Kuosheng Nuclear Power Plants**

**Taiwan**

The Institute of Nuclear Energy Research (INER) of Taiwan retained SGH to support the new Seismic Probabilistic Risk Assessments (SPRAs) of three Nuclear Power Plants (NPP), which each use...

**Services:** Structural Investigation  
**Markets:** Nuclear  
**Keywords:** Nuclear Facility, Seismic Probabilistic Risk Assessment (PRA), Seismic Walkdown

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**KORI Unit 3 Nuclear Power Plant, Periodic Safety Review Seismic Qualification**

**Seoul, South Korea**

**Project Contacts:** Gregory Hardy, Kyuho Hwang, Wen-How Tong

Kori Unit 3 is a 900 MW pressurized water reactor that has been in service since 1985. All operating nuclear power plants in Korea are required to perform a Periodic Safety Review (PSR) every ten...

**Services:** Structural Investigation  
**Markets:** Nuclear  
**Keywords:** International, Power, Seismic Walkdown

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**Eagle Rock Enrichment Plant**

**Bonneville County, ID**

**Project Contacts:** Said Bolourchi, William Konicki

AREVA sought to build a uranium enrichment plant with six separation building modules (SBM), each to be supported on base isolators and located on either side of a central special moment...

**Services:** Structural Design  
**Markets:** Nuclear
Idaho National Laboratory, Advanced Test Reactor, Equipment Seismic Qualification

Idaho Falls, ID

Project Contacts: Philip Hashimoto

The Department of Energy uses the Advanced Test Reactor (ATR) at Idaho National Laboratory to test nuclear fuel systems and materials. SGH engineers performed the experienced-based seismic...

Services: Structural Design

Markets: Nuclear

Keywords: Nuclear Facility, Seismic Analyses, Seismic Walkdown

South Texas Project Nuclear Power Plant, Units 3 & 4

Bay City, TX

Project Contacts: Said Bolourchi, Frank Kan

The South Texas Project is a twin-reactor facility that produces 2,700 MW of power. To increase the power generating capacity, the plant planned to add two advanced boiling water reactors to the...

Services: Structural Design

Markets: Nuclear

Keywords: Nuclear Facility, Seismic Analyses, Soil-Structure Interaction
Savannah River Site, Pit Disassembly and Conversion Facility
Aiken, SC
Project Contacts: Said Bolourchi, Mehdi Zarghamee

The U.S. Department of Energy (DOE), in conjunction with the National Nuclear Security Administration’s Office of Fissile Materials Disposition, planned to eliminate stockpiles of weapons-grade,...

Services: Structural Design
Markets: Nuclear
Keywords: Analytical Studies, Award Winning, Concrete, Soil-Structure Interaction

Pantex Component Evaluation Facility
Amarillo, TX
Project Contacts: Said Bolourchi, Mehdi Zarghamee

Pantex planned the new Component Evaluation Facility (CEF) to meet criteria for withstanding mixed categories of various intensities of natural phenomena hazards (NPH), and accidental, and...

Services: Structural Design
Markets: Nuclear
Keywords: Feasibility Study, Seismic Analyses, Soil-Structure Interaction

Idaho National Laboratory, Fuel Manufacturing Facility (FMF)
Idaho Falls, ID
Project Contacts: Said Bolourchi

Changes to Department of Energy (DOE) codes required Idaho National Laboratory (INL) to reevaluate and retrofit its Fuel Manufacturing Facility (FMF) at the Materials and Fuels Complex. The FMF...

Services: Structural Rehabilitation
Markets: Nuclear
Keywords: Condition Assessment, Laboratory, Masonry-CMU
Idaho National Laboratory, Integrated Waste Treatment Unit (IWTU)
Idaho Falls, ID
Project Contacts: Said Bolourchi, Daniel Eggers

The Idaho Cleanup Project involved installation of an Integrated Waste Treatment Unit (IWTU) that implemented a prototype technology. The IWTU processes radioactive acidic sodium-bearing waste and...

