Students conduct Mineral County survey

Mineral County National Honor Society students submitted a proposal to the Mineral County Repository Planning and Oversight Office asking for a grant for continuing education. Their goal was to survey county residents to ascertain and compare their responses to already conducted national surveys regarding nuclear energy and the proposed Yucca Mountain Nuclear Waste Repository.

American Honor Society Students, seniors from Mineral County High School, presented thier findings from a 200 person survey regarding nuclear energy and the prposed Yucca Mountain Waste Repostitory. Pictured as in the order left to right: Courtney Baker, Theora Janis and Andrew Schumann.

How did Mineral residents respond?

Students conducted approximately 200 face-to-face surveys in Mineral County. Survey questions focused on general knowledge of Yucca Mountain, nuclear waste transporation, and nuclear power.

There were 81 males and 117 females surveyed using 13 questions (example can be seen on page 5).

Once the research was completed students compiled the information and presented their findings to the Mineral County Board of County Commissioners.

❖ (Continued on page 5)

Yucca corrosion data found to be suspicious

Government scientists raised questions in recent weeks about Department of Energy experiments on how long it will take canisters containing highly radioactive nuclear waste to corrode after being placed within Yucca Mountain.

The discovery led DOE to replace the data that was part of its license application to build a repository at the Nevada site.

At the same time, DOE has launched a review of the challenged research, which involved the nickel-based Alloy 22 that will be the outer cover of waste-containing packages. In the experiments, Alloy 22 samples were subjected to a solution of corrosive chemicals and then weighed to determine how much they had degraded.

Technicians reviewing the results reported "documented, repeated and potentially significant excursions" from the American Society for Testing and Materials standard for handling corrosion test specimens, according to a March 5 document that surfaced recently.

It fueled further criticism from Nevada critics of Yucca Mountain who charge DOE is rushing unduly to file for a license.

Russ Dyer, the chief scientist for the Yucca Mountain Project, said the suspicious corrosion data "was roped off" and is not part of the Yucca application.

Dyer said DOE initiated a corrective action to determine "what exactly happened in this experiment and the results that came out of it and the processes we used."

❖ (Continued on page 4)

Officials tour San Onofre Nuclear Generator Station

The employees of the Mineral County Nuclear Waste Project Office toured the San Onofre Nuclear Generator site in April joining a group from Churchill County which included students and county commissioners.

The San Onofre Nuclear Generator Station (SONGS) generates approximately 220 megawatts of power, enough to serve 1.5 million homes and businesses.

Two distinct types of waste which require special handling and disposal are produced at Nuclear Power generator sites, low-level and high-level radioactive waste.

Low-level wastes typically contain small amounts of radioactivity similar to those produced by medical procedures. Examples of such waste materials include items such as towels, gloves and tools used by workers, and water purification filtering materials.

High-level waste is the solid spent, or used, uranium fuel rods. Disposal of used fuel requires long term, high-reliability isolation from the environment.

When spent fuel is first removed from a reactor, it is placed in a special pool of water contained in a steel-lined concrete basin.

The water cools the spent fuel and protects workers and the public from radiation.

After it has cooled considerably, some commercial power plants and government facilities move the fuel to dry-storage containers made of steel and/or concrete to shield radiation.

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

A long-term environmental problem

Nuclear waste must be properly managed to minimize risk to the environment and to the health and safety of future generations.

Current storage methods shield any harmful radiation and are presently safe. However, modern aboveground storage structures are designed for temporary storage only, and will not withstand rain, wind, and other environmental factors for the tens of thousands of years during which the waste will be hazardous.

Permanent disposal options

For decades, experts throughout the world have studied many options for permanently disposing of nuclear waste — including:

- Leaving the material at current storage sites
- Burying it in the ocean floor
- Putting it in polar ice sheets
- Sending it into outer space
- Placing it deep underground in a geologic repository

After analyzing these options, most scientists agree that disposal in an underground repository is the best long-term solution for safely managing highly radioactive wastes.

As long as nuclear waste remains in a solid form and is properly shielded, it will not harm people or contaminate the environment — and over time it produces less and less radiation. The idea behind deep geologic disposal, therefore, is to keep the waste as dry and isolated as possible, for as long as possible, so that its radiation can diminish to safe levels.

