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U.S. Nuclear Regulatory Commission
ATTN: Deborah A. DeMarco
Office of Nuclear Material Safety and Safeguards
Two White Flint North
Mail Stop 7 C6
Washington, DC 20555

Subject: Submittal of Abstract: Hydrostratigraphic characterization of a semi-arid alluvial fan: Fortymile Wash, Nevada

Dear Mrs. DeMarco:

Enclosed is an abstract for presentation at the 2000 National Geological Society of America Meeting. This abstract is based on work done by Theodore Ressler and John Sharp of the University of Texas, Ken Ridgeway of Purdue University, and John Stamatakos of the CNWRA. The abstract describes CNWRA's current ongoing investigations of the alluvium in Fortymile Wash in order to develop a model of the hydrostratigraphy southeast of Yucca Mountain. Following programmatic acceptance by the NRC, this abstract will be submitted to the GSA Meeting organizing committee for presentation at the National meeting.

If you have any questions please contact Dr. John Stamatakos at (210) 522-5247 or me at (210) 522-5252.

Sincerely,

Budhi Sagar
Technical Director

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Enclosure

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HYDROSTRATIGRAPHIC CHARACTERIZATION OF A SEMI-ARID CLIMATE ALLUVIAL FAN: FORTYMILE WASH, NEVADA

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Information on the structural and stratigraphic control of groundwater within the alluvium south and southeast of Yucca Mountain is needed for groundwater models used in performance assessment calculations of the proposed nuclear repository at Yucca Mountain. Fortymile Wash is a large alluvial fan system located east-southeast of Yucca Mountain in southwestern Nevada. Fortymile Wash extends south-southwest from Yucca Mountain into the Amargosa Desert, and is rimmed in its upper reaches by smaller transverse fans emerging from the surrounding uplands. The modern channel of Fortymile Wash is entrenched, providing several substantial outcrops of alluvium along the longitudinal axis of the fan.

A detailed investigation of the outcrops of alluvium was completed to study the sedimentary architecture and hydraulic properties of the alluvium. The exposed alluvium was subdivided into facies according to sedimentary features and deposit geometry. Gamma ray and density measurements from the outcrops were used to develop simulated wire line logs for comparison to wire line logs from recently completed boreholes within Fortymile Wash. Laboratory permeability tests on sediment samples and in-field air minipermeameter measurements were completed to investigate the variation in permeability between the different identified facies. The results will be used to develop a conceptual model of the hydrostratigraphy of the Fortymile Wash alluvium to assist in development of revised groundwater flow models.
[This work is supported by the U.S. NRC (Contract NRC-02-97-009). This abstract is an independent product of the CNWRA and does not necessarily reflect the views or regulatory position of the NRC.]

Keywords: Fortymile Wash, Yucca Mountain, alluvial fan, permeability, hydrostratigraphy