UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON NUCLEAR WASTE
WASHINGTON, DC 20555 - 0001

June 25, 2007

MEMORANDUM TO: ACNW&M Members

FROM: Antonio Dias, Branch Chief ***/RA/***
ACNW&M

SUBJECT: ATTENDANCE AT 2007 DEVILS HOLE WORKSHOP AND EXPERT PANEL ON PROBABILISTIC VOLCANIC HAZARD ASSESSMENT-UPDATE

Neil Coleman (ACNW&M Senior Staff Scientist) attended the Devils Hole Workshop and associated field trip in the Amargosa River basin during May 2-4, 2007. He then attended, with William Hinze (ACNW&M member) and Bruce Marsh (ACNW&M consultant) portions of Workshop #4 of the Probabilistic Volcanic Hazard Assessment - Update (PVHA-U) during May 10-11, 2007. On May 9, 2007 and portions of May 10-11 this team of individuals (including Ruth Weiner, ACNW&M member, on May 9) also participated in working sessions to review and finalize chapters of the ACNW&M white paper on igneous activity at Yucca Mountain. The joint report for these meetings is attached.

If you have any questions please contact Neil Coleman at 301-415-7656.

Attachment: As stated

cc w/att:
L. Reyes
F. Gillespie
S. Jones
L. Kokajko
ACNW&M Staff

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DOCUMENT NAME: G:\Coleman\Devils Hole Trip report May 2007.wpd
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Devils Hole Workshop (May 2-4, 2007)
Furnace Creek, Death Valley, California

Neil Coleman (ACNW&M Senior Staff Scientist) attended the Devils Hole Workshop at the National Park Service auditorium at Furnace Creek in Death Valley, California. This meeting provides overviews of the geology, hydrology, history, and aquatic biology for the region that includes Death Valley, the Amargosa Desert, and the Nevada Test Site. Technical presentations and abstracts of particular relevance to Yucca Mountain are listed below, along with specific observations:

Recent Applications of the Death Valley Regional Groundwater Flow System Model - C. Faunt et al.

- The 2004 Death Valley Regional Flow System (DVRFS) model is being revised to provide detailed simulated hydraulic head and flow values. The fine-resolution Amargosa model will be embedded in the 2004 DVRFS model using the local grid refinement techniques available in MODFLOW-2005.

Regional Geophysical Investigations and Implications for the southern Amargosa Desert Embedded Model, California and Nevada - R. Blakely et al.

- Using gravity measurements, well information, and geologic mapping the authors have developed a preliminary east-west crustal model through Devils Hole and across the Amargosa trough. This model predicts approximately 2 km of vertical offset on the Gravity fault.

Crater Flat Basin as a Propagating Rift in the Amargosa Trough, Nevada - D. O'Leary

- A rift propagation model was proposed for Crater Flat basin, based on stress history and on analysis of satellite image data and high-resolution aeromagnetic data. The model provides a context for the Miocene to Pleistocene basaltic volcanism in this area.

Long-Term Water Level Trends in Pahrump Valley - T. Buqo

- A map of 2004 depths to water in Pahrump Valley was presented, along with future projections. Water-level data for high elevation wells in the Spring Mountains show high seasonal variability, the effects of drought, and the effects of wet years

The Amargosa Conservancy: One year Later - B. Brown

- The Conservancy seeks to protect the land, water, and beauty of the Amargosa. They advocate the installation of a monitoring system to establish baseline data for spring flows in the southern Amargosa region. The Conservancy also seeks to control invasive phreatophyte species and to partner with others to support economic sustainability that protects the land, water, and beauty of the Amargosa.

Yucca Mountain Performance Confirmation Program: An Update - R. Henning et al.

- This DOE program provides information to confirm that subsurface conditions encountered during construction and waste emplacement operations are within

assumed limits. It also provides information to confirm the natural and engineered systems and components required for repository operation.

