

Yucca Mountain News

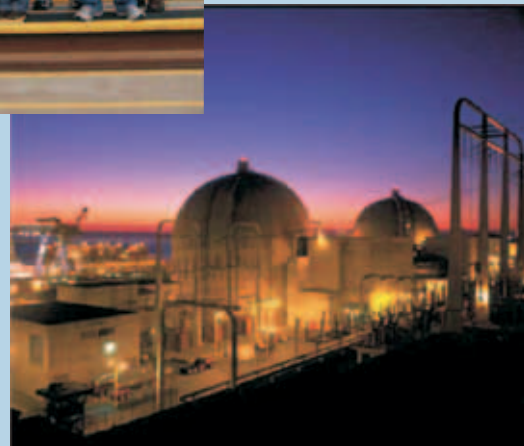
High School Students Tour Nuclear Power Plant

The Churchill County Nuclear Waste Oversight Program sponsored a trip to the San Onofre Nuclear Generating Station for a group of advanced placement chemistry students from Churchill County High School.

operation of a nuclear power plant and in many respects how it is similar to that of a coal, natural gas or oil fired plant. All have a heat source that boils water.

He also showed the group a demonstration of the major components of a nuclear power plant and took the group around the location showing them the reactor, fuel rod assemblies, the steam generation system and the turbine/generator system.

The Students were also able to see the facility's cask manufacturing operations. Currently, San Onofre is the only power plant that manufactures storage casks for use on-site. Because Yucca Mountain has not opened, San Onofre stores nuclear waste on site in above ground dry cask storage. Students were able to tour the dry cask storage area. The tour ended with a visit to the power plant control room to observe the operations first hand.



As part of this overnight trip to southern California, the tour group was also able to visit the Ocean Institute (Oceaninstitute.org) at nearby Dana Point. This year the tour group

decided to leave Fallon at 4:00am in order to visit the Institute in the afternoon. They were able to step aboard the Sea Explorer to participate in the floating lab which is an advanced lab course geared to complement high school and college courses in marine science and oceanography. (Ocean Institute tour page 2)



Spring 2007

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"Thank you so much for making this opportunity available to our students. You may be interested in the fact that Bradyn Wuth, who went on the tours last year, has decided to major in nuclear engineering, based upon the two trips we took last year.

These opportunities for our students are greatly influential and informative!!!!!"

**Steve Johnson,
Science Teacher,
Churchill County High School**

The San Onofre Nuclear Generating Station (SONGS) is located in southern California and is jointly owned by Southern California Edison (SCE) (75% ownership), San Diego Gas & Electric (20%), and the cities of Riverside and Anaheim. Today, SONGS provides nearly 20% of the power to more than 15 million people in Southern California -- enough power to serve 2.75 million households.

Eric Golden, the SONGS nuclear communications tour guide explained the

High School Students Tour Nuclear Power Plant/Ocean Institute

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The Floating Lab provides an introduction to biological, chemical, and geological sampling techniques. Student oceanographers apply sampling and research protocols for water quality and biological monitoring.

Navigation and Weather

The navigation and weather station introduced students to one aspect of data collection at sea. They used a wind meter, a Beaufort scale, cloud formation chart, and a barometer to monitor the weather off of Dana Point throughout their trip. Knowing the latitude and longitude and being able to calculate by triangulating compass bearings gave the students the necessary information as part of the data collection process in their field research scenario.

Secchi Disk / Forel-Ule

Students observed and recorded water clarity with a secchi disk. Since the ocean is a dynamic, complex living system and warm water currents can cause upwelling introducing nutrients to the upper level of the water column students learned numerical values are assigned to track the changes in clarity. The ocean color ranges from brown red to green to sapphire blue. Each color provides clues to the agents that are suspended in the water column. In addition to the data provided by these two pieces of equipment, plankton was also collected with a specialized net and

together, these pieces of information formed a picture of the ocean dynamics for that day.

Water Chemistry

Students collected data about the water column by retrieving water samples with a Van Dorn bottle sampling from a specified depth. They gathered data about the pH, salinity, dissolved oxygen, and temperature. The data was compared to the values received by the Hydrolab probe and discussed during the conclusion. Students



Caleb Jung, Alex Belbin, Shane Groover, Steve Johnson, Alan Kalt, Lynn Pearce
Tanner Duncan, Shankari Rajagopal, Pamela White, Misty Moyle, Scott Wardwell,
Greg Heck and Caleb Jung and Rex Massey

interpreted their results and discussed any deviations that were found.

