

What's News at Yucca Mountain

Mineral County officials tour nuclear plant

On December 11, 2007 Mineral County's Nuclear Waste Project Office toured the Palo Verde Nuclear Generating Station which is located just west of Phoenix. A total of 24 people attended the tour which included officials and high school students from Esmeralda and Lander County.

The Palo Verde Nuclear Generating Station, located about 55 miles west of Phoenix, has been the largest power producer of any kind in the United States since 1992. Its three units are capable of generating nearly 4,000 megawatts of electricity.



Palo Verde Tour: left to right - Kelly Rosemore, Linda Mathias, and Christina Boyles - from the Mineral County Nuclear Waste Project Office.

Because of its desert location, Palo Verde is the only nuclear plant in the United States that does not sit on a large body of water. Instead, it uses treated effluent from several area municipalities to meet its cooling water needs, recycling 20 billion gallons of wastewater each year.

Palo Verde, the largest single commercial taxpayer in Arizona, is operated by APS and is owned by a consortium of seven utilities in the Southwest.

(Continued on page 2)

Idaho is scouted for nuclear plant

A corporate sibling of Oregon's second biggest electric utility has begun publicly airing plans to build a nuclear power plant in Idaho near the Oregon border -- potentially the first in the Northwest in more than two decades.

At a packed high school auditorium in Payette, Idaho, in Dec. 2007, MidAmerican Nuclear Energy Co. staged an initial public meeting to discuss building a nuclear power

plant on high desert rangeland there.

The newly formed company is a subsidiary of MidAmerican Energy Holdings Co., which also owns Oregon's second largest electric utility, Portland-based PacifiCorp. MidAmerican, based in Iowa, is owned by billionaire investor Warren Buffett's Berkshire Hathaway Inc.

Should the plant be built, it's likely that some of the power would flow to PacifiCorp customers. During the next decade, the utility is forecasting a substantial energy supply deficit in its six-state territory. It only recently dropped plans to build new coal plants because of uncertainty about carbon taxes and pressure from state regulators and environmentalists.

(Continued on page 2)

Big budget cut for nuclear dump

WASHINGTON (AP) — Congressional Democrats are forcing the Yucca Mountain nuclear dump in the home state of Senate Majority Leader Harry Reid to get by on its lowest annual budget in years, likely causing yet more delays in opening the first national repository for radioactive waste.

A year-end spending bill moving through the House and Senate in December and would give \$390 million to the Nevada nuke dump in the 2008 fiscal year, \$104 million less than President Bush requested.

(Continued on page 4)

Nuclear panel's chief vows objectivity

In the early 1990s, Dale Klein appeared in television advertisements holding a fake nuclear fuel pellet barehanded to show Nevadans how safe disposing nuclear waste in the planned Yucca Mountain repository would be.

In a discussion in Las Vegas a short time later about the nuclear power lobby's ad campaign, Klein, a University of Texas nuclear engineering professor, said that in the worst case, a person could receive a lethal dose by

(Continued on page 5)

Online newsletter available at <http://mcnucprojects.com>

tour nuclear plant (Continued)



Other facts about the Plant:

- Construction began in 1976. There are three units, the last of which was completed in 1988. The total cost to build the plant was \$5.9 billion.
- The Palo Verde plant is the largest nuclear energy generating facility in the United States. The facility is on about 4,000 acres. Approximately 2,500 people are employed there.
- In 2000 the Palo Verde nuclear plant generated 30.4 million megawatts of power.
- About 4 million people in California, Arizona, New Mexico and Texas receive power generated by the Palo Verde plant.
- Palo Verde does not use fossil fuels to generate electricity. It is a zero-emissions facility.
- The reactors at Palo Verde are in an airtight, reinforced concrete structure designed to withstand the force of a jet airplane.

The plant and its output are owned by a number of utilities which include:

- Arizona Public Service: 29.1 percent
- Salt River Project: 17.5 percent
- Southern California Edison: 15.8 percent
- El Paso Electric: 15.8 percent
- PNM: 10.2 percent
- Southern California Public Power Authority: 5.9 percent
- Los Angeles Department of Water and Power: 5.7 percent

Idaho is scouted (Continued)

Nuclear plants, like coal, are considered backbone sources of a utility's power-generation portfolio, churning out electricity 24-7.

