

Client:  
Kajima Corporation

Location:  
Tokyo, Japan

**Service Provided:**

- Risk assessment and management for world's largest underground frozen barrier.
- Engineering analyses to evaluate potential failure modes of the "Ice Wall."

**Value Provided:**

- Performed thermo-hydro-mechanical modeling to evaluate feasibility of design, understand potential threats to the barrier, and quantify impacts of ground freezing to adjacent structures.
- Surveyed more than 400 ground freezing case histories to identify potential problems and risk mitigation measures.
- Developed risk register that identified risks and their potential causes, impacts, and mitigation measures.

For More Information,  
Contact:

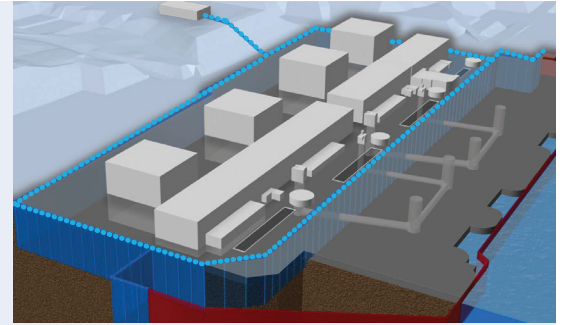
W. Allen Marr, PhD, PE  
Founder and CEO

125 Nagog Park  
Acton, MA 01720

978-635-0012  
wam@geocomp.com

## Background & Project Challenges

Kajima Corporation of Tokyo, Japan, has contracted with Geocomp of Acton, MA, to provide engineering services on the construction and evaluation of an "Ice Wall" groundwater barrier around the Fukushima Nuclear Power Plant. Geocomp has subcontracted with Moretrench American Corporation, North America's largest ground freezing contractor, to assist with their construction experience.



## Geocomp Role & Accomplishments

Geocomp and Moretrench are providing Kajima with assessments of comparable ground freezing experiences from around the world to help share technological achievements to enhance the design, construction, and performance of the Fukushima Ice Wall. In addition, they are assisting in the evaluation of the design plans, construction quality assurance, and performance testing.

Artificial ground freezing is the process of converting the subsurface pore water to ice to produce a strong, water-tight barrier. It has been used for more than 100 years in the construction of deep shafts, excavations, and groundwater barriers in the mining and civil construction industries.

Geocomp is providing coupled groundwater, heat flow analyses to evaluate potential failure modes for the "Ice Wall". Asked about the project, Dr. Marr replied, "We feel very honored to be asked to participate in this unprecedented project and to have the collaboration of Moretrench's experienced staff."