



Gravity Arch Dam

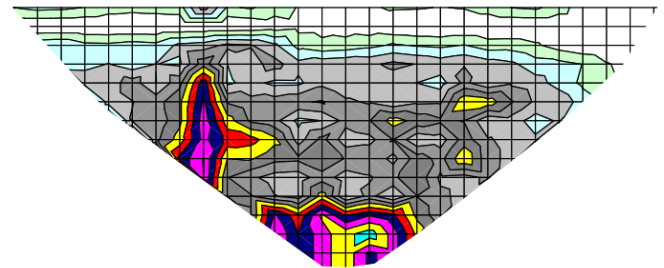
Baseline Structural Evaluation and Continuous Monitoring

Client:

AECOM

Project:

This Dam is located in the Sierra Nevada Mountains and is a Jorgensen type, constant angle, variable radius, concrete arch dam with a crest length approximately 137 metres and a height at the center of 36.5 metres. A protective membrane was installed on the upstream face in 1997. As part of an overall study of Dam, STRAAM conducted a dynamic investigation during October 2010. The objective of this investigation was to ascertain the dynamic properties of the dam and to assist with the validation of a mathematical model of the structure and used to compare with future measurements.



Benefit to the Client

The Dam has been subjected to numerous tests in order to determine the extent of damage that has occurred from freeze/thaw affect. The various tests for concrete strength, taken together, showed that the strength distribution was quite complex, but that the properties throughout the dam could not be ascertained because of inaccessibility. Because of this a FEM model was created using an assumed loss of stiffness. AECOM used STRAAM's methodology to adjust and verify their assumptions so that the FEM more accurately modeled the actual condition of the dam. STRAAM has provided a long term monitoring system that will alert AECOM to any further damage that occurs.

Instrumentation



STRAAM Group has developed the SKG (Structurocardiograph) which is a self-contained, modular, ruggedized precision data acquisition system. These are very low noise recording devices that provide an on-site preliminary analysis facility. Connected to the SKG are ultra-low noise accelerometers, these devices are tri-axial and have been developed over a long period and we initially developed for military purposes. Due to the remote area a satellite and solar panels are used to power the system and export the data to our internal servers.