

FCI Installs 20 Spent Fuel Pool Level Instruments At 6 Chinese Plants To Meet Post-Fukushima Monitoring Regulations

Model CL86 Plus SFPLI For Continuous Level, Point Level and Temperature Monitoring

San Marcos, CA — As a global supplier of nuclear qualified flow, level and temperature instrumentation for more than three decades, [Fluid Components International \(FCI\)](#) has successfully installed 20 of its rugged [Model CL86 Plus Spent Fuel Pool Level Instruments \(SFPLI\)](#) in 6 different plants located throughout China.

The FCI CL86 Plus SFPLI provides highly reliable, continuous level data feedback to plant operators, which ensures proper water levels are maintained in the spent fuel pools. The FCI Model CL86 Plus SFPLI fully complies with China's post-Fukushima's regulations (as well as those of other nuclear agencies worldwide) to install level measurement instrumentation in all spent fuel pools.

The Model CL86 Plus SFPLI from FCI was selected for the Chinese plants because of its proven installed base in other nuclear power plants, its nuclear safety qualifications, FCI's local service and support network, and the company's long continuous service to the nuclear power industry.

The catastrophic 2011 earthquake related events at Japan's Fukushima Daiichi nuclear power plant revealed the critical need to monitor the water level and conditions within spent fuel pools. FCI responded to this situation with a specially modified version of its proven, 1E qualified Model CL86 Plus SFPLI. It meets or exceeds all parameters required by plant operators and regulatory agencies for SFP level monitoring.

The Model CL86 SFPLI combines three critical measurements: continuous level, point level and temperature into an integrated multi-variable solution for spent fuel pool monitoring. Although integrated, the sensors and their associated electronics are completely independent from each other to provide the robustness, independence and reliability required in nuclear power plants. They provide both discrete and independent outputs of each measurement for interface with the control room and alarm system.

Continuous level accuracy for the Model CL86 SFPLI is $\pm 3\%$ of full scale. Point level accuracy is ± 0.25 inch [6.4 mm] and temperature accuracy is $\pm 2^\circ\text{F}$ [$\pm 1^\circ\text{C}$]. The continuous level measurement range



is up to 30 feet [9 m]. Up to four (4) points of user specified point level alarms, with relay outputs, are available. The CL86 Plus operates over a temperature range of 32 °F to 212 °F [0 °C to 100 °C].

The CL86 Plus SFPLI consists of a unified probe assembly designed for immersion in the SFP within a still-well. It is immune to splashing, humidity, fogging and is fully compensated for changes in water temperature. The sensor wires and electronics interface junction box is a rugged metal enclosure that is water-tight and immune to falling debris that might occur during an event condition.

The Model CL86 Plus' electronics can be remote-mounted up to 1000 feet [300 meters] away from the sensor and are housed in a stainless steel NEMA rated enclosure. Depending on site specific needs, FCI can advise plant operators of product selection and operation strategies for the CL86 Plus to optimize for (Station Blackout Operation) SBO.

Optionally available is FCI's proprietary in-situ calibration verification system (VeriCal) for level measurement. With this option, operators can simulate the SFP's water level and verify proper operation and outputs from the CL86 Plus without having to alter or drain water from the pool or remove the CL86 Plus from its installation.

FCI is the world's leading manufacturer of thermal dispersion technology-based level and flow instrumentation. FCI has been a continuous, nuclear industry 1E qualified supplier since 1978, having provided measurement solutions to numerous applications to more than a hundred nuclear power plants throughout the world. The CL86 Plus is an extension to these products, experiences and qualifications, which was developed specifically to address the needs that have emerged for better measurement and monitoring of the spent fuel pool.