Yucca Dump Battered by Worker Illnesses, Project Mismanagement

In recent months, the U.S. Dept. of Energy's (DOE) Yucca Mountain Project has been slammed by technical criticisms and even accusations that, long before any high-level radioactive waste has been transported to the Nevada site, DOE's careless rush to open the dump has led to sicknesses and even deaths among its workers. Such tremors at Yucca (not to be confused with the earthquakes!) forewarn of major delays, skyrocketing costs, and threats to health and the environment.

In November, the U.S. Nuclear Waste Technical Review Board (NWTRB) -- an independent panel of scientists and engineers established by Congress and appointed by the President to oversee the technical validity of DOE's work at Yucca – warned that the repository's current high-temperature design would lead to serious corrosion of the waste burial containers. During the 1,000-year-long "thermal pulse" ("The period during which temperatures would be above boiling…"), calcium and magnesium chloride salts abundant within Yucca's tunnels would "deliquesce," dissolve gradually and become concentrated, highly corrosive liquid brines by attracting and absorbing moisture from the humid air within the mountain. NWTRB cautioned that "…under conditions associated with the DOE's current high-temperature repository design, widespread corrosion of the waste packages is likely to be initiated during the thermal pulse. Once started, such corrosion is likely to propagate rapidly even after conditions necessary for initiation are no longer present. The result would be perforation caused by localized corrosion of the waste packages, with possible release of radionuclides." (1) Dr. Paul Craig, who had served on the NWTRB since 1997, resigned in January so that he could speak out more freely against DOE's repository design (see "In Brief," Nuclear Monitor #604, Feb. 27, 2004). "My reading is the guys at the top at the Department of Energy are in such a rush to get approval, but the science is weak. They're rushing ahead. That's a bad idea," Craig stated. He concluded "Clearly, the Department of Energy needs to change the (repository) design because they do not have the confidence of the scientific community," which could cause many years of delay and add substantially to the dump's price tag. (2)

In early 2004, a scandal erupted at Yucca Mountain. Former workers who had drilled the 5 mile (8 km) long, 25 feet (7.6 m) in diameter "Exploratory Studies Facility" at Yucca between 1992 and 1997 alleged they had developed potentially fatal lung diseases due to their unnecessary exposures to toxic dusts in the tunnel. A 1991 Los Alamos National Lab study had warned that worker inhalation of silica and zeolite dusts, abundant in Yucca's rock, could cause "asbestos-like lung diseases." But scientists urged that water not be used to suppress dust, fearing disruption of their experiments on groundwater flow through Yucca. For years, workers were offered – but not even required to wear -- poorly-fitting paper "painters" masks to cover their mouth and nose. In 1994, the dust hazard was officially documented. But it took until 1996 for DOE to provide "more advanced respiratory protection equipment," which whistle-blowers allege still did not filter out cancer-causing, microscopic mineral fibers called "erionite". DOE has sent letters to 2,400 current and former Yucca workers and visitors who may have been exposed to the potentially-deadly dusts, and is offering free silicosis health screenings. (3)

Judy Kallas, a former industrial hygienist at Yucca, has alleged that her supervisor ordered her to falsify data about the extent of toxic dust contamination in the tunnel. "I said what they were telling me to do was illegal. Then they reminded me that the only reason I was there was because DOE required somebody with my credentials to be there," Kallas testified. A DOE Inspector General investigation is underway into the data falsification allegation.

In mid-March, whistle-blower Gene Griego filed a class action lawsuit against current Yucca contractor Bechtel-Science Applications International Corporation, tunnel-drilling sub-contractor Kiewit Construction of Nebraska, as well as former Yucca contractor TRW. He explained "I want some justice and to get medical attention for all these people who are sick now or will become sick. I want everybody who was involved in this thing held accountable." Griego now suffers from chronic obstructive pulmonary disease. He testified on March 16th before U.S. Senator Harry Reid of Nevada. Reid's own father, a Nevada miner, suffered from occupational silicosis. Griego paused to compose himself before concluding "I hope out of our meeting today that DOE and its contractors are held accountable for their actions." There are allegations that some former workers have already died from their Yucca-induced lung ailments.

