

To: Jim Mehl, ERU Supervisor
From: Zack Clayton, Rad Coord
Subject: September Monthly Report
Date: October 8, 2008

Beans:

Training: 0
Drills 1
Meetings: 1
Technical Assistance: 1
Public Assistance: 2

Web Page Hits: There were 71 RAD hits in September.

Coming Attractions:

Working Group 10/1 11/5
After Action 11/5
Perry exercise 10/7
URSB 10/14
NEPAC 10/23
SAIC 10/6 20 27
EP340 Class 11/18-21

Facility Updates:

Davis-Besse Nuclear Power Station

Davis-Besse operated at full power for most of September. Davis-Besse Nuclear Power Station powered down to 90% over the weekend of Sept. 6-7 to conduct normal maintenance on turbine and control valves.

Perry Nuclear Power Plant

The Perry plant operated at full power for most of September. Perry conducted a down power over the weekend. Perry Nuclear Power Plant reduced power to approximately 60% for an 8-hour period over the weekend of Sept. 20-21 to perform routine testing of valve cycling and

control rod sequencing. The Plant returned to 100% power by Monday, Sept. 22.

Beaver Valley Unit I

Beaver Valley Unit I operated at full power for September. The wind storm of September 15 caused widespread power outages in the Emergency Planning Zone for the entire power station and this affected the off site alerting sirens. Beaver Valley reported this to the NRC as an event notification.

Beaver Valley Unit II

Beaver Valley Unit II operated most of September at full power. The plant powered down to 25% the weekend Sept. 20-21 to conduct scheduled maintenance on steam generator regulator valves. It returned to 100% power late on Monday, Sept. 22.

Fermi II

Fermi operated at full power for most of September. Fermi powered down September 14 for plant adjustments.

Portsmouth Gaseous Diffusion Plant

There were no reported incidents in September.

Activity:

9/9 Working group at Ohio EMA. Agency updates and preparation for the Exercise. Preparing the annual report for URSB meeting at Davis Besse. Carol needs the identification for the members attending the tour.

9/23 The Dry Run for the Perry evaluated exercise was postponed due to the wind event from the remnants of hurricane Ike. The counties practiced on the 17th as to the prior schedule and little wind damage. The state delayed for a week to allow the real emergency event use of the EOC and facilities. Participating agencies were not called back to the EOC for the Dry Run to avoid overtaxing the support agencies. As a result of this all main portions of the Dry Run were performed out of sequence or simulated.

Office Issues:

The Rad web page has been updated and a monthly report added. This has been implemented as part of the DERR pages for the Governor's web upgrade initiative for all agencies.

NRC Reports and Statistics:

September operating power levels

Date	BV1	BV2	DB	Fermi2	Perry	
1	100	100	100	100	100	
8	100	100	100	100	100	
14	100	100	100	86	100	Weekend plant adjustment.
15	100	100	100	100	100	
20	100	73	100	100	63	Weekend plant adjustment.
21	100	25	100	100	100	
22	100	83	100	100	100	
23	100	100	100	100	100	
29	100	100	100	100	100	
30	100	100	100	100	100	

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ScienceDaily (Sep. 23, 2008) — It may be possible to dramatically reduce the radioactive waste isolation time -- from several million years to as little as 300 - 500 years. In order to decrease the isolation time for radioactive waste, first of all, the actinides - elements whose nuclei are heavier than uranium (i.e. curium, actinium [sic]) - must be removed from the waste by processing (transmutation) into short-lived nuclei.

The core concept of transmutation – which was formulated as early as mid 20th century – consists of irradiating the actinides by fast neutrons. The highly stimulated nuclei that are generated this way suffer a fission, which leads to relatively short-lived nuclei, which in turn rapidly disintegrate into stable isotopes. Then, they cease to be radioactive,” explains Professor Helmut Leeb from the Atomic Institute of the Austrian Universities. Thus, the required radioactive waste isolation time of several millions years could be decreased to 300 and up to 500 years. The technological progress made in the last decades has made the transmutation possible at the industrial level.

An efficient transmutation of radioactive waste requires the development of new facilities. In addition to specially designed fast reactors, the Accelerator-Driven Systems (ADS) present a new potential concept. This is an undercritical reactor, which cannot sustain any chain reaction. The neutrons necessary for stationary operations are supplied by a proton accelerator with a spallation target located in the reactor core.

