

# What's News at Yucca Mountain

Publication of Mineral County's Yucca Mountain  
Repository Planning and Oversight Program

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## Yucca radiation limits unveiled

### In This Issue

<b>Yucca radiation limits unveiled</b>	<b>1</b>
<b>Yucca plan slowed by recent departure of key managers</b>	<b>1</b>
<b>Energy bill ignored repository</b>	<b>5</b>

### Special points of interest:

- EPA says standards will be good for 1 million years (page 1)
- The suggestion that quality assurance documents might have been falsified is potentially damaging because the quality assurance program is designed to assure that scientific work was done properly and to assure the accuracy of Yucca research. (page 4)

The Environmental Protection Agency on August 12th, unveiled a new set of radiation limits for Yucca Mountain that appear headed on a path to prolong and intensify clashes over the safety of burying nuclear waste in Nevada.

A top EPA official said the standards, rewritten to satisfy a federal court ruling, would offer health protection to Nevadans from buried canisters of decaying nuclear fuel for as long as 1 million years.

But the federal agency's plan was met with immediate and strong criticism from Nevada leaders and citizen advocates.

They charged the EPA limits are lax and will do more to ensure a nuclear waste repository is built at Yucca Mountain than they will protect the public from exposure to radioactive particles expected to escape into the environment over thousands of years.

If EPA officials fail to change the benchmarks after fielding public comments over the next 60 days, Attorney General Brian Sandoval said Nevada "will sue them again."

"Never in our wildest nightmares would we have anticipated such a ridiculous standard," Gov. Kenny Guinn said. "This is junk science at its worst."

*"voodoo science and arbitrary numbers."*

*Senator, Harry Reid*

The radiation health standard is a primary benchmark used to ensure that safety protections are designed into the nuclear waste tunnels the Department of Energy proposes to build 90 miles northwest of Las Vegas.

EPA proposed a unique two-part standard, with one set of limits for the first 10,000 years of repository operation and a second set for the succeeding years, out to a million years.

The repository's potential impacts are projected through the use of complex computer modeling. Still, scientists vary in their levels of confidence to determine what Nevada's climate, geology and its population will be like thousands of years into the future.

"It is clear this is an unprecedented standard. We've never tried to regulate for this period of time," said Kevin Crowley, director of the Nuclear and Radiation Studies Board of the National Academies of Science.

*(Continued on page 2)*

## Yucca plan slowed by recent departure of key managers

The Yucca Mountain program has lost five key managers in the last six months, raising speculation that recent controversy and frustration have led to a damaging exodus of leadership talent.

The Energy Department says the departures will not cause additional grief to a project already plagued by delays.

But management experts are not so sure.

UNLV construction management professor Neil Opfer said that if management departures have not hurt the day-

to-day operations of Yucca Mountain, "it would be the first time in history that has ever happened."

"You lose something," Opfer said. "This affects decision-making."

The Yucca Mountain Project is as a massive government program as there is, with a long history, a big budget and an ambitious goal of constructing a national repository for high-level nuclear waste.

While there is always some churn of leadership on the project, since the top manag-

*(Continued on page 3)*

Visit Mineral County  
Yucca Website:  
[www.mcnucprojects.com](http://www.mcnucprojects.com)  
.....where you'll find more  
information about the  
proposed Yucca Mountain  
Nuclear Waste Storage  
Facility and Radiation facts.

## Yucca radiation limits unveiled

(Continued from page 1)

Jeffrey Holmstead, EPA assistant administrator for air and radiation, said the agency was attempting to set limits that will affect 25,000 generations.

"It's a real scientific challenge but we think we've done it in a way that is consistent with the best science," Holmstead said.

The Energy Department believes it can meet the proposed EPA standard, DOE spokesman Craig Stevens said. It was unclear what additional work DOE may need to perform to demonstrate compliance or what it might add to the project in terms of time or cost.

Yucca supporters said the proposed standards may finally give the DOE some target to shoot for as its struggles to form a license application for the nuclear waste site.

The project has been delayed by several problems over the past year, most notably a federal court ruling last July 9 that threw out portions of the EPA's previous radiation standard.