Yucca Mountain Saturated Zone Site-Scale Flow Model - S. James

- This presentation described work to update the Yucca Mountain hydrogeologic framework model using the latest lithology data, Nye County drilling and testing data, and increased grid resolution. Faults are much better represented using the 250 x 250 m^2 numerical grid spacing.

Radionuclide Transport from Yucca Mountain and Inter-basin Flow in Death Valley - J. Bredehoeft et al.

- The authors reported results of research that indicates there is groundwater flow between the alluvial and carbonate aquifers both at Yucca Mountain and in Inyo County, CA. Characterization of the Lower Carbonate Aquifer is of interest to Inyo County because it is the primary water supply in Death Valley National Park, and the upward gradient from this aquifer at Yucca Mountain provides a natural barrier to radionuclide transport.

Analysis of Cross-Hole Hydraulic Tests Conducted in the Alluvium at the Nye County, Nevada, Early Warning Drilling Program Site 22 in 2003 - A. Umari and J. Earle

- At the Nye well 22 complex the water table is 474 ft deep. Cross-hole tracer tests conducted in 2003 indicate a leaky-confined aquifer response, and transmissivity values of 1930 to 5750 ft^2/day, storativity values of 0.000175 to 0.0024 (dimensionless), and leakance values from 0.00162 to 0.412 day^{-1}. The analysis method applied was that of Hantush (1956). These results will provide important data for the site-scale saturated zone model.

Constraining Estimates of Long-Term-Average Net Infiltration at Yucca Mountain - S. Stothoff

- Climatic inferences are consistent with an increase in mean annual precipitation of ~1.7 to 1.9 times present day and a decrease in mean annual temperature of ~5 to 6°C at the last glacial maximum (~20,000 years ago).

Characterization of Rapid, Localized Groundwater Transport in the Crater Flat Tuffs, Yucca Mountain - B. Friefeld

- Fluid electrical conductivity logging and thermal perturbation measurements were conducted in Nye well 24PB. The tested zone was near the zone where the water table transitions from the volcanic aquifer system to the overlying alluvium.

Infiltration History and Spatial Variability Derived from Chloride Mass Balance and Groundwater Chemistry - A. Woocay and J. Walton

- Samples from five Nye County Early Warning Drilling Program boreholes indicate that infiltration rates over the past 5,000-30,000 years have been negligible at the locations tested.

Field Trip to Selected Locations in the Amargosa River basin

On Friday, May 4th, 2007 a field trip was led by the Amargosa Conservancy to visit riparian environments in Shoshone, Tecopa Hot Springs, the Grimshaw Lake Complex, China Ranch, and other locations. A key observation from this field trip is that many riparian areas in the Amargosa are dependent on relatively small flows of surface water that would be susceptible to the effects of future groundwater withdrawals.

Workshop #4 of the Probabilistic Volcanic Hazard Assessment (PVHA) - Update
Las Vegas, Nevada, May 10-11, 2007

This was the final public meeting of the PVHA-Update expert panel. The goals of this workshop were as follows:

- Focus on feedback on the models and assessments from the elicitation interviews, the methods and approaches that were used by each expert, their associated uncertainties, and sensitivities of interim results to elements of the analysis.
- Discuss possible differences in volcanic event definitions used by each expert and other sources of possible diversity in interpretation that are due to different assumptions or models.
- Allow the expert panelists to understand the relative importance of various technical issues.
- Following the workshop, the experts will have an opportunity to consider the feedback discussed, review additional feedback provided for their specific assessments, and to revise and finalize their assessments.

The workshop consisted of six sessions, which included the following:

- Overview of PVHA-U goals and approach
- Summary of expert assessments - volcanic event definition
- Introduction to sensitivity analyses
- Summary of expert assessments - spatial models
- Summary of expert assessments - temporal models
- Hazard sensitivities and important issues

The remaining schedule for PVHA-U includes expert feedback interviews (June 2007), finalization of the experts elicitation summaries (July 2007), analysis of final hazard calculations and aggregation of expert assessments (July 2007 to January 2008), and preparation of the final PVHA-U report (November 2007 to June 2008).