Many scientist believe that isolating the waste in a deep underground repository, would keep the waste from many environmental factors that on the earth's surface would cause it to break down into radioactive particles that could be dispersed by air or water into the accessible environment.

DOE began studying Yucca Mountain, Nevada, in 1978 to determine whether it would be suitable for the nation's first long-term geologic repository for spent nuclear fuel and high-level radioactive waste.

❖ (Continued on page 3)

Officials tour nuclear plant (Continued)

Who will determine if a repository is built at Yucca Mountain?

Before the DOE could construct a geologic repository and begin waste emplacement, the Department must submit a license application, go through a multi-year review and public hearing process, and then receive a construction authorization from the Nuclear Regulatory Commission (NRC). The DOE announced they are submit the License Application this June, 2008.

The hearing process would focus on public health and safety. Along with the review process, the hearing process is expected to take a minimum of three years after the DOE submits a license application.

If the DOE receives a construction authorization, it would have to complete initial construction, and apply for and receive a license from the NRC before any waste could be received or emplaced. This includes demonstrating to the NRC that there is a reasonable expectation a repository designed for the Yucca Mountain site could protect health and safety for 10,000 years after the repository is closed.

If the DOE receives a license from NRC to build and operate a repository at Yucca Mountain, it will begin shipping nuclear waste from commercial and government-owned sites to the repository sometime after 2017. This opening date of 2017 is a "best-achievable schedule" and is predicated upon enactment of new legislation.

The department must ship the waste according to strict federal regulations. The waste will be transported in heavily shielded casks certified by the NRC along approved transportation routes.

The majority of spent nuclear fuel and high-level radioactive waste shipments will be by rail. DOE plans to construct a rail line to connect the Yucca Mountain repository site with an existing rail line in Nevada.

Mineral County officials are actively working with other affected counties in the state of Nevada and one in California to maintain oversight of the proposed Yucca Mountain activities as well as the transportation of high-level waste in Nevada. This group of affected counties are called "affected units of local government" (AULG) consisting of Churchill, Clark, Mineral, Lander, Eureka, Esmeralda, White Pine, Lincoln, and Nye County's in Nevada and Inyo County in California.

Having the opportunity to tour a nuclear generator plant help officials to be more informed about waste management, the security and safety of storing the waste, and the possible transportation through Nevada and Mineral County.

Source: SCE.com, ocrwm.doe.gov/, Christina Boyles and Loreen Pitchford

Yucca corrosion data (Continued)

In the meantime, DOE is using corrosion rates resulting from a separate set of experiments that sought to determine how corrosion might develop in canister welds and other crevices of the waste package.

"What is the potential impact on total system performance, and the answer is none," Dyer said. To gain a license, DOE must show that the canisters together with other features of the repository can prevent radioactive material from leaking for periods close to a million years.

The discovery came as scientists from Sandia National Laboratories were reviewing corrosion data. They said they uncovered a "vulnerability" in the data that were collected over five years.

The Sandia findings were contained in a March 5 Power Point presentation that became available on a Yucca Mountain public document database.

After emerging from the corrosive bath, the Alloy 22 "coupons" were cleaned of corrosion before being weighed. Sandia reported the cleaning process "may have been incomplete."

As a result, salts and other residue may have skewed the weight of the samples, raising questions about how much corrosion had taken place. A heavier piece might suggest the metal could last longer.

Sandia said there is "less than a 50 percent chance" the corrosion data were invalid. "But given the critical nature of this parameter (it) must be confirmed."

The corrosion experiments were conducted at the Lawrence Livermore National Laboratory in California. In 2006, DOE issued a stop work order on a separate set of corrosion experiments after Nuclear Regulatory Commission inspectors reported the work was based on humidity gauges that were not calibrated. *Source: Las Vegas Review Journal*

Corrosion tests of metal samples, called coupons, are carried out at Livermore's Long-Term Corrosion Test Facility. Four types of coupons are kept in 24 tanks, each filled with about 1,000 liters of one of the three aqueous solutions that are likely to be found in the underground Yucca Mountain environment. In this photograph, a rack containing several hundred coupons is pulled out of solution for inspection.