In contrast with coal, nuclear plants don't spew carbon dioxide.

"We believe that nuclear energy has to play a role in future energy policy," said Bill Fehrman, president of Mid American Nuclear, and, until recently, head of energy generation and supply for PacifiCorp. "Until something else comes up, nuclear is certainly carbon-free, so we believe it has to be considered."

A Virginia-based company also has proposed building a nuclear plant in Idaho, this one south of Boise.

Fehrman said MidAmerican is very early in its site evaluation and won't decide until next fall whether to file a combined operating and licensing application with the Nuclear Regulatory Commission. The



NRC review can take more than three years. In a best-case scenario, construction of a plant to provide power to more than 1 million homes would take another four to five years and

cost \$4 billion to \$6 billion.

The plant, Fehrman said, would remain a "merchant" power plant, owned separately from MidAmerican's utility properties and selling electricity to utilities throughout the West.

The Northwest has a checkered history with nuclear power. Ratepayers are still paying the bill for four nuclear plants that a group of Northwest public utilities abandoned after massive cost overruns.

Oregon's only nuclear plant, Portland General Electric's Trojan plant, near Rainier, faced fierce opposition from the time it opened in 1976 until PGE shuttered it in 1993 because its cracked steam generators were too expensive to fix. Ratepayer advocates are still fighting for a refund of some Trojan costs.

(Continued on page 2)

Idaho is scouted (Continued)

The only nuclear plant still operating in the region is the Columbia Generating Station near Richland in south-eastern Washington.

Bob Jenks, executive director of Citizen's Utility Board of Oregon, is skeptical that nuclear power would be cost-effective when compared with wind or natural gas-fired turbines. State regulators require utilities to do least-cost planning before they build a new plant or enter long-term contracts for power.

Environmentalists also will oppose any effort to build a nuclear facility.

"The bottom line is, we simply don't need to build nuclear plants to meet our energy needs if we invest in a robust program of renewable energy, including wind and solar," said Nat Parker, regional manager of the Sierra Club. "We have cleaner, safer, faster and cheaper alternatives rather than moving back to failed technologies of the past where there are no long-term disposal solutions."

The last time any company started construction on a U.S. nuclear plant was in 1978, but the industry is attracting new interest. That's due not only to global warming, but also to new tax breaks and insurance against regulatory delays put in place as part of the Energy Policy Act of 2005.

In the past six months, the NRC has received five applications for nuclear plants in Alabama, Virginia, Texas, South Carolina and Maryland. It is expecting 15 more applications in 2008 for sites around the country, including MidAmerican's and another in southwest Idaho.

Rural Idaho could prove more receptive to a nuclear plant than other Northwest locales. Some 400 people attended the recent meeting at Payette High School, about 60 miles northwest of Boise. Some expressed concerns about safety and potential water shortages. Others were optimistic about the jobs that the plant might bring, Payette County Clerk Betty Dressen said.

"There was no big uprising," said Dressen of the recent gathering at Payette High School. "Lots of people said, 'OK, let's see what these people have to say.'" *Source:*

Oregonian

Nuclear hydrogen: the clean byproduct

Some nuclear advocates are hoping the U.S. will eventually embrace a zero-emissions hydrogen energy economy. Strange as it may seem, nuclear strategists have plans (enthusiastically supported by the Bush administration) to generate hydrogen from nuclear power.

Dr. Ken Schultz, operations director of the Energy Group at General Atomics in San Diego, says that the nuclear industry expects realization of commercially available nuclear-produced hydrogen by about 2025. He thinks the industry could produce hydrogen for \$1.50 to \$2 per kilogram, or \$10 to \$15 per million BTUs. The federal Nuclear Hydrogen Initiative envisions demonstration of a commercial-scale hydrogen production system for use with nuclear reactors by about 2020.

The next generation of nuclear power plant designs, including so-called "pebble bed reactors," produce high-temperature steam, which Mujeeb I. Ijaz, manager of fuel-cell vehicle engineering at Ford, says is ideal for hydrogen generation. "The standard process of making hydrogen from water through electrolysis is 50 percent efficient," he says, "but if you electrolyze water that is already at high temperature and high pressure, that greatly improves efficiency."