The U.S. Court of Appeals for the District of Columbia Circuit ruled the EPA improperly limited its benchmark to 10,000 years. A National Academies of Science study ordered by Congress concluded in 1995 that long-lived radioactive particles could be escaping from Yucca Mountain at maximum dose levels for as long as 1 million years.

Holmstead maintained the revised limits should satisfy the judges.

"We're quite confident we've paid careful attention to what the court said," Holmstead said. "We are quite confident to the extent this is challenged it would be upheld."

Crowley, who was staff director of the panel that wrote the 1995 report, said it appeared "EPA has been very careful to link what they are doing to the recommendations in our previous report."

But Sen. Harry Reid, D-Nev., said what EPA has proposed is "voodoo science and arbitrary numbers as-tounded that the EPA actually put those recommendations on paper," Reid said.

For the first 10,000 years of operation, the Energy Department would need to calculate that a hypothetical farmer living 11 miles south of the repository, around Amargosa Valley, would be exposed to radiation from repository operations of no more than 15 millirem of radiation annually.

Holmstead said for comparison a chest X-ray exposes a patient to 10 millirem while a mammogram results in a 30 millirem exposure.

The repository exposures would be calculated on top of what people receive in natural background radiation given

(Continued on page 3)

### Proposed radiation limits for Yucca Mountain

The Environmental Protection Agency proposed a halt standard that would allow hypothetical farmer living 11 miles from Yucca mountain an additional 15 millirem exposure of radiation for each of the first 10,000 years that a nuclear waste repository would operate and an additional 350 millirem annual after that. A person living in the United States receives an average annual 300-millirem dose of radiation from natural and man-made sources. A millirem is a small amount of energy.

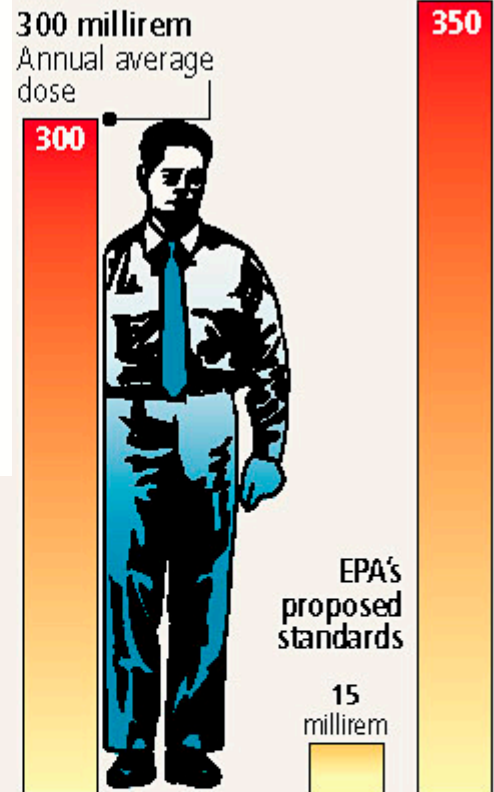
#### Background radiation components

- Radon—55%
- External background—15%
- Medical—15%
- Internal (in the body)—11%
- Consumer products—3%
- Other—1%

#### Dangers from a massive dose

Millirem	Effects
0 to 5,000	None
5,000 to 25,000	Some genetic damage
25,000 to 75,000	Production of blood, sperm cells drops
75,000 to 125,000	Nausea, fatigue, vomiting in some people
125,000 to 200,000	Temporary disability. Recovery may take months
200,000 to 450,000	Serious illness, half dying without treatment
600,000 or more	Serious illness, nearly always fatal
5,000,000 or more	Death within days

SOURCE: Department of Energy, Environmental Protection Agency, KRT



## Yucca radiation limits unveiled

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(Continued from page 2)

off by rocks and soil, building materials and cosmic rays. The EPA estimated the background radiation at Amargosa Valley at 350 millirem, while it said the national average was 300 millirem.

For the period beyond 10,000 years, EPA proposed to set the repository limit at 350 millirem above natural background. There is no corresponding groundwater standard.