❖ U-bend coupons are one of the four types of coupons being tested for corrosion resistance. U-bends are metals kept under continuous stress to try to induce stress corrosion cracking.

Students (continued)

❖ (Continued from page 1)

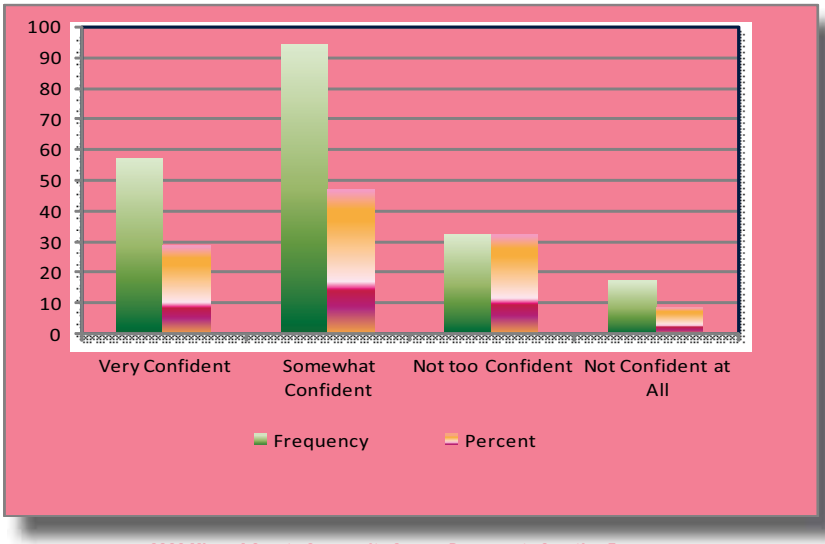
The funds the students received will be used for continuing education.

Mineral County's Repository Planning and Oversight Offices as well as the commissioners were very impressed with the students and their presentation.

The survey results can be seen on our website at mcnucprojects.com/survey.htm.

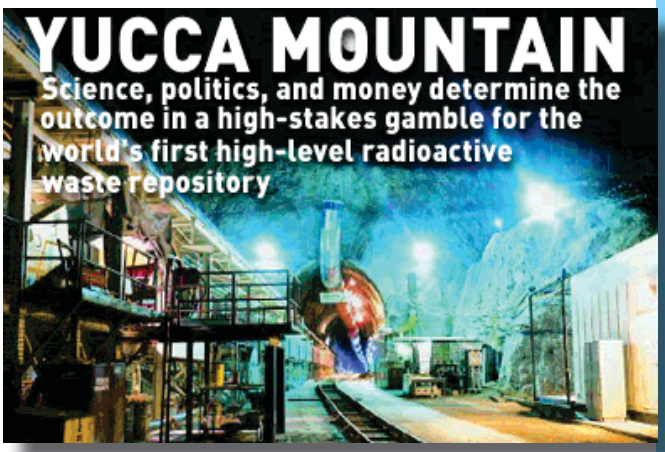
Question 5 (from the survey)

Radioactive waste is transported in rugged vault-like containers, under strict regulations, using cautious procedures, and in collaboration with state agencies. In the past 35 years, there have been more than 3,000 shipments of this radioactive waste across a total of nearly 2 million miles, and no radiation leeks. After hearing this statement, how confident are you that the radioactive waste from America's nuclear power plants will be transported safely to the proposed Yucca Mountain disposal site?



2008 Mineral County Community Survey-Response to Question 5

Nuclear energy heats up US presidential race



John McCain embraces it. Barack Obama wants to address its flaws. Hillary Clinton is cautious but not opposed.

Nuclear power -- controversial in the United States and throughout much of the world -- is on the agenda of all three U.S. presidential candidates as they seek to diversify the country's energy mix and reduce dependence on foreign oil.

Interviews with top policy advisers to the three White House hopefuls reveal a varied approach to the technology that some observers see as a necessary answer to fighting climate change and others view as expensive and dangerous.

