CASE HISTORY

Application:	**Identification of fractures**
Technology:	**High Resolution Optical Televiewer, High Resolution Acoustic Televiewer**
Location:	**Tummel Bridge hydro-electric power station, Perth and Kinross, Scotland**

The **Tummel hydro-electric power scheme** is located in the Grampian Mountains, between Loch Ericht, Loch Rannoch and Loch Tummel, in Perth and Kinross, Scotland.

The water flows from Loch Rannoch down to Loch Tummel via a small reservoir at Dunalastair, from which it is carried in a 15m wide aqueduct to the next power station at Tummel Bridge.

The two generating sets, completed as early as 1935, can produce a total of 34MW and they are unusual in that each turbine has two horizontal runners and spiral casings.

This 34MW output is now being upgraded to 45MW.

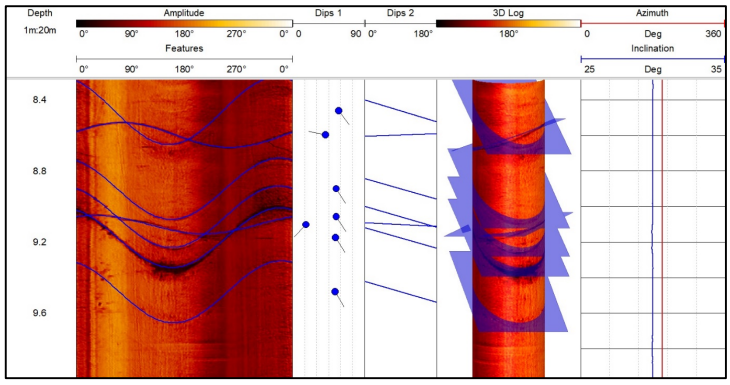
Robertson Geo have been contracted in by BAM Ritchies to run their Optical and Acoustic Televiewers to identify any present fractures. Multiple boreholes were logged, with the majority being inclined at 30 degrees from the vertical.

How the Optical Televiewer works:

The High Resolution Optical Televiewer (Hi-OPTV) provides a continuous very high resolution-oriented image of the borehole wall using a conventional light source. A unique optical system based on a fisheye lens allows the probe to survey 360 degrees simultaneously. This information is processed in real time to produce a complete 'unwrapped' image of the borehole oriented to magnetic north.

Immediate data:

In addition to the image data being inspected in real time as the logging proceeds; upon completion of the log, the image can be viewed in detail if immediate results are required. The fast turnaround of images in the field is now a common requirement for geotechnical personnel and geologists who need to make quick decisions on depths for further tests or for installations. This was something the client requested on this operation.



Processing:

All Televiewer data is fully oriented, usually with respect to magnetic north. The tilt and azimuth of the borehole are always recorded to allow correction to true vertical depth and to provide automatic correction for the delineation of features.

Data processing of acoustic and optical images is normally performed in the same way. An empty log is placed over the image and populated by manually picked orientations; sinusoids are fitted over selected features. After picking, the features can be displayed as a tadpole plot, slab core, rose and polar diagrams and other various options depending upon the client's request.