In getting to that number, the EPA searched for a western state that it said would be "fairly well populated" and similar in other respects to Nevada. It settled on Colorado as a point of reference.

According to the EPA, Colorado's estimated annual average background radiation level is 700 millirem. The agency set 350 millirem as its post 10,000 year limit by subtracting Amargosa Valley's background levels from those in Colorado.

In that way, Holmstead said, "even in a million years from now, a person living at the border of the nuclear repository would not be exposed to radiation at levels any higher than what people are routinely exposed to throughout the country today."

The EPA also directed the Energy Department to perform additional analyses over the million-year time frame to determine how earthquakes, volcanic activities, a rainier climate and corrosion processes would affect its compliance with the reworked limits.

Sen. John Ensign, R-Nev., said the EPA approach was too much of a stretch.

"I am appalled at the complete arrogance of the EPA in announcing these standards," he said.



"The EPA has provided no scientific basis for the 350 millirem figure."

"The EPA now has the dubious distinction of proposing a standard that would be the worst in the Western world, by far," said environmental scientist Arjun Makhijani, president of

Institute for Energy and Environmental Research. "No Western programs explicitly allow as large as 350 millirem per year at the time of peak dose."

Given the uncertainties far into the future, the EPA's approach is "scientifically defensible," said Rod McCullum, a senior project manager for the Nuclear Energy Institute.

At 350 millirem, "it still is a small level of radiation," McCullum said. "You don't get health effects until you get into the hundreds of thousands of millirem."

Source: Las Vegas Review Journal

Visit Mineral County [online Nuclear Waste Oversight to read more about radiation facts. mcnucprojects.com](http://online.NuclearWasteOversight.com)

## Yucca plan slowed by recent departure of key managers

(continued)

ers are political appointees, the recent turnover has been noteworthy for the number and the timing of the resignations.

Key leaders listed on the organizational flow chart began leaving after the Feb. 25 resignation of Yucca's top manager, Margaret Chu.

Chu announced her exit four days after the Bush administration released a scaled-back Yucca budget request. Minutes after the budget was unveiled, Chu admitted to reporters that the department's long-held goal of opening Yucca by 2010 had slipped at least two years.

Chu lasted three years in the job. She said she had always planned to leave after Bush's first term ended. Department officials said there was no connection between Chu's exit and her candor with reporters.

That left deputy director Theodore Garrish as the top-ranking Yucca official. He retired two months

later, about a month after the department stumbled into more controversy -- a document review had uncovered Yucca worker e-mails that suggested quality assurance documents may have been falsified. The discovery launched several investigations, including one led by Rep. Jon Porter, R-Nev., chairman of a subcommittee of the House Government Reform Committee.

Garrish testified before Porter's panel on April 5. The department announced his "long-planned retirement" on April 25, and his last day was May 13.

The suggestion that quality assurance documents might have been falsified is potentially damaging because the quality assurance program is designed to assure that scientific work was done properly and to assure the accuracy of Yucca research. The Nuclear Regulatory Commission will rely on quality assurance documents to verify the completeness of the scientific work, and ultimately to determine whether Yucca can safely store 77,000 tons of highly radioactive waste.

The QA program has been criticized by the commission, the GAO and the department's Inspector General in the past.

That makes the departure last month of Yucca quality assurance manager R. Dennis Brown significant. After the e-mails were disclosed, Brown was tasked with reviewing more recent quality assurance procedures, as the GAO is updating an investigation it completed on the quality assurance program last year.



(Continued on page 4)

## Yucca plan slowed by recent departure of key managers *(continued)*

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Brown will not renew his contract, according to the department. The department did not formally announce that, but Brown in late July sent employees an e-mail signaling his exit.

News of Brown's resignation came one day after news surfaced that Yucca licensing manager Joseph Ziegler was leaving, citing personal reasons. He leaves at a time when obtaining a license application is the most pressing goal of the program. The department is struggling to complete the application. It missed a deadline last year, and its revised December goal likely will slip at least three months.