General Motors, one of the auto industry's hydrogen leaders, is actively investigating nuclear power as a source of inexpensive hydrogen. "Nuclear certainly can play a role," says Britta Gross, manager of hydrogen infrastructure for GM. The company hopes to have the feasibility of fuel-cell vehicles demonstrated by 2010, and it's actively searching for affordable hydrogen production options.

Dr. Kathryn McCarthy, INL's director of Advanced Nuclear Energy Systems Integration, says that a single 300-megawatt nuclear power plant could produce 200 tons a day of hydrogen, enough to fuel 300,000 fuel-cell vehicles. To produce 150 million tons of hydrogen annually and replace

(Continued on page 6)

Big budget cut for nuclear dump (Continued)

Edward F. "Ward" Sproat, the Energy Department official in charge of the planned dump, warned that such a cut would be "very serious" and could push back the date when the Energy Department can submit a required construction license application for the dump 90 miles northwest of Las Vegas.

Sproat has promised repeatedly to submit the license application by June 30, 2008, and his best-case scenario for opening the dump is 2017. The opening date had already been expected to slip by several years and the license application date now also appears in jeopardy.

The ultimate fate of the planned dump, meant to contain 77,000 tons of radioactive waste piling up in 39 states, is growing increasingly cloudy. The leading Democratic presidential candidates all oppose it.

"I am proud that I was successful in cutting \$104.5 million from Yucca's budget," Reid, D-Nev., said in a statement recently. "It is clear that the Yucca Mountain project is a dying beast and I hope that this cut in funding will help drive the final nail into its

coffin."

Yucca Mountain was originally supposed to open in 1998 and taxpayers are facing legal liability expected to exceed \$7 billion because the government contracted to begin accepting spent fuel from nuclear plants that year.

The 2008 budget number is paltry even considering that Bush has repeatedly gotten less than he wanted for the waste dump because of Reid's opposition, now given more force because Democrats are in the majority.

Last year the dump's budget was \$444.5 million. It hasn't been below that since 2002, the year Congress approved the site.



Recognizing the delays afflicting Yucca Mountain, legislative language accompanying the spending bill also directs the Energy Department to develop a plan to take custody, at one or more interim sites, of spent nuclear fuel now at decommissioned reactor sites. According to the Nuclear Energy Institute, there are 13 such sites in nine states holding at least 3,000 tons of nuclear waste. *Source: Associated Press*

Nuclear hydrogen (continued)

fossil fuels used by cars and trucks in the U.S. would require approximately 2,000 pebble bed plants in the 600-megawatt range. Currently, there are no "next generation" plants online in the U.S., and one planned for Idaho has been indefinitely suspended.

Amory Lovins of the Rocky Mountain Institute remains skeptical that nuclear-generated hydrogen is feasible. "Hydrogen is not a way of saving nuclear technology but another fatal competitor for it," he says. "And the so-called 'nuclear renaissance' is really a large and adept echo chamber trying to create the illusion of a vibrant and competitive industry. In reality, nuclear retirements will overwhelm the new plants. Nuclear power plants are unable to secure financing because building the plants is so expensive."

Source: emagazine.com



CLEAN HYDROGEN SOURCE – A new generation of nuclear power plants may provide an energy-efficient, greenhouse-gas-free source of hydrogen.

Nuclear panel's chief vows objectivity (Continued)

(Continued from page 1)

holding a spent nuclear fuel pellet with bare hands for more than 1,000 minutes.

On December 20th, 2007, Klein returned to Las Vegas, this time in his second year of a five-year term as chairman of the Nuclear Regulatory Commission. He met with state and local officials to tell them of how the NRC's staff and a safety board will evaluate a license application for the Yucca Mountain repository project that the Department of Energy plans to submit for review in June 2008.

The commission he leads will decide any appeals and give final approval or denial of the license.

Later, at the NRC's hearing facility in Las Vegas, he offered assurance that he will remain independent and objective in any decision he makes on Yucca Mountain despite his history of strong ties to the nuclear power industry.

"We will make our evaluation based on technical merits in protecting the public and the environment," he said.

He added that his background will "absolutely not" have any influence on any appeal he might have to weigh.

"One of the advantages that I have that I often remind people is I'm on a leave of absence from a tenured faculty position.

"And you probably realize faculty members tend to be independent. So we have that aspect plus we are an independent agency, so we're independent squared," he said.

Klein also said it "is absolutely incorrect" for anyone to think that the NRC

becomes an advocate for the Yucca Mountain project after the Department of Energy submits a license application.

