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to: Bryan Howard, 6821, MS1395

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subject: Recompletion of Cabin Baby-1

The following memorandum summarizes the history of Cabin Baby-1 and the recompletion activities recently performed in the well.

History of Cabin Baby-1

Well Cabin Baby Federal No. 1 (Cabin Baby-1) is located 2000 ft south of the southern WIPP site boundary in the northeast quarter of Section 5, Township 23 south, Range 31 east. Cabin Baby-1 was originally drilled in 1974 and 1975 as a wildcat well by the M.P. Grace Company under lease number 0545110. It was drilled to a total depth of 4150 ft below ground surface (bgs) in the Bell Canyon Formation and cased with 13.375-inch outside diameter (O.D.), 71 lb/ft casing from ground surface to a depth of approximately 650 ft bgs, which appears to be a few feet above the contact between the Rustler and Salado Formations. The well was temporarily abandoned by M.P. Grace in 1975 after it proved to be a dry hole.

In January 1978, the DOE requested that the Bureau of Land Management (BLM) transfer ownership of the well to the DOE "to acquire hydrologic data from geologic formations below the Castile." BLM approved the transfer on February 7, 1978. In August 1983, D'Appolonia Consulting Engineers (acting on behalf of the DOE) reentered Cabin Baby-1 and deepened it to a new total depth of 4290.6 ft bgs in the Bell Canyon Formation (Beauheim et al., 1983). Caliper logs run in 1983 prior to deepening Cabin Baby-1 showed that the original hole had washed out to an average diameter of approximately 14 inches through the Salado Formation, was drilled at 10.5 inches through the upper Anhydrite III and Halite II units of the Castile (to approximately 3365 ft bgs), and was drilled at a diameter of 8.5 inches through the remainder of the Castile and through the Bell Canyon Formation. The Castile anhydrite units had uniform diameters and the halite units were enlarged to varying degrees. As part of the deepening, the lower and new portions of the hole were reamed to a diameter of 9.875 inches.

D'Appolonia performed drillstem tests (DSTs) and/or slug tests of four intervals within the Bell Canyon to assess its permeability and hydraulic head. At the completion of testing in September 1983, they set a 7.375-inch production-injection packer (PIP) from 4028 to 4033 ft bgs in the lower anhydrite of the Castile Formation. The PIP was set on 2.375-inch tubing open to the Bell Canyon below. Approximately 4450 gallons of brine were swabbed from the tubing to remove drilling fluid and draw native Bell Canyon brine into the well. The final fluid swabbed had a specific gravity of 1.128.