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October 12, 2012

Mr. Keith I. McConnell, Deputy Director  
Decommissioning and Uranium Recovery Licensing Directorate  
Division of Waste Management and Environmental Protection  
Office of Federal and State Materials and Environmental Management Programs  
U.S. Nuclear Regulatory Commission  
11545 Rockville Pike  
# 2 White Flint, Mail Stop T7 E-18  
Rockville, MD 20852-2738

Re: Groundwater Flow Model of the  
Church Rock Site and Local Area  
Materials License No. SUA-1475  
United Nuclear Corporation's Church Rock Tailings Site, Gallup, New Mexico

Dear Mr. McConnell:

On behalf of United Nuclear Corporation (UNC), Chester Engineers has prepared this report on the development of a three-dimensional, numerical groundwater flow model (Flow Model) of UNC's Church Rock Mill and Tailings Site and the adjacent down-gradient region northeast of Gallup, New Mexico. The purpose of this report is to describe the Flow Model: its conceptual basis, the methods of its development, its capabilities, and its limitations.

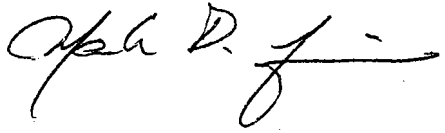
The principal objective of the Flow Model is to support decision making related to Alternate Concentration Limit (ACL) applications that may potentially be submitted to the NRC. As the potential for such applications is anticipated to be greatest for the Zone 3 hydrostratigraphic unit, that unit is the focus of interest of the Flow Model. The definition of this unit and its context with respect to the Site and the broader groundwater flow system are described in this report.

The Flow Model report is provided as a single pdf on each of the enclosed CDs. This report will not be provided in hard copies unless we are specifically asked to do so. The reader may find it useful to be able to zoom into many of the pdf figures. First-order bookmarks will help to navigate through the report contents.

Please contact James Ewart (724-789-7610) or Mark Jancin (814-231-2170 x 20) if you have any questions or need additional information.

Mr. Keith I. McConnell, NRC  
October 12, 2012

Sincerely,



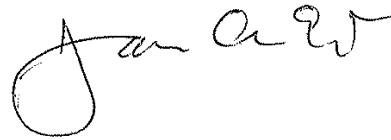
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Project Manager  
[mjancin@chesterengineers.com](mailto:mjancin@chesterengineers.com)

kc122: 12-6209-SC-122

Enclosures (2 CDs)

cc with enclosure:

Yolande Norman, U.S. Nuclear Regulatory Commission (2 CDs)  
Janet Brooks, U.S. Environmental Protection Agency (2 CDs)  
Earle Dixon, New Mexico Environment Department  
Eugene Esplain, Navajo Nation Environmental Protection Agency  
Larry Bush, United Nuclear Corporation  
Roy Blickwedel, General Electric Corporation (2 copies)



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