McCain, a Republican senator from Arizona who has wrapped up his party's nomination, is by far the most enthusiastic about the carbon-free fuel source, regularly calling for more nuclear power plants at campaign stops throughout the nation.

"I believe we are not going to reduce greenhouse gas emissions and become energy independent ... unless we use nuclear power and use it in great abundance," he said in North Carolina on May 6th.

McCain adviser Douglas Holtz-Eakin said nuclear power faced an "uneven playing field" from years of political opposition.

"Sen. McCain would eliminate the political obstacles that hinder nuclear power, allow it to compete more effectively, and likely increase its share of the U.S. energy portfolio," he said.

Nuclear energy accounts for about 20 percent of U.S. electricity supply, a figure that could rise if regulations on carbon dioxide emissions are imposed, making greenhouse gas emission-free nuclear plants more attractive.

There are 104 operating nuclear reactors nationwide.

Obama, an Illinois senator and the front-runner for the Democratic nomination, shares McCain's belief that nuclear energy is part of the solution to climate change.

But he opposes new federal subsidies and would work to address concerns about safety and waste storage, senior adviser Jason Grumet said.

❖ (Continued on page 6)

Nuclear energy (continued)

❖ (Continued from page 5)

"Because of the fact that climate change is a species-challenging dilemma, we don't have the luxury to do anything but try to solve those real problems," associated with nuclear technology, he said.

Clinton, a New York senator, prefers using renewable fuels to fight climate change because of nuclear energy's risks.

"Hillary has real concerns about nuclear power because of the issues around safety, waste disposal and proliferation," policy director Neera Tandem said.

"She opposes new subsidies for nuclear power, but would continue research focused on lowering costs and improving safety."

SOME NUANCE

The key roadblock to new U.S. nuclear plants has been finding a home for nuclear waste. Congress designated Yucca Mountain, 90 miles (145 km) from Las Vegas, to be the nation's waste repository, but the site is years behind schedule and may never open because of powerful opponents like Senate Majority Leader Harry Reid of Nevada.

The U.S. Nuclear Regulatory Commission (NRC) has not issued a new nuclear plant license since the mid 1970s and utility companies have balked for years at constructing new sites because of concerns about plant safety and cost overruns. However, in 2007 the NRC accepted a total number of 4 applications for new nuclear power plants and in 2008 there are an estimated additional 7 applications expected.

Despite signs that trend may be changing, environmental group Greenpeace, which opposes nuclear energy because of the serious problem with waste disposal, does not see an industry renaissance on the horizon, said Jim Riccio, the group's nuclear policy analyst in Washington.

He described the Democrats' positions as nuanced. Clinton's energy platform was "better than the others" because of its focus on nonnuclear sources, though she appeared to change her stances in different states, he said.

Both Democrats had received money from nuclear energy companies: Exelon -- which has the largest nuclear reactor in the United States -- to Obama and Entergy to Clinton, he said.

The industry, meanwhile, welcomed McCain's support and described the Democrats' position as open-minded.

"We're obviously delighted to see Sen. McCain's strong support but that is something that thankfully we've been able to enjoy throughout the Bush administration," said Steve Kerekes of the Nuclear Energy Institute, the industry's main U.S. lobby group. "We would characterize the others as, you know, open-minded on the issue."

The candidates' advisers were less generous in their description of their opponents' positions. McCain criticized both Democrats for their opposition to Yucca Mountain.

"The political opposition to the Yucca Mountain storage facility is harmful to the U.S. interest and the facility should be completed, opened and utilized," McCain adviser Holtz-Eakin said.

Grumet said Obama shared Clinton's concerns about waste and safety but was more committed to working out solutions.

"Sen. Clinton brings attention to what we agree are big problems and says we should focus the attention elsewhere. Sen. Obama sees big challenges and says that because of climate change, we should try like heck to solve them." *Source: Rueters*

More Info

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.

For more information on Mineral County's program contact Linda Mathias, Director of Nuclear Projects at (775) 945-2484. 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 website at mcnucprojects.com.

Editors: Rex Massey, Linda Mathias, Contributing Editor, format, graphics, Loreen Pitchford

Online newsletter available at http://mcnucprojects.com