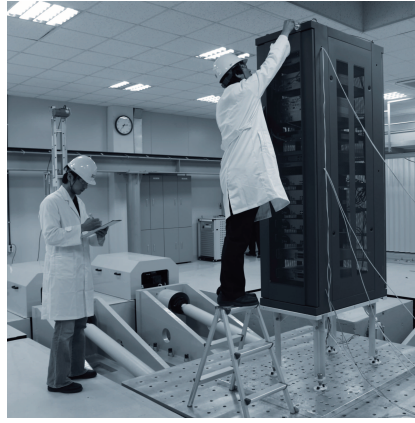


## EARTHQUAKE TESTING



# CASE STUDY

## SGS OFFERS **EARTHQUAKE TESTS** AS ONE OF VERY FEW COMPANIES IN THE WORLD

On April 1, 2010, SGS began performing all types of earthquake tests for nuclear power plants and manufacturers of electrical communications and railway systems at its laboratory in Giheung, Korea. SGS is one of the very few companies in the world to offer earthquake testing services and the only private testing company with earthquake testing equipment in Korea. With this value-added service SGS meets the high demand for earthquake testing services on the market.

### **SGS CAN CONTRIBUTE TO THE MINIMISATION OF DAMAGE AND RISKS IN THE EVENT OF AN EARTHQUAKE**

Earthquakes present a significant danger to nuclear power plants and related products and components, which are very critical assets. The nuclear accident at the Chernobyl Nuclear Power Plant, which occurred in 1986 in Ukraine, shows that any damages in the nuclear power plants can have terrible consequences for the mankind such as decontamination of the environment and severe health problems caused by the radioactive release. In addition, an earthquake can paralyse entire communications networks and railway systems. Consequently, it is of paramount importance that nuclear facilities and electrical communications and railway systems resist earthquakes and other external events.

In order to minimise the dangers and avoid a terrible disaster, owners of nuclear power plants and manufacturers of electrical communications and railway systems seek a reliable earthquake testing provider.

To meet the high demand for earthquake testing services on the market, SGS began performing earthquake tests in its laboratory in Giheung, Korea on April 1, 2010. With this service SGS supports local and international clients in assuring the safety of their plants or installations and in minimising the risks in the event of an earthquake.

### **ABOUT SGS EARTHQUAKE TESTING SERVICES**

Being one of a very few companies in the world that offer earthquake tests, SGS is also the only private testing company with earthquake testing equipment in Korea. The SGS earthquake testing laboratory provides a value-added service by contributing to the minimisation of damage and risks in nuclear power plants and communications networks in the event of an earthquake. In addition, SGS successfully cooperates with government laboratories and conducts tests for governmental certification. Earthquake tests of electrical communications systems have been mandatory in Korea since October 16, 2009.

Designed for earthquake tests on samples such as nuclear power plant products and components as well as electrical communications and railway systems, the laboratory, located in Giheung, Korea, performs tests on samples with a maximum weight of 3,000 kg and size of 2500(W)x2500(D)x3000(H) mm.

**SGS**

## EARTHQUAKE TESTING



# CASE STUDY

With two experts and four engineers, the SGS laboratory performs measurements of displacement of the test sample and bolt strain. In addition, SGS Korea conducts performance checks and structural integrity evaluations.

During an earthquake test, which normally takes up to 30 minutes, SGS experts check the performance of the sample, mount the sample on test equipment and perform a resonance search. Having completed these steps, the team of experts conducts earthquake tests in accordance with IEEE 344, IEC 60068-2-57, IEC 60068-3-3 and NEBS(GR-63 CORE) international standards, identifies resonance and carries out performance checks again.

After completing the earthquake test, SGS provides a test report, which includes analysed data such as Required Response Spectrum (RRS), Test Response Spectrum (TRS), frequency and acceleration, performance checklist and resonance search data. Furthermore, SGS experts provide measured data for displacement of the sample during the test, a calibration report for the test equipment, measuring equipment, accelerometers, sensors and test results.

The SGS laboratory conducts earthquake tests in accordance with IEC international standards, accredited by the Korea Laboratory Accreditation Scheme (KOLAS) and provides earthquake testing services both for local and international clients.

Being one of very few of its kind in the world and the only one performing three-axis earthquake tests with SGS affiliates, the SGS lab meets the rapidly increasing demand for earthquake tests in the world.

### ABOUT SGS CONSTRUCTION SUPERVISION

As the world's leading inspection, verification, testing and certification company, SGS offers a large variety of services and solutions; from exploration and appraisal, to development, production and logistics. SGS ensures that the installations, material, equipment, facilities and projects meet all quality and performance requirements.

### ABOUT SGS

With advanced testing technologies and experienced and qualified staff, SGS operates an extensive network of offices and laboratories in various fields, offering a wide range of mechanical, physical and chemical testing facilities. The SGS worldwide network has accreditations to all major standards and is recognised as a leading global benchmark in the field of inspection, verification, certification and testing.

**SGS IS THE GLOBAL LEADER AND INNOVATOR IN INSPECTION, VERIFICATION, TESTING AND CERTIFICATION SERVICES. FOUNDED IN 1878, SGS IS RECOGNISED AS THE GLOBAL BENCHMARK IN QUALITY AND INTEGRITY. WITH MORE THAN 67,000 EMPLOYEES, SGS OPERATES A NETWORK OF OVER 1,250 OFFICES AND LABORATORIES AROUND THE WORLD.**