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INFAMOUS SALT FAILURES IN LOUISIANA AND SUBSEQUENT IMPACTS ON THE REGULATORY ENVIRONMENT

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Abstract

A series of twentieth century failures at both room and pillar and solution-mining sites in Louisiana have influenced the development of federal and state regulations. Historic regulatory response has tended to be incremental and limited to failure root causes and local rescue and recovery. Recent regulatory revisions by the State of Louisiana are a comprehensive effort to detect and manage precursors to failure and prevent operational disasters in solution-mined caverns.

The Carey Salt Mine in the Winnfield salt dome flooded over a period of two days in November 1965 with no loss of life. A shaft collapse due to rapid subsidence at Belle Isle in 1972 resulted in no fatalities; the mine was permanently closed in 1984 also due to subsidence and subsequently flooded. On November 20, 1980, at Jefferson Island dome, oil drilling operations penetrated the 1,300 ft. level of the Diamond Crystal Salt Mine, flooding the mine with no loss of life.

Currently, the health and safety in room and pillar mines are regulated under Federal statutes. In 1973, in response to a mine fire with high fatalities at Belle Isle and a fire in the Sunshine silver mine in Idaho also resulting in high fatalities, the Mining Enforcement and Safety Administration (MESA) was created, establishing a Federal agency for safety and health enforcement. The Mine Safety and Health Administration (MSHA) was subsequently established in 1977 within the Department of Labor, consolidating federal coal and metal/nonmetal health and safety regulations.

Solution-mining failures in Louisiana comprise of two cavern collapses. Cavern 7 at Bayou Choctaw dome collapsed in January of 1954 after aggressive solution-mining without a blanket leached the cavern roof to the caprock. Cavern collapse began at the wellhead and resulted in a surface depression eventually known as Cavern Lake. The most recent cavern collapse occurred at Napoleonville Dome when the west wall of a plugged and abandoned solution-mining cavern collapsed. The collapse propagated to the surface on August 3, 2012, and a large sinkhole developed, now known as the Bayou Corne sinkhole. Interestingly, although there have been two solution-mining cavern collapses resulting in surface expressions in Louisiana, no storage caverns have collapsed to date.

State Underground Injection Control (UIC) oversight of solution-mining wells was initiated in 1982 when the United States Environmental Protection Agency (EPA) delegated primacy of its

UIC Program to Louisiana. New state regulations for solution-mined caverns were promulgated on February 20, 2014 in response to the Bayou Corne incident.

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