Services: Structural Design
Markets: Nuclear
Keywords: Braced Frame, Concrete, Concrete Mix Design, Construction Engineering, Finite Element Analysis, Monitoring, Construction, Soil-Structure Interaction, Thermal

Crystal River Nuclear Power Plant Unit 3, Drop Load Analysis
Crystal River, FL
Project Contacts: Mehdi Zarghamee

The Crystal River Nuclear Power Plant, Unit 3, is part of a 4,700 acre energy complex that contains a 914 MW pressurized water reactor. When the client planned rigging operations for replacement...

Services: Structural Investigation
Markets: Nuclear
Keywords: Buried, Cracking, Finite Element Analysis, Heavy Loads, Mechanical/Electrical System, Pipeline, Power, Soil-Structure Interaction
**Comanche Peak Nuclear Power Plant, Units 3 & 4**

Glen Rose, TX

**Project Contacts:** Said Bolourchi

SGH designed several Seismic Category I structures at the Comanche Peak nuclear facility for preparation of Combined Operating License Application (COLA). These reinforced concrete structures...

**Services:** Structural Design

**Markets:** Nuclear

**Keywords:** Concrete, Groundwater, Soil-Structure Interaction

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**Mühleberg Nuclear Power Plant**

Mühleberg, Switzerland

**Project Contacts:** Philip Hashimoto

The 1,097 MW power plant went into commercial operation in 1971 and consists of a single-unit boiling water reactor. The owner/operator of the Mühleberg Nuclear Power Plant (KKM) needed to submit...

**Services:** Structural Investigation

**Markets:** Nuclear

**Keywords:** International, Nonlinear, Nuclear Facility, Seismic Probabilistic Risk Assessment (PRA), Seismic Walkdown, Soil-Structure Interaction

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**Idaho National Laboratory, Advanced Test Reactor, Diesel Generator for Deep Well No. 4**

ID

**Project Contacts:** Philip Hashimoto

Deep Well No. 4 provides make-up water to the Advanced Test Reactor (ATR) in the event of a seismic-induced loss-of-coolant accident. A new diesel generator system was required to supply backup...

**Services:** Structural Design

**Markets:** Nuclear

**Keywords:** Machines and Equipment, Mechanical/Electrical System
Idaho National Laboratory, Advanced Test Reactor (INL ATR) SPRA

Idaho National Laboratory, ID

Project Contacts: Philip Hashimoto

The Department of Energy uses the Advanced Test Reactor (ATR) at Idaho National Laboratory to test nuclear fuel systems and materials. The light-water moderated and cooled reactor has a four-leaf...

Services: Structural Investigation

Markets: Nuclear

Keywords: Nuclear Facility, Seismic Analyses, Seismic Probabilistic Risk Assessment (PRA), Seismic Walkdown

Idaho National Laboratory, Advanced Test Reactor, Primary Heat Exchangers Upgrade

Idaho Falls, ID

Project Contacts: Said Bolourchi, Michael Mudlock

The Advanced Test Reactor (ATR) at the Idaho National Laboratory (INL) supports research and testing of materials for use in large-scale and prototype reactors. Previous analysis by BEA raised...

Services: Structural Rehabilitation

Markets: Nuclear

Keywords: Analytical Studies, Construction Consulting, Engineering Mechanics, Equipment, Seismic Engineering and Retrofit
Idaho National Laboratory, Advanced Test Reactor Control Room Wall

Idaho Falls, ID

Project Contacts: Philip Hashimoto, Michael Mudlock

The Advanced Test Reactor (ATR) at the Idaho National Laboratory (INL) supports research and testing of materials for use in large-scale and prototype reactors. Previous analyses indicated that...

Services: Structural Rehabilitation

Markets: Nuclear

Keywords: Masonry-CMU, Nuclear Facility, Seismic Engineering and Retrofit, Structural Strengthening

Idaho National Laboratory, Advanced Test Reactor Building TRA-676

Idaho Falls, ID

Project Contacts: Philip Hashimoto, Michael Mudlock

The Advanced Test Reactor (ATR) at the Idaho National Laboratory (INL) supports research and testing of materials for use in large-scale and prototype reactors. Building TRA-676 is a 53 ft x 40 ft...

Services: Structural Design

Markets: Nuclear

Keywords: Nuclear Facility, Preengineered/Prefabricated/Modular, Seismic Engineering and Retrofit, Structural Strengthening