STRATEGIC INTELLIGENCE
fueled by **SCIENCE**

Real-time Monitoring with High Performance Seismic Array

Bayou Corne Sinkhole, Louisiana, USA

The Problem:
The collapse of the Napoleonville Salt Dome in August 2012 produced a large sinkhole located 1300 feet from the community of Bayou Corne in Assumption Parish, Louisiana. Community residents and state officials, including the Louisiana Department of Natural Resources, were concerned about gas leaks, subsidence and earthquakes.

Our Solution:
As a key component of the ongoing seismic monitoring study, Nanometrics was contracted to install a turnkey permanent seismic array with high performance broadband seismometers for scientists and local authorities to closely monitor the seismic activity in the area. New Trillium Posthole Seismometers were deployed, as used by the US Geological Survey in their temporary array, except these instruments are in ~80ft boreholes to improve signal quality and reduce site noise. Unlike traditional geophones, the Trillium Postholes are able to detect lower frequency events, which is key to monitoring induced and triggered seismicity.

Despite extremely challenging and wet environmental conditions, the Nanometrics seismic engineering team quickly and efficiently deployed a total of 7 stations in the bayou. The seismic network consists of 6 Trillium Posthole Seismometers located in 15-21m depth shallow postholes as well as a vertical instrument array. The array consists of a Trillium Compact Seismometer located at the bottom of a 137m hole with two more geophones placed on top of the Trillium Compact Seismometer at 50m depth increments.

Nanometrics has since been awarded the contract to acquire the data, monitor and maintain the seismic network as well as provide daily data processing. The results are published in Athena, Nanometrics proprietary events publishing web site, as the data must be made publicly available. The data acquisition and management is handled by Apollo Server software, which provides live feeds to IRIS Data Management Center and the University of Memphis.

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