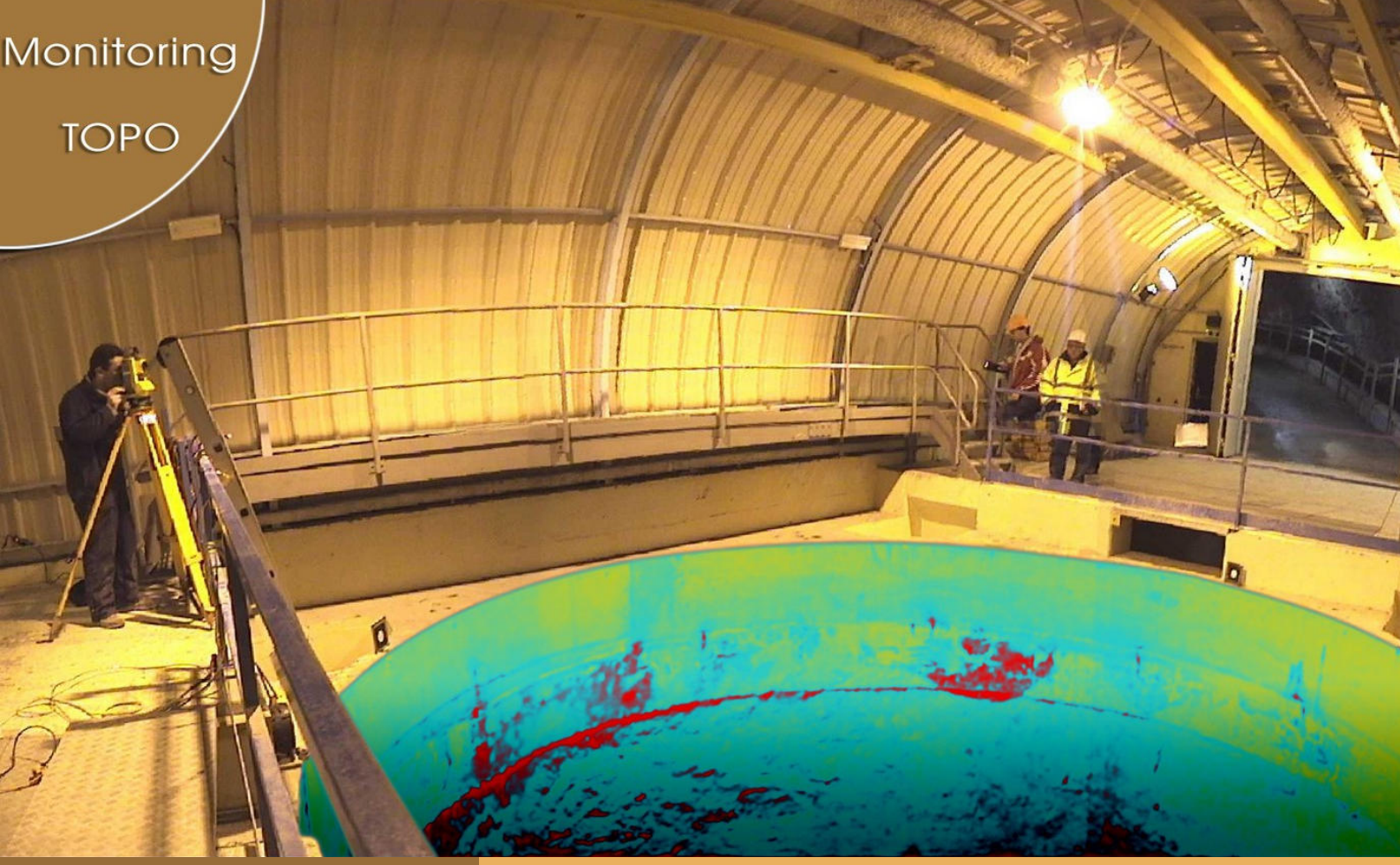
Monitoring

TOPO



PROJECT

PROJECT DATE:
February 2008

DESCRIPTION:
Chooz A nuclear power plant
Client: CNRS IN2P3
Modelling of a cylindrical shaft, 7m in diameter x 7m in height

RESOURCES:
2 engineers
1 3D scanner
1 M3 theodolite

CONDITIONS:
1 day of surveying
Qualified nuclear personnel

RESULT:
3D deviation plot
4 scanner positions
138 profiles
Overall accuracy to 1.37 mm
Max. deviation detected: 38 mm

3D LASER SCANNING OF A SHAFT FOR SCIENTIFIC RESEARCH

At the heart of the former Chooz A nuclear power plant, the CNRS (National Centre for Scientific Research, France) has access to a shaft excavated in rock for the analysis of the billions of neutrinos which pass through the earth every second. In order to ensure the reliability of analyses, the CNRS wished to obtain a 3D digital model for the identification of flatness deviations in the excavated surfaces.

By scanning the interior of the cylindrical shaft, Urbica has been able to compare a theoretical model with an as-built model. From 4 scanning shots, the Urbica team has generated several tens of millions of 3D points. The resulting file has been used for the generation of 138 horizontal and vertical profiles, with a spacing of 10 cm. The CNRS also wished to obtain a deviation plot for the shaft. This 2D image highlights irregularities in the shaft (in comparison with a perfectly geometrical model) using a scale of colours. By the straightforward location of deviations detected (up to 38 mm or greater), the 3D scan has assisted the completion of civil engineering finishing works at the research centre.

In addition to the benefits of flatness control, 3D scanning provides an as-built 3D model of the existing structure. This model is necessary for the completion of calculations for the interpretation of neutrinos. As for the analysis of neutrinos – watch this space!

For more information, please consult the Urbica team.

Urbica
The 3D Laser Survey

2 rue Aimé Laperruque – BP 67 – 93700 Drancy Cedex – France Telephone: +33 141 500 036 scan@urbica.net www.urbica.net