Yucca will undergo another loss when John Mitchell, president and general manager of top Yucca contractor Bechtel SAIC, leaves in August. Bechtel handles the day-to-day activities of the project, and worked on the project's draft license application.

Mitchell will be replaced by Ted Feigenbaum, president of Maine Yankee Atomic Power Co. Bechtel spokesman Jason Bohne said Feigenbaum has a lot of experience with nuclear energy and the Nuclear Regulatory Commission. Bohne said a transition plan is in place and Feigenbaum will spend time with Mitchell before his departure.

Energy Department spokesman Allen Benson said department employees continue to work on Yucca while the White House searches for a replacement for a permanent Yucca chief and other managers.

For now, President Bush has named Paul Golan acting director. He took over when Garrish left in May.

The departures of Chu, Garrish, Brown and Ziegler have had no practical affect at all on the \$58 billion project, Benson said.

But experts are skeptical. It's just "common sense" that complex projects suffer with managerial departures, said Thomas Allen, a professor of management at the Sloan School of Management at the Massachusetts Institute of Technology.

"Who knows what was in those brains that walked out the door?" Allen asked. "Any time you lose people who have gained all that experience, it sets you back. You have to re-create that knowledge."

It is not uncommon for political appointees to leave after a certain amount of time, or for subordinates to leave after a director resigns, said Constance Horner, a guest scholar at the Brookings Institution in Washington, D.C.

"The new Dr. Chu may bring a new set of subordinates to replace those that have left," she said.

Horner said there are two possible outcomes once top officials leave: the civil service staff steps up and manages the program until the new political appointee comes along, or work slows down because politically driven decisions can get kicked up the ladder to higher and higher offices until they reach someone who can make the decision.



The career staff -- non-political appointees -- can sometimes do their jobs better without an added layer of scrutiny over them, she said.

"It can be stressful if there is uncertainty about the course of action," Horner said. "It can also be a period of considerable professional satisfaction."

Former Nuclear Regulatory Chairman Richard Meserve said the Bush administration will need to fill all the positions with people who have both nuclear and management experience.

"You have a challenge at DOE in that the whole bunch of people that were at the center of this

are not there," said Meserve, now president of the Carnegie Institution. "I have no idea what (Energy) Secretary (Samuel) Bodman is thinking, but he does have some very important positions to fill."

Meserve said there are technical as well legal issues that have to be addressed.

"It's not going to be an easy job," Meserve said.

Replacing leaders is a time-consuming and costly endeavor, and once new managers are hired, companies and government agencies, like the department, have to bring them up to speed, UNLV's Opfer said.

"When someone walks out mid-project, you lose your investment in the on-the-job education you put into that person," Opfer said.

Another problem that frequently occurs is that once the department hires a new manager, the manager may not mesh with the leadership team in place, creating more delays, Opfer said. Then sometimes those team members leave, he said.

Management turnover also makes it more difficult to assign accountability because new managers can blame problems on old regimes, Opfer said.

Rep. Jim Gibbons, R-Nev., said the number of departures raises questions.

"I think it probably reflects the frustration and futility of constantly trying to fit a square peg in a round hole," Gibbons said.

"Continuity of leadership is always important in any government agency. When you start losing leaders, that continuity and efficiency is affected, I don't care what they say."

Nevada officials note that the departures come as Yucca continues to face a slew of budgetary, technical and legal obstacles. A federal court last year dealt Yucca a setback when it threw out a radiation release standard. The Energy Department has sought to prove Yucca can meet that scrapped standard.

Porter said the employees still working at the department may suffer through the changes.

"They deserve consistent management," Porter said. "I can only imagine what they are thinking."

## Yucca plan slowed by recent departure of key managers

(continued)

Porter noted that Energy Secretary Bodman and other top department officials are just a few months on the job, too.

"Who's in charge?" Porter said. "No one is minding the ship."

Nevada lawmakers also have been frustrated by Energy Department officials who have dismissed the e-mail controversy as not likely to affect the repository's progress.

"Forget a moment that it is a federal agency," Porter said. "If this was the private sector ... it would be national headlines if all the corporation's officials resigned in the midst of an investigation."