Fish Identification and Biogeography

The R/V Sea Explorer is equipped with several otter trawl nets. Students identify two species of fish using dichotomous keys. They recorded their length and physical features. Once the fish were identified, students

researched their typical range to determine if their presence off the Orange County coastline is "normal." Abnormal weather patterns, such as El Niño or La Niña, set off a chain of events that can severely affect local fish populations. Fish species that are found out of their typical range can be considered biological indicators of these weather conditions.

Benthic Invertebrate Identification

Organisms that live in the sediment play several important roles in the ocean environment. They aid in the process of decomposition, are part of the marine food web, and can be used as biological indicators. Students separated and identified several macroinvertebrate species. They described the role that each animal plays in the marine environment and any notable adaptations that ensure its survival.

Plankton and Foram Identification

Plankton are plants (phytoplankton) and animals (zooplankton) that drift on ocean currents are found in the upper level of the water column because they require sunlight to photosynthesize. Zooplankton are found at the same level because of the abundance of food. Students manipulated a live sample of plankton under a video microscope, identified specific organisms, and recorded their observations. Sieves were used to isolate microfossils known as forams. These protists can indicate fossil fuel deposits as well as record information about past climates. Students used the microscopes in the wet lab to identify their specimens. Source: Ocean Institute

Local students review safety of Yucca Mountain

Ask Churchill County High School science students what they think of storing nuclear waste at Yucca Mountain and they will explain how safeguards make the proposal a good idea.

A group of advanced placement chemistry students in Steve Johnson's class visited the planned nuclear waste repository earlier this month, along with the Nevada Test Site and the San Onofre Nuclear Generating Station in California. A stop at Hoover Dam taught the students about hydroelectric power.

What the students learned on the trip convinced them that nuclear power is a vital energy source, and that storing radioactive waste is part of the process.

Alex Belbin, 16, said this was his second trip to Yucca Mountain but his first to San Onofre.

"Not only do they have all these guards, they have a backup in case the systems fail," he said about the power plant. "It's really, really, really safe. That impressed me."

After touring Yucca Mountain, Belbin said geologists explained how the waste would be protected via natural features of the area, such as volcanic rock.

"It's really safe. Nothing is going to happen," he said about a potential disaster.

Belbin plans to attend the Naval Academy and eventually work in engineering. He enjoys chemistry and all sciences. The junior has lived in Fallon most of his life after being born in England where his mother was stationed with the Navy.

"I like the concepts and doing things with chemicals. Explosions are always nice, too," he joked.

Shane Groover said experts at Yucca Mountain explained how nuclear waste would be stored in an unbiased way to

allow students to form their own opinions.

"The Yucca Mountain trip reinforced my opinion that it is a good place to store nuclear waste," he said. "We have to store it somewhere. If we don't, the nuclear industry is going to collapse."

He hopes to be a nuclear engineering someday. Groover, 17, said he would love to be a pilot but he suffers from motion sickness that might hamper that goal. His father retired this week after 23 years with the Navy.

for four decades until a moratorium was enacted in 1992.

"It was interesting to see a visual of how destructive the bombs were," she said.

Moyle, 17, joins her classmates in the belief that Yucca Mountain is completely safe for storing nuclear waste.

"Everything about the whole process is so safe. They have taken every precaution to the Nth degree," she said. "To me, it's a beautiful piece of land, and I love Nevada, but it's so safe nothing could happen."



High school group entering the exploratory tunnel at the Yucca Mountain Nuclear Waste Repository

She believes nuclear waste will be recycled and reused in the future.

Moyle is fascinated by how hormones work in the body and hopes to become an endocrinologist. She lives in Fallon during the school year and in Eureka to work on the family farm during summers.

The U.S. Department of Energy had set at 2017 deadline to open the nuclear repository in Southern Nevada, 90 miles northwest of Las Vegas. The date may be extended to 2020 or 2021 because it could take longer to get approval from the Nuclear Regulatory

Commission. Litigation has also delayed the project.

Yucca Mountain would be the country's first national repository for nuclear waste with the capacity to store at least 77,000 tons of the material

There is currently about 50,000 tons of radioactive waste sitting at reactor sites in various states.

Johnson said he has been taking students to the Nevada Test Site and Yucca Mountain for about 10 years.