Reid said "It seems the Department of Energy has once again risked health and safety to push through the Yucca Mountain project. They are trying to sell us a bill of goods that the project is safe…Yucca Mountain workers have contracted a fatal illness because DOE wasn't concerned with safety precautions…" Reid said what had occurred was "criminal," and compared the disregard of DOE and its contractors for workers' health to the Atomic Energy Commission's instructions to Nevadans and Utahans

in the 1950's to simply use a broom to brush off radioactive fallout from nuclear weapons testing. "There is no reason for silicosis," Reid concluded. "It's totally preventable." (4)

Regardless, DOE still confidently predicts it will submit its license application to the U.S. Nuclear Regulatory Commission (NRC) for a construction permit for the Yucca repository by the end of this year. But on April 13th, NRC reported on the quality (or lack thereof) of technical information DOE plans to use in its application. NRC reviewed DOE documents on corrosion of waste burial container outer barriers, degradation of irradiated nuclear fuel's "waste form," and Yucca burial tunnel deterioration. NRC concluded "…if DOE continues to use their [sic] existing policies, procedures, methods, and practices at the same level of implementation and rigor, the license application may not contain information sufficient to support the technical positions in the application. This could result in the NRC issuing a large volume of requests for additional information in some areas, which could extend NRC staff's time for review and could prevent the NRC from making a decision regarding a construction authorization to DOE within the three years required by law (with a possible extension to four years)…" (5) NRC failed to explain why such shortcomings by DOE would not result in the NRC rejecting the Yucca operating license outright. NIRS intends to intervene against Yucca's licensing in the NRC process.

On April 30th, the U.S. General Accounting Office (GAO) – Congress's investigative arm – reported back to Nevada's U.S. Senators Harry Reid and John Ensign that "Persistent Quality Assurance Problems Could Delay Repository Licensing and Operation" at Yucca. GAO had reported quality assurance problems at the Yucca Mountain Project as far back as 1988. GAO concluded "Despite working nearly 3 years to address recurring quality assurance problems, recent audits and assessments have found that problems continue with data, models, and software, and that management weaknesses remain… Entering into the licensing phase of the project without resolving the recurring problems could impede the application process, which at a minimum could lead to time-consuming and expensive delays while weaknesses are corrected and could ultimately prevent DOE from receiving authorization to construct a repository. Moreover, recurring problems could create the risk of introducing unknown errors into the design and construction of the repository that could lead to adverse health and safety consequences. Because of its lack of evidence that its actions have been successful, DOE is not yet in a position to demonstrate to NRC that its quality assurance program can ensure the safe construction and long-term operation of the repository." (6)

Despite such setbacks, DOE is still rushing full steam ahead. On April 8th, DOE published its long-awaited "Record of Decision (ROD) on Mode of Transportation and Nevada Rail Corridor for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain." DOE has officially decided to use "mostly rail" for shipments to Yucca, and to build a 319 mile (513 km) railway from Caliente (which, ironically, means "hot" in Spanish!) northeast of Las Vegas, around the Nellis Air Force Base bombing range and the Nevada nuclear weapons Test Site, to Yucca Mountain. DOE has not backed off from its earlier proposal to use barge shipments on the Great Lakes, rivers, and seacoasts to haul massive rail-sized casks to train lines from reactors that lack rail access. Because DOE cannot begin the 6 year long, billion dollar new rail line construction in Nevada until it has its Yucca license from NRC, DOE has proposed "piggy-backing" truck-sized casks on train cars to Nevada. There they would be off-loaded onto semi-trucks and driven to Yucca until the rail line was finished. State of Nevada Agency for Nuclear Projects transport consultant Bob Halstead has responded that a truck-sized container would have failed (potentially releasing catastrophic amounts of radioactivity) after just a few hours in a fire as hot as the July 2001 Baltimore train tunnel fire.(7)

DOE will hold 5 public meetings across Nevada in May to decide the "scope" for its "Rail Alignment Environmental Impact Statement (EIS)." Public comments will be accepted until June 1st. The ROD and "Notice of Intent" for the EIS are available at www.ocrwm.doe.gov under "What's New." See www.nirs.org for an action alert on how to submit comments to DOE by the June 1st deadline.

Contact: Kevin Kamps, NIRS

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