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Waste Isolation Pilot Plant

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Date: August 19, 2003
From: Rick Beauheim, 6822 *Rick Beauheim*
To: Dave Kessel, 6821
Subject: Culebra and Magenta Pressures to Use in CRA BRAGFLO Runs

The best values to use in BRAGFLO for Culebra PRESSURE and Magenta PRESSURE in an intrusion borehole over the center of the WIPP panels are 9.141E5 Pa and 9.465E5 Pa, respectively. These values were derived as follows:

Well C-2737 is a Culebra-Magenta dual-completion well located over the center of the WIPP waste panels. In December 2002, Culebra and Magenta water levels in C-2737 were at elevations of 3016.91 and 3141.61 ft above mean sea level (amsl), respectively (Travis, 2002). The ground surface elevation at C-2737 is 3397.14 ft amsl (Powers, 2002). The Culebra lies from 675 to 698 ft below ground surface (bgs) at C-2737, and the Magenta lies from 561 to 584.3 ft bgs (Powers, 2002). Therefore, the Culebra water level was 306.27 ft above the center of the Culebra $(3016.91 - (3397.14 - ((675 + 698) / 2)))$, and the Magenta water level was 317.12 ft above the center of the Magenta $(3141.61 - (3397.14 - ((561 + 584.3) / 2)))$. Converting to Pascals ($\# \text{ ft} \times 0.3048 \text{ m/ft} \times 1000 \text{ kg/m}^3$ (density of water) $\times 9.792 \text{ m/s}^2$ (acceleration of gravity at WIPP; Barrows et al., 1983, p. 30)), 306.27 ft of water equals 9.141×10^5 Pa. Similarly, 317.12 ft of water equals 9.465×10^5 Pa.

References:

Barrows, L.J., S.-E. Shaffer, W.B. Miller, and J.D. Fett. 1983. Waste Isolation Pilot Plant (WIPP) Site Gravity Survey and Interpretation. SAND82-2922. Albuquerque, NM: Sandia National Laboratories.

Powers, D.W. 2002. Basic Data Report for Drillhole C-2737 (Waste Isolation Pilot Plant – WIPP). DOE/WIPP 01-3210. Carlsbad, NM: US DOE.

Travis, S.T. 2002. "Transmittal of the Annual Groundwater Level Data for 2002", memo to D. Kessel, Sandia National Laboratories, December 19, 2002. DA:02:01855. Carlsbad, NM: Westinghouse TRU Solutions LLC. ERMS 530887.

J. Kay 08/19/03
Technical Review

Maria M. Sebell 20 Aug 03
QA Review

cc: J.S. Stein, 6821
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Exceptional Service in the National Interest

Information Only

WIPP:1.3.5.1.3.1: PDD:QA-L: PKG 526660