

CENTER FOR NUCLEAR WASTE REGULATORY ANALYSES

TRIP REPORT

SUBJECT: Devils Hole Workshop

DATE/PLACE: May 29–31, 2002
Pahrump, Nevada

AUTHORS: J. Winterle

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PERSONS PRESENT: J. Winterle, Center for Nuclear Waste Regulatory Analyses (CNWRA)

Presenters at this year's workshop included representatives of the following groups: Clark and Nye Counties, Nevada; Inyo County, California; Timbisha Shoshone Tribe; Nevada State Engineer's Office; Nevada Test Site; University of Nevada, Las Vegas; National Park Service; The Nature Conservancy; Yucca Mountain Project; U.S. Geological Survey; U.S. Fish and Wildlife; Community Advisory Board for NTS Programs; Citizen Alert; and U.S. Department of Energy, Underground Test Area Project.

BACKGROUND AND PURPOSE OF TRIP:

Devils Hole, the only known natural habitat of the endangered Devils Hole pupfish, is located within the Crater Flat Basin of the Death Valley Regional Groundwater Flow System—the same groundwater basin as Yucca Mountain. The Devils Hole Workshop is held annually at various locations within the Death Valley and Southern Nevada regions. The workshop attendees and presenters generally represent a diversity of earth science and public service disciplines, with common interests in optimal use of water resources within the Devils Hole region and the interplay between water consumption and fragile desert ecosystems.

SUMMARY OF PERTINENT POINTS AND ACTIVITIES:

There were several presentations of relevance to U.S. Nuclear Regulatory Commission (NRC) reviews of the Yucca Mountain site:

- Scott Stinson and Dave Cox of Questa Engineering, consultants to Nye County, Nevada, presented results from hydrologic testing in wells at the Alluvial Testing Complex. Preliminary estimates of permeability in three wells at the Alluvial Testing Complex were consistently in the range of about 2.1 to 2.5 darcy. These estimates are about a factor of ten greater than the preliminary estimates reported by U.S. Geological Survey staff in the Alluvial Testing Complex test plan. The Alluvial Testing Complex test plan is currently being reviewed by NRC staff to address two key technical issue agreement items.
- Nye County staff presented a poster with stratigraphic and geophysical logs of several wells that were recently completed for the Nye County Early Warning Detection Program. The information presented for two of these wells, NC-EWDP-10S and

NC-EWDP-22S, are currently not available from any other source. I talked with the Nye County staff members about similarities in the stratigraphic sequences of the wells situated along predicted flow paths from Yucca Mountain: a general observation is that the sequence of alluvial sediments is similar among the various wells, consisting of quite permeable (see previous bullet) silty sands with a gravel content that decreases with depth. I also had the opportunity to see and feel a sample of alluvium obtained from a coring device during well construction.

- Tom Buqo, a consultant to Nye County, displayed a poster of water-level trends in the Pahrump Valley region that showed a general declining trend. Mr. Buqo is also very involved in the planning, construction, and data collection activities at the Nye County Early Warning Detection Program wells near Yucca Mountain. I was able to discuss with Mr. Buqo the process by which Nye County makes Early Warning Detection Program data available via the Internet; he said that a high priority is currently being placed on compiling "meta-data" (e.g., verbal descriptions, observations, driller's notes, and other contextual information) to supplement the numeric and graphical data available on the Nye County Internet site (nyecounty.com). The time-consuming nature of compiling and reviewing meta-data has somewhat increased the time it takes to make new data available, however, the usefulness of the information improved with the meta-data.
- Charles Savard of U.S. Geological Survey presented a poster showing that water levels in wells in the immediate vicinity (i.e. within about 5 km) of Yucca Mountain show a general increasing trend for approximately the past five years. These wells could still be responding to the relatively wet period associated with the last El Niño Southern Oscillation event. These observed increases in water levels are only on the order of a few centimeters at most, and are not likely to significantly alter flow and transport pathways from Yucca Mountain. It will be interesting, however, to continue to monitor the trend in water levels as a possible indicator of response times to changes in climate conditions. Because the Yucca Mountain area has been in a relatively dry period for the past two years, one might predict water levels will ultimately begin to decline in response. Knowledge of response times of the saturated zone to changes in local recharge could ultimately provide useful constraints for calibration or validation of groundwater flow models.

There were many other presentations not directly related to Yucca Mountain that, nevertheless, provided useful insights into the regional hydrology and into the range of social and political issues that are affected by the availability of water resources in the region.

I had informal discussions with other workshop attendees on issues related to saturated zone modeling of the region and of the Yucca Mountain site. Richard Parizek, a member of the Nuclear Waste Technical Review Board, and David Diodato of the Nuclear Waste Technical Review Board staff were interested in learning more about the site-scale groundwater flow model recently developed at CNWRA. Dr. Diodato may request a visit to CNWRA to see a demonstration of the model.

A request was made for volunteers to host the next Devils Hole Workshop in 2003.

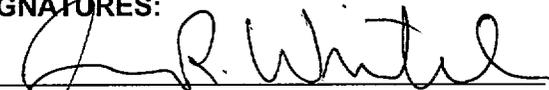
PROBLEMS ENCOUNTERED:

None.

RECOMMENDATIONS:

The Devils Hole Workshop provides a fabulous yet informal opportunity to keep a finger on the pulse of data collection activities within Death Valley Regional Groundwater Flow System that may be of interest to NRC reviews of Yucca Mountain Project. As in the past, I was impressed at the collegiality of the interactions among the workshop attendees, who represent such a broad diversity of social and political opinions regarding the use and protection of groundwater in the region. NRC and CNWRA staff should continue to participate in future workshops.

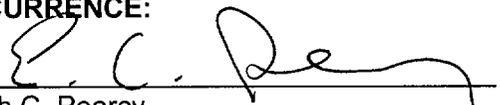
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Geohydrology and Geochemistry

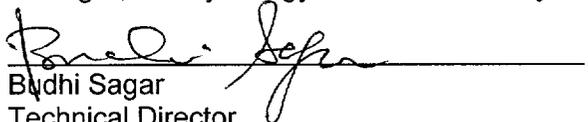
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