“During the spallation, the atomic nuclei of the target (mainly lead) are broken with high-energy protons, while a large number of neutrons are normally released, neutrons which are necessary for the stationary operation of the reactor. If the accelerator is turned off, the chain reaction ceases,” added Leeb. Worldwide studies are based on the assumption that at least two decades will be necessary to transfer this concept to the industrial level, a concept which is fully understood at the scientific level.

An essential prerequisite for this development is a thorough knowledge of the neutrons' interaction and reactions with other materials as available to date. Therefore, in the year 2000, the n_Tof facility became operative at CERN (Genf), which is a unique facility in the world, suitable especially for measuring the reactions of radioactive materials when bombarded with neutrons. Between 2002 and 2005, a large number of radiative captures and fission reactions, previously insufficiently known, were measured as part of an EU project, in which nuclear physicists from TU Vienna were considerably involved.

After the conditional pause occasioned by the construction of the Large Hadron Collider at CERN, now at the end of September 2008, the consortium will start the operations at the upgraded n_TOF facility with a new target. The first series of experiments are neutron radiative captures on iron and nickel, which are analyzed by Viennese nuclear physicists (from TU Vienna and the University of Vienna). In addition to accurate reaction data for transmutation facilities, the results are also of interest for astrophysics.

An alternative nuclear fuel, which leads to a reduced incidence of radioactive waste, is the "thorium-uranium cycle." Leeb: "Thorium is a potential nuclear fuel, which may be incubated into a light uranium isotope, whose fission generates basically no actinide. Furthermore, thorium can be found approximately five times more often than uranium. However, special reactors must be still developed for this, reactors that would be appropriate for the reaction pattern and for the somewhat harder gamma radiation. India is one of the countries that already host experiments with thorium in reactor cores."

Adapted from materials provided by [Vienna University of Technology](#).

ScienceDaily. Retrieved September 23, 2008, from <http://www.sciencedaily.com/releases/2008/09/080922100148.htm>

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YUCCA MOUNTAIN: EPA sets new radiation-exposure standard **(09/30/2008)**

Katherine Ling, *E&ENews PM* reporter

U.S. EPA set final radiation standards today for the Yucca Mountain, Nev., nuclear waste repository, aimed at limiting the exposure of people who live near it for as much as 1 million years into the future.

The allowed radiation dose limit in a 10-mile radius around Yucca Mountain would be 15 millirem per year for the first 10,000 years after waste disposal and 100 millirem annual exposure per year for 10,000 to 1 million years.

A federal appeals court vacated the first EPA standards in 2004, when the agency guidelines went only as far as 10,000 years. The three-judge panel said the standards were inconsistent with findings of the National Academy of Sciences that said the peak radiation hazard for the repository was somewhere between 300,000 and 1 million years.

Critics of the Energy Department's Yucca Mountain repository -- which would be about 100 miles from Las Vegas -- have highlighted the lack of radiation standards as evidence that DOE's license application submitted in June is incomplete. The Nuclear Regulatory Commission officially accepted the application as complete this month.

EPA's new standard is lower than a proposed rule the agency announced in 2005 that would have set the limit after 10,000 years to 350 millirem annual exposure per year. For perspective, EPA says, a routine chest X-ray exposes a person to about 10 millirem of radiation, and the average annual radiation exposure of a U.S. citizen is about 360 millirem per year.

The repository would also have to "consider" the effects of climate change, earthquakes, volcanoes and corrosion of the waste packages for up to 1 million years under EPA's new standards.

DOE welcomed EPA's announcement, saying the license application "made a strong case for compliance."

The Nuclear Energy Institute said the new standards will help NRC proceed with its review of the repository. "The very conservative radiation dose rates expected at both 10,000 and 1 million years are exceedingly small and give us confidence that the repository will be safe even over those extended time periods," said spokesman John Keeley in an e-mail.

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For release: (Washington, D.C. – Tuesday, Sept. 30, 2008)

EPA Issues Final Yucca Mountain Radiation Standards

Contact: Cathy Milbourn, (202) 564-4355 / milbourn.cathy@epa.gov

EPA has established radiation standards for the proposed spent nuclear fuel and high-level radioactive waste disposal facility at Yucca Mountain, Nevada.