"The Nevada Test Site has played a major role in the Cold War years. It's important for Nevada residents to know we played a part," he said.

Source: Nevada Appeal

Pam White said she doesn't understand why Nevada officials oppose storing nuclear waste at Yucca Mountain.

"Of all the places to store it, I see Nevada as the best place," said White, 17. "There's a very small chance it would get into our water table. Our government has some good ideas, and we're very good about planning for the future."

She hopes her future holds a job she enjoys, that is creative and also contributes to society.

Misty Moyle said visiting a museum at the Nevada Test Site brought to life the public's reaction to atomic testing beginning in the 1950s and continuing

Porter: Yucca Mountain "still alive"

WASHINGTON -- Rep. Jon Porter took a big swing at Yucca Mountain spending this week. After failing to hit the nuclear waste project head-on, he aimed a followup blow against Democrats.

He also may have exposed a crack in what has been a united fight by Nevada lawmakers against the repository.

In the House Budget Committee, Porter, a Republican, promoted an amendment that would have put pressure on Congress to delete \$494.5 million in 2008 spending for Yucca, the entire amount requested by the Energy Department.

It would have zeroed out Yucca Mountain from a nonbinding budget resolution, a Democrat-written blueprint lawmakers will consult when they pass spending bills later this year.

Porter argued that Yucca project was riddled with quality assurance problems and beyond repair. But Rep. Earl Blumenauer, D-Ore., said the amendment was too far-reaching to be debated in five or 10 minutes. Rep. Chet Edwards, D-Texas, said the issue needed to be handled by the Appropriations Committee. The amendment was defeated 23-12. Eleven Republicans joined Porter in voting for the amendment. Twenty-two Democrats and one Republican, Dan Lungren of California, voted to kill it.

"The real message is the majority of Republicans on this committee are saying time out and the majority of Democrats said move forward," on

nuclear waste in Nevada, Porter said after the vote.

He said it underscored that Nevada has enemies in both parties when it comes to Yucca Mountain, not just Republicans. "The reality is that Yucca Mountain is still alive," Porter said.

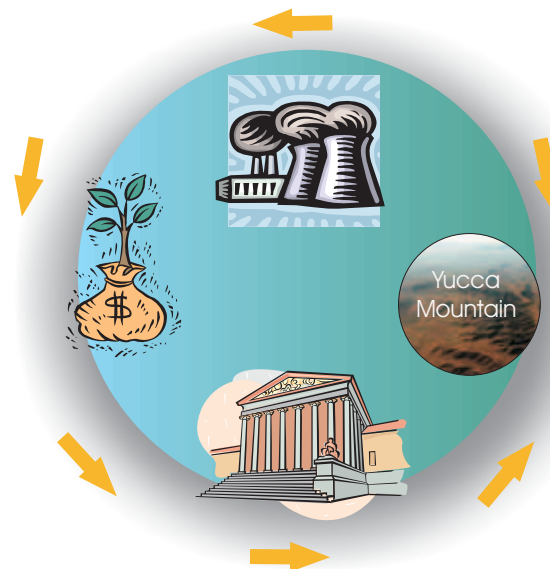
That is a different message than "Yucca Mountain is dead," that Sen. Harry Reid, D-Nev., has promoted.

When Porter put out a press release declaring Democrats "unanimously voted to keep the project alive," it ruffled feathers in the office of Rep. Shelley Berkley, D-Nev. She would have persuaded Democrats to vote against Yucca Mountain, but Porter did not invite her help, Berkley spokesman David Cherry said. Source: By Steve Tetreault, Stephens Washington Bureau



Representative Jon C. Porter (R-NV 3rd)

| Yucca Mountain Repository Schedule July 19, 2006 | |
|------------------------------------------------------------|-----------------------------|
| Design for License Application Complete | Friday, November 30, 2007 |
| Licensing Support Network Certification | December 21, 2007 |
| Supplemental Environmental Impact Statement (EIS) Issued | Friday, May 30, 2008 |
| Final License Application Verifications Complete | Friday, May 30, 2008 |
| Final Rail Alignment EIS Issued | Monday, June 30, 2008 |
| License Application Submittal | Monday, June 30, 2008 |
| License Application Docketed by NRC | Tuesday, September 30, 2008 |
| Best-Achievable Repository Construction Schedule | |
| Start Nevada Rail Construction | October 5, 2009 |
| Construction Authorization from NRC | September 30, 2011 |
| "Receive and Possess" License Application Submittal to NRC | March 29, 2013 |
| Rail Access In-Service | June 30, 2014 |
| Construction Complete for Initial Operations | March 30, 2016 |
| Start up and Pre-Op Testing Complete | December 31, 2016 |
| Begin Receipt | March 31, 2017 |



