

SEISMIC MONITORING OF A BRINE PRODUCTION FACILITY

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SUMMARY

Solvay is producing brine on its site at Buriano, Italy, by leaching a salt layer, 20 meters thick at a depth between 150 and 350 m.

This salt mining may be accompanied by sudden and uncontrolled subsidence.

This problem has been recognized for a long time by Solvay as a safety problem. Solvay asked Géostock in 1978 to set up a local monitoring system on this site able to raise reliable warnings on the hazardous zones.

The seismic monitoring system in its latest version revised in 1992 includes 18 seismic stations distributed all over the site. These 18 channels are permanently monitored by the Géostock monitoring system named "SEIS-SCOPE®".

This continuous monitoring allows to detect and digitally record all the seismic events occurring within the site or in its vicinity. This information is used at two levels:

- on a daily basis, all the events are displayed and studied by a member of the Solvay staff, especially trained in this exercise. As regards safety, this allows to determine which zones are currently accessible and which zones are forbidden, in relation with seismicity.
- on a longer term, the events are interpreted by a specialist from Géostock. The analysis can produce epicenter maps of the seismic activity. This information is closely related to the water injection. In addition to the spatial localization, attempts are also made to investigate the time distribution and the possible time occurrence of ground subsidence in hazardous zones, if any.