

A SIMPLE METHOD FOR EVALUATING THE VOLUME OF UNDERGROUND CAVITIES

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Abstract

Quite often natural or artificial underground cavities are not accessible, but through a drill hole of small diameter. The cavities can be hydrocarbon storage caverns, solution mining cavities, karstic voids, etc... The cavity and the drill hole are filled with fluid (water, air, brine, oil etc...)

As for direct access to the cavity is impossible, informations on the volume and shape of the cavern must be obtained through sophisticated devices. We suggest in this paper to use a free information, namely the period of the natural vibration of the fluid which can be easily measured at the well head. This period appears to be proportional to the square root of the volume of the cavity.

The theoretical bases are given and two real examples offer the possibility of evaluating the interest of the method.

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