The Yucca project is so big that the departure of several key managers may slow the project further, but it probably won't be "catastrophic," said John Garrick, chairman of the Nuclear Waste Technical Review Board. The board was created by Congress to act as an independent watchdog of Yucca science.

Garrick said that even though Yucca program employees are missing some bosses, they have a clear goal to keep them motivated: to submit the license application.

But there is no question the Yucca program has been reeling, especially since the court threw out the radiation release standard, Garrick said. The program lost steam when it missed its goal last year of submitting the license, he said.

Program officials are under a lot of pressure to move the program forward, so it's not surprising to see some departures, Garrick said. And those departures can naturally lead to day-to-day delays, said Garrick, whose long career included running an international engineering and management consultant firm.

Sometimes a fresh infusion of new leaders can spark new enthusiasm and energy on a project, Garrick said, adding that that may be just what Yucca needs.

Source: *Las Vegas Sun*



## Energy bill ignored repository

The Bush administration and allies in Congress took pains to avoid mentioning Yucca Mountain as they pursued passage of a major energy policy bill, an Energy Department leader said Friday.

The strategy was to avoid stirring Senate Minority Leader Harry Reid of Nevada, a leading critic of the proposed nuclear waste repository who could have caused problems for the bill, one of President Bush's top priorities, DOE Deputy Secretary Clay Sell said.

"Energy politics are tough. Yucca Mountain politics are really tough," said Sell, the department's second-in-command after Secretary Samuel Bodman.

Reid "is a tough character to deal with," Sell said.

"There was a conscious decision not to roll (Yucca Mountain) into the energy bill, and I can't disagree."

*Reid deterred inclusion of Yucca Mountain*

The strategy worked for Bush. The House

and Senate passed energy legislation that Bush had sought since 2001, and signed in New Mexico mid August.

The broad new law will emphasize increased production of energy from oil and gas, coal and nuclear sources, while overhauling electricity marketing and encouraging the use of alternative fuels and energy-efficient appliances.

But the law is silent on one of the major concerns of the nuclear power industry and states' energy regulators promoting completion of the Yucca repository, about 100 miles northwest of Las Vegas.

Yucca Mountain supporters have pushed Congress to reclassify the fund that pays for the repository so the Department of Energy can gain access to billions of dollars that would be required for construction. Lawmakers have refused to go along.

Sell said the Bush administration continued to support reclassification of the nuclear waste fund, just not as part of the energy bill.

"We have to deal with spent fuel in order to have a future for nuclear power," he said.

Energy bill proponents made the right decision in keeping Yucca Mountain out of the legislation, Reid spokeswoman Tessa Hafen said.

"President Bush now knows a little bit more about Senator Reid and how and what he will fight for, especially something like Yucca Mountain," Hafen said. "Plus, he has the added leverage of being a (Senate) leader."

With the energy legislation completed, Rep. Joe Barton, chairman of the House Energy and Commerce

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## Energy bill ignored repository (continued)

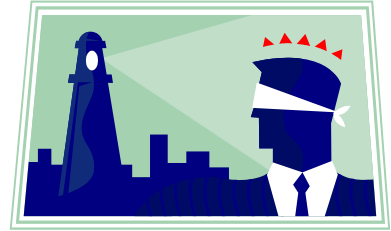
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Committee, has said he plans to introduce a bill this fall to address the Yucca Mountain budget matter.

Barton, R-Texas, said he is weighing other elements that could speed the repository that has fallen years behind schedule.

Speaking earlier this summer, Barton also indicated that energy bill sponsors sought to steer clear of Reid. Barton said he did not want to "play games" with Yucca Mountain because Reid to that point had been cooperative in allowing the bill to proceed.

Source: Las Vegas Review Journal



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. Additional information on the repository program can be obtained from the U.S. Department of Energy. Yucca Mountain, Site Characterization Project Office at (702) 794-1444 or contact them at [www.ymp.gov](http://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 them at their web site at [www.state.nv.us/nucwaste](http://www.state.nv.us/nucwaste).



View from Corey Peak in Mineral County

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