Project head: Yucca Mountain opening date could slip

Although 2017 is the Energy Department's goal for opening the Yucca Mountain nuclear waste dump in Nevada, "the most reasonable date is probably closer to 2020,

and water development subcommittee of the House Appropriations Committee.

completed and submitted to the NRC on time," Sproat said, without elaborating.

Sproat is asking Congress for an accounting change that would dedicate annual revenues in a special nuclear waste fund outside the overall federal budgeting process so Yucca Mountain wouldn't have to compete with other programs for funding.

That would guarantee Yucca Mountain at least \$750 million per year. Once construction starts on the repository in the desert 90 miles northwest of Las Vegas, costs will soar past \$1 billion per year and top out at almost \$2 billion in 2012, according to Energy Department cost projections.

With Democratic Sen. Harry Reid of Nevada, an ardent Yucca Mountain foe, running the Senate as majority leader,

Sproat has been working hard to impress upon other lawmakers the need to push the nuclear waste dump project forward. Yucca Mountain would be the first national repository for nuclear waste and it's meant to store at least 77,000 tons of the material, though the Energy Department is hoping it could hold much more.

There's already some 50,000 tons of radioactive waste waiting at reactor sites in dozens of states, and Sproat and others are warning that without some solution the nuclear energy industry will be in serious trouble.

Sproat also cautioned lawmakers about the growing liability to taxpay-

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2021," said Edward F. "Ward" Sproat, director of the Energy Department's Office of Civilian Radioactive Waste Management.

"That's because it may take a number of years for the Energy Department to get approval from the Nuclear Regulatory Commission, and there could be more litigation."

Sproat also warned lawmakers at a hearing that funding for Yucca Mountain must rise above recent levels - around \$500 million a year - for the program to happen at all.

"If all we can do is continue to fund the repository at that level, the repository will never be built, it will never happen," he told the energy

The program already has had to adjust to getting \$100 million less in the 2007 fiscal year than President Bush requested. The final 2007 figure was \$444 million.

Sproat has said that some activities are being put on hold as a result while the department focuses on its immediate goal: submitting a required license application to the Nuclear Regulatory Commission next year.

"There will be staff reductions on this program, substantial reductions, but we will get the license application

Project head: Yucca Mountain opening date could slip (Continued)

(Continued from page 5)

ers because the Energy Department was contractually obligated to begin accepting nuclear waste from utilities starting in 1998. If the dump opens in 2017 that liability will stand at \$7 billion; if the opening date slips to 2020 the liability rises to \$11 billion, he said.

Sproat got a vote of support from the chairman of the spending panel, Democratic Rep. Pete Visclosky of Indiana.

"We are committed to do everything we can to ensure you have adequate funding for Yucca because I believe we do need to proceed to get it open," Visclosky said.

A Republican on the panel, Rep. John Doolittle of California, suggested that the program's fate is uncertain as long as Reid is majority leader.

"I've always supported Yucca Mountain and if there were one key retirement I think the program could move forward. I don't know what will happen in the meantime," he said.
(Source: By Erica Warner, Associated Press.)



Fuel shortage limits U.S. nuke power plans

U.S. Scientists say dwindling supplies of nuclear power plant fuel might limit the expansion of nuclear energy in many nations.

Researchers at the Massachusetts Institute of Technology report commercial and government inventories are nearly depleted and uranium production meets only about 65 percent of reactor requirements.



"Just as large numbers of new reactors are being planned, we are only starting to emerge from 20 years of underinvestment in the production capacity for the nuclear fuel to operate them, said Thomas Neff of MIT's Center for International Studies

He said among numerous problems is the fact China, India and Russia have plans for massive deployments of nuclear power and are trying to lock up supplies from countries on which the United States has traditionally relied.

As a result, Neff said the United States could be the last one to buy and it could pay the highest prices, if it can get uranium at all.

"The take-home message is that if we're going to increase use of nuclear power, we need massive new investments in capacity to mine uranium and facilities to process it," he said.

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