"We are not an advocate for or against Yucca Mountain. Our job is to look at protecting the public and the environment. So we are not an advocate. We are a regulator, and we're an independent regulator," he said.

Bob Loux, executive director of the Nevada Agency for Nuclear Projects and an opponent of the proposed



Nuclear Regulatory Commission Chairman Dale Klein talks Thursday at the NRC's hearing facility in Las Vegas about the Yucca Mountain project licensing process. Photo by Sara Tramiel/Review-Journal

Yucca Mountain repository, said he does not think Klein can be objective in deciding any appeals the state might file.

Nor is Klein correct about the advocacy question,

Loux said.

"First of all ... we have petitioned the NRC to actually remove the staff as the party advocate for the applicant, and the commission has denied our petition," Loux said.

"To suggest the staff is not going to be an advocate for the applicant is contrary to the NRC's own regulation," Loux added.

He said that Klein "is choosing his words carefully but he's misleading."

As for Klein's insistence that he will be objective and independent in his

decisions on Yucca Mountain, Loux said, "That's a huge question."

Loux said that while Klein was at the University of Texas, "not only was he a shill for the nuclear industry in the ad campaign, in the early 1990s he received large amounts of grants and contracts from the Department of Energy."

Loux said that Klein previously worked in a federal nuclear program where he served before his NRC appointment as assistant to the secretary of defense for nuclear and chemical and biological defense programs.

"Any representation that he is neutral on this (Yucca Mountain) I think is very suspect," Loux said in a telephone interview from Carson City.

When Klein was asked during the news conference what he sees as the key issues in the license application, he said, "I think the key issue will be do we get one? When does that arrive?"

"We cannot evaluate an application that we have not received," he said. Other than that, Klein said, "The key issue will be the technical quality of the application."

The effort to review and decide on the Yucca Mountain license application, if one is submitted, will take up to four years after the NRC staff evaluates its completeness.

Source: Review Journal

Yucca Mountain is a ridge line in Nye County, in the south-central part of the U.S. state of Nevada. It is composed of volcanic material (mostly tuff) ejected from a now-extinct caldera-forming supervolcano. Yucca Mountain is most notable as the site of the proposed Yucca Mountain Repository, a U.S. Department of Energy terminal storage facility for spent nuclear reactor fuel and other radioactive waste. The Department of Energy was to begin accepting spent fuel at the Yucca Mountain Repository by January 31, 1998. However, there have been many delays, and a realistic opening date is now September 2020.



Spent nuclear fuel shipping casks are used to transport spent nuclear fuel used in nuclear power plants and research reactors to disposal sites such as the to-be-opened one at Yucca Mountain or the Nuclear reprocessing center at COGEMA La Hague site. Each shipping container is designed to maintain its integrity under normal transportation conditions and during hypothetical accident conditions.

This newsletter is a publication of the Mineral County Repository Planning and Oversight Program. Mineral County is one of ten affected units of local government involved in the proposed Yucca Mountain Repository.

Funding provided to Mineral County is paid by users of electricity generated by nuclear power plants. Under a general contract with nuclear generating utilities, the federal government collects a fee of one mill (one-tenth of a cent) per kilowatt-hour from utility companies for nuclear generated electricity. The money goes into the Nuclear Waste fund which is used to fund all program related activities.

These articles may not necessarily reflect the positions or opinions of the Mineral County Board of Commissioners.

For more information on Mineral County's program contact Linda Mathias, Director of Nuclear Projects at (775) 945-2484 or check what's new at www.mcncucprojects.com

Additional information on the DOE repository program can be obtained from the DOE, Yucca Mountain, Site Characterization Project Office at (702) 794-1444 or contact them at www.ymp.gov, or the Nevada Agency for Nuclear Project, Nuclear Waste Project Office, Capital Complex, Carson City, Nevada 89570, (775) 687-3744 or visit their web site at state.nv.us/nucwaste.

Additional newsletters are available at the Mineral County Nuclear Projects Office located in the County Courthouse or you can obtain copies from the County Library. Copies can also be downloaded from the web-site at <http://www.mcncucprojects.com>.

Questions and/or comments are welcome - *Editors: Rex Massey, Linda Mathias, Contributing Editor, format, graphics, Loreen Pitchford*