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DAMS · IN SITU STRESS MEASUREMENTS

Santeetlah Dam, Robbinsville, North Carolina

Overcore stress measurements from a barge and an inspection tunnel showed Santeetlah Dam's arch was not bending from expansion of its buttresses.

CLIENT	LOCATION	WORK
Alcoa	**Robbinsville, North Carolina**	**Dams, In Situ Stress Measurements**

Santeetlah Dam, a concrete arch dam near Robbinsville, North Carolina, was constructed in 1928. Ten years later, two large buttresses were constructed on the downstream side of the dam. The owner, Alcoa Aluminum Company, was concerned that an alkaline-aggregate reaction might be occurring in the buttresses and that expansion of the buttresses caused by the reaction might be pushing the top of the concrete arch upstream.

In order to determine if the dam was experiencing bending due to the expansion of the buttresses, in situ stress measurements were conducted in the concrete arch. Three angled overcoring holes were drilled opposite each buttress from a barge located on the upstream side of the dam, just above the water level. A fourth hole was drilled inside the dam from a narrow inspection tunnel using DA Smith's* air-powered, man-portable CP-65 core drill. Measurements indicated that the dam was not experiencing significant bending stresses due to expansion of the buttresses.

* Formerly as Agapito Associates, Inc.



