

PROJECT PROFILE



installed during the embankment rebuilding. The new instruments include a large number of piezometric water level sensors and a series of 12 weir water level sensors installed in drainage collection manholes near the downstream toe of the dam. An Automated Data Acquisition System (ADAS) was installed to minimize the labor effort involved in collecting and evaluating data from the large number of seepage monitoring instruments. The ADAS also provides the required real time monitoring for seepage alarms on the 12 weirs.

Fern Ridge Dam Safety Instrumentation Monitoring System Eugene, Oregon

Client:

U.S. Army Corps of Engineers, Portland District

Engineered Monitoring Solutions successfully completed a project to enhance the long-term dam safety monitoring of the U.S. Army Corps of Engineer's Fern Ridge Dam, located approximately 12 miles northwest of the city of Eugene, Oregon on the Long Tom River. Immediately prior to the monitoring system project, improvements to the internal embankment drainage system were completed. As a result of the reconstruction of the embankment, previously installed instruments were removed during excavation and new instruments were

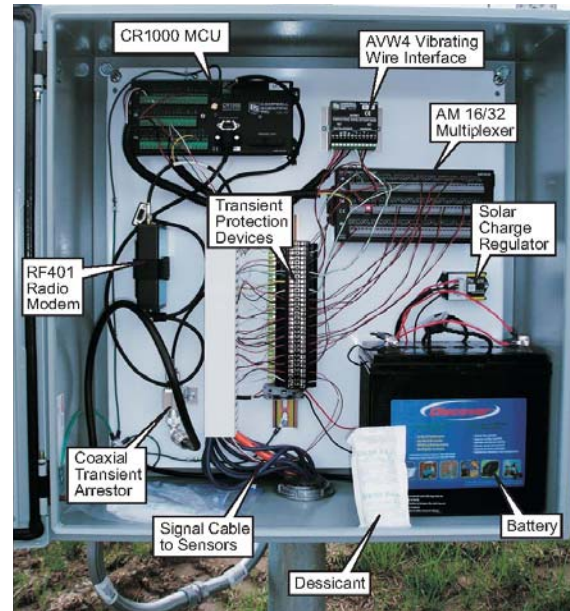


The ADAS system includes 12 remote monitoring stations located along the crest and along the toe of the dam. Each monitoring station includes a Measurement and Control Unit (MCU) that was programmed to collect sensor readings, perform

calculations on the readings, provide real time alarm checking, and temporarily store the data until it is transmitted automatically to the project dam safety database. Most of the monitoring stations are solar powered since they are distributed across the 6,000 foot long crest and toe area of the dam.



Engineer's wide area computer network is used to communicate the data to two PCs that display the real time instrument readings and alarm conditions at the project office and in Portland, Oregon. The PC in Portland also automatically loads the logged historical data into a project database where it is reviewed by dam safety personnel from workstation PCs connected to the computer network.



Data is transmitted from the MCUs to the nearby project office using a spread spectrum radio network. The U.S. Army Corps of

The ADAS provides the real time alarm conditions for the weirs to powerhouse operations personnel at a nearby project through integration with the project SCADA system.

Dam Cross Section