EPA is required to set standards consistent with the findings and recommendations of the National Academy of Sciences (NAS) and satisfy a July 2004 court decision to extend the standards' duration. The Yucca Mountain standards are in line with approaches used in the international radioactive waste management community. The final standards will:

- Retain the dose limit of 15 millirem per year for the first 10,000 years after disposal;
- Establish a dose limit of 100 millirem annual exposure per year between 10,000 years and 1 million years;
- Require the Department of Energy (DOE) to consider the effects of climate change, earthquakes, volcanoes, and corrosion of the waste packages to safely contain the waste during the 1 million-year period; and
- Be consistent with the recommendations of the NAS by establishing a radiological protection standard for this facility at the time of peak dose up to 1 million years after disposal.

Human exposure to radiation varies from natural sources, such as radon and ultraviolet radiation from the sun, and other sources, such as medical X-rays. The average annual radiation exposure from both naturally occurring and manmade sources for a person living in the United States has been estimated to be 360 millirem per year.

EPA, DOE and the Nuclear Regulatory Commission perform different functions related to Yucca Mountain. To learn more about this action and the roles of the three federal agencies, visit: <http://www.epa.gov/radiation/yucca>

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Power Reactor	Event Number: 44487
Facility: BEAVER VALLEY Region: 1 State: PA Unit: [1] [2] [] RX Type: [1] W-3-LP,[2] W-3-LP NRC Notified By: DAN SCHWER HQ OPS Officer: DAN LIVERMORE	Notification Date: 09/15/2008 Notification Time: 12:45 [ET] Event Date: 09/15/2008 Event Time: 08:00 [EDT] Last Update Date: 09/15/2008

Emergency Class: NON EMERGENCY 10 CFR Section: 50.72(b)(3)(xiii) - LOSS COMM/ASMT/RESPONSE	Person (Organization): ANTHONY DIMITRIADIS (R1)
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Unit	SCRAM Code	RX CRIT	Initial PWR	Initial RX Mode	Current PWR	Current RX Mode
1	N	Y	100	Power Operation	100	Power Operation
2	N	Y	100	Power Operation	100	Power Operation

Event Text

LOSS OF EMERGENCY SIRENS DUE TO POWER OUTAGES CAUSED BY HIGH WINDS

"At approximately 0800 on 09/15/2008, it was determined that 55 of 119 Beaver Valley Power Station (BVPS) Emergency Offsite Sirens were inoperable. The apparent cause is loss of power to the sirens due to numerous power outages in the surrounding area. High winds from the remnants of Hurricane Ike passed through the surrounding area overnight. The weather has since returned to normal conditions. BVPS has validated that backup route alerting capability is in place for Columbiana County, Ohio and Hancock County, West Virginia. Beaver County, Pennsylvania is in process of verifying backup route alerting capability for the affected areas. This event is being reported as a Loss of Emergency Preparedness Capabilities pursuant to 10CFR50.72(b)(3)(xiii).

"The NRC resident inspector has been notified. Updates on the status of siren restoration will be provided to the NRC resident inspector on an ongoing basis. Periodic updates to the NRC Headquarters' Operations Center will also be provided."

* * * UPDATE PROVIDED BY BARRY SOMMER TO DAN LIVERMORE ON 09/16/2008 AT 1713 * * *

"As of 1450 hours on 09/16/2008, 23 of the 119 Beaver Valley Power Station (BVPS) Emergency Offsite Sirens remain inoperable. There may be some variability of the number of inoperable sirens due to ongoing storm restoration activities. Backup route alerting capability remains in effect for the areas served by the inoperable sirens,

"Updates on the status of siren restoration will be provided to the NRC resident inspector on an ongoing basis. Periodic updates to the NRC Headquarters' Operations Center will also be provided."

The licensee notified the NRC Resident Inspector.

* * * UPDATE PROVIDED BY JAMES LUTZ TO JOHN KNOKE ON 09/18/2008 AT 1512 * * *

"Update to EN# 44487. As of 1330 hours on 09/18/2008, 8 of the 119 Beaver Valley Power Station (BVPS) Emergency Offsite Sirens remain inoperable. The remaining 8 inoperable sirens no longer represent a major loss of emergency preparedness capabilities. Backup route alerting capability remains in effect for the areas served by the inoperable sirens and the licensee will continue to monitor restoration status.

"Updates on the status of siren restoration will be provided to the NRC resident inspector on an ongoing basis."

The licensee has notified the NRC Resident Inspector and state and local officials. Notified R1DO (Dimitriadis).

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