

Techniques for Cavity Revalidation under Gas Pressure

Natural gas storage cavity H165, developed by ICI at Holford in Cheshire, is an important strategic gas installation for the North West area of British Gas. The cavity, which has been in operation for almost ten years, has a free volume of 175,000m³ and a daily releasable volume of gas of 2 million m³. ICI required, in line with their policy to demonstrate “fitness for purpose”, to carry out a full revalidation of the cavity and access boreholes. In order to reduce downtime during the inspection and revalidation, ICI has departed from their original practice of refilling the cavity with brine and carried out the revalidation work under gas pressure. As a result cavity downtime was reduced from eight months to five weeks resulting in a major financial saving for both parties.

Before the inspection work could start however, the wellhead needed modification to allow access for inspection equipment and this work had to be carried out with gas at pressure in the cavity. British Gas pipeline isolation technology was used in a novel way to provide a high integrity seal in the wellhead to allow the top flange to be removed and replaced with a large bore valve.

This paper has been prepared jointly by ICI and British Gas to describe how this operation was carried out under live gas conditions and details some of the methods employed for the revalidation of the installation.

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