**Meeting to Discuss Studies on the Potential Groundwater Impacts in California From the Proposed High-Level Nuclear Waste Repository at Yucca Mt., Nevada**

**Monday, June 4, 2007**
**9:30 to 11:30 a.m.**
**Second Floor Conference Room**
**California Energy Commission**
**1516 Ninth Street**
**(Corner of 9th and P Streets)**
**Sacramento, CA**

Agenda

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|---|---|
| 9:30 to 9:40 a.m. | Welcome and Introductions<br>Vice Chair James Boyd<br>California Energy Commission |
| 9:40 to 9:45 a.m. | Introductory Comments<br>Barbara Byron, California Energy Commission |
| 9:45 to 10:00 a.m. | Overview of Inyo County Issues<br>Matt Gaffney, Inyo Co. |
| 10:00 to 10:45 a.m. | Overview of Inyo County's Groundwater Studies<br>Mike King, Hydrogeologist, Inyo Co. |
| 10:45 to 11:15 a.m. | State of Nevada's Groundwater Studies<br>Steve Frishman, Hydrogeologist, State of Nevada |
| 11:15 to 11:30 a.m. | Meeting Wrap-up |

www.inyoyucca.org

June 25th hearing @ Energy Commission on Yucca Mt. 9am

- Allison MIT Ecologist.

POTENIAL YUCCA MOUNTAIN GROUNDWATER IMPACTS MEETING
June 4, 2007
9:30 – 11:30 A.M.
Second Floor Conference Room

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|---|---|---|---|
| LARRY KIRSCH | DFG | 925-945-6732 | LKIRSCH@OSPR.DFG.CA.GOV |
| Brian Hembacher | AGO | 213 897-2638<br>213 897-2802 | Brian.Hembacher@doj.ca.gov |
| CINDI MITTON | CRWQCB LAHONTAN | 760-241-7413<br>760-241-7308 | cmitton@waterboards.ca.gov |
| KEVIN BELL | CEC | 916 654 3855 | kwbell@energy.state.ca.us |
| Bob Strand | CEC | 916 653-1618 | ~~rtstr~~ bstrand@energy.state.ca.us |
| James Giannopoulos | SWRCB | 916 3415680 | jgiannopoulos@waterboards.ca.gov |
| Lisa Babcock | SWRCB | 341-5687 | lbabcock@waterboards.ca.gov |
| JAN STEPEK | SWRCB | 341-5777 | jstepek@waterboards.ca.gov |
| Susan Durbin | AGO | (916)324-5475 | Susan.Durbin@doj.ca.gov |
| KIT CUSTIS | DFG | 916-445-3490 | kcustis@dfg.ca.gov |
| Chris Wills | CGS | 916 323-8553 | cwills@consrv.ca.gov |
| SUSAN BROWN | CEC | 916-654-4741 | SBrown@energy.state.ca.us |
| JIM BOYD | CEC | 916-654-3787 | Jboyd@energy.state.ca.us |
| BARBARA BYRON | CEC | 916-654-4976 | Bbyron@energy.state.ca.us |
| Michael Kirts | Hydrodynamics Inc | 425-787-6778 | hydrodynamics@vconnect.com |
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# INYO COUNTY YUCCA MOUNTAIN NUCLEAR WASTE REPOSITORY PROGRAM STATEMENT OF PROBLEM

The U.S. Department of Energy (DOE) is preparing a license application for a high-level nuclear repository for construction at Yucca Mountain, Nevada—just to the west of the Nevada Test Site and forty miles northeast of Death Valley, California. The repository is to be a mine in unsaturated volcanic tuffs beneath the mountain.

Underlying the Tertiary tuffs that make up the upper parts of the mountain at the site is a sequence of much older Paleozoic carbonate rock that is a good aquifer. Winograd and Thordarson (1975) working at the Nevada Test Site in the 1950s indicated that this large Paleozoic Carbonate Aquifer underlies a large area of southern and eastern Nevada and integrates the groundwater hydrology of a number of valleys in the region. Groundwater that flows beneath Yucca Mountain and the Nevada Test Site and discharges in large spring complexes to the south—Ash Meadows in Nevada, and the Furnace Creek springs in Death Valley, California. Flowing groundwater in the Paleozoic Carbonate Aquifer is one potential pathway by which contaminants from the proposed repository could reach the biosphere.

Working on behalf of Inyo County, California, the Hydrodynamics Group is concerned with the potential for contaminants from the Yucca Mountain Repository to reach the Paleozoic Carbonate Aquifer. A number of groundwater models of the hydrology of the area were created. Key models include Yucca Mountain Repository site model by DOE, several regional models by the USGS, and several models by our Group. The models show that should contaminants reach the Carbonate Aquifer they will almost certainly be quickly transported to the springs in Death Valley.

**What Protects the Carbonate Aquifer at Yucca Mountain**

Only one borehole, UE 25p1, reached the Paleozoic Carbonate Aquifer in the vicinity of Yucca Mountain; it penetrated the aquifer at a depth of approximately 1200 m (3900 ft). The aquifer was quite permeable with a low porosity—less than 1% porosity. It also had a hydraulic head in the Paleozoic Carbonate Aquifer that was 15 m higher than the hydraulic head in the overlying Tertiary volcanic rocks. This higher head has the potential to move groundwater upward from the carbonate into the overlying volcanic sequence of rocks. As long as the head relationship remains as presently observed, the carbonate is protected from contamination moving downward from the repository to the Carbonate Aquifer. Our group drilled a second deep Paleozoic Carbonate Aquifer observation well just to the northeast of the Funeral Mountains in California, adjacent to Death Valley National Park.

**A Potential Problem**

Hydraulic head is one of the more ephemeral of hydrologic conditions. Head is subject to change by development of groundwater for water supply in the Amargosa Valley south of the Repository site. The population of southern Nevada is growing rapidly. Local groundwater is looked to for a large portion of the water supply. Both the valley fill deposits and the Paleozoic Carbonate Aquifer are targets for development. Groundwater pumping, lowering the hydraulic head, could eliminate the upward hydraulic head gradient that serves as the barrier to contaminate movement into the Carbonate Aquifer at Yucca Mountain.