

To: Jim Mehl, ERSIS Manager
From: Zack Clayton, Rad Coordinator
Subject: May Monthly Report
Date: June , 2016

Beans

Training: 0
Drills: 1
Meetings: 3
Technical Assistance: 7
Public Assistance: 0

Web Page Views: There were 25 page views in May.

Radiological Safety Program Pages: <http://epa.ohio.gov/derr/ersis/er/rad.aspx>

Coming Attractions

6/1 IREP Intermediate Phase
6/2 IREP Power Plant
6/7 IREP Tech
6/8 IREP
6/14 Beaver Valley Full Scale Evaluated Exercise
6/22 IREP Non-Power
7/6 IREP Intermediate Phase
7/6 IREP Power Plant
7/11 URSB
7/14-19 EOC active for NAACP in Cincinnati
7/16-21 EOC Active for RNC in Cleveland
7/27 IREP Non-Power
7/28 NEPAC

Facility updates

Davis-Besse Nuclear Power Station

Davis-Besse started May in its refueling outage, which began March 26. The plant returned to power production May 10.

Results for groundwater monitoring wells sampled 4/18/16 and 4/19/16 have been received. Twenty-four wells were sampled along with historic wells of interest. Four

wells indicated tritium concentrations above the reporting limit of 2000 pCi/L. Three of these four wells showed a decrease from the previous sample while one (MW-105A) showed a minor increase. There are no indications of an active leak and overall tritium levels are trending downward. The limit for tritium in drinking water is 20,000 pCi/L. the reporting threshold was set at 2000 pCi/L as a normal 10 times below the regulatory limit. The next sampling will occur in July.

Perry Nuclear Power Plant

Perry operated at full power for the month.

Beaver Valley Power Station

On May 20, There was an accidental activation of the BVPS siren system by Hancock Co for the tornado warning system at approximately 1530. After the cause was determined, a silent test was performed and the system appears to be functioning normally. See Event number 51948.

Beaver Valley Unit I

Unit I operated at full power for the month.

Beaver Valley Unit II

Unit II operated at full power for the month.

DTE

Fermi II

Fermi II had a maintenance outage from May 4 to May 13. The plant operated at full power for the remainder of the month.

Fermi III

There was licensing related paperwork filed for Fermi III.

Portsmouth Enrichment Plant

There was closure related paperwork filed for the Portsmouth site.

Other Sites

Activity

5/4 IREP Intermediate Phase Planning

5/5 IREP Power Group

5/10 IREP Technical Group

5/11 IREP – The IREP meeting is going to a quarterly schedule.

5/13 FMT Controller Training

5/17 Beaver Valley Full Scale Dry Run

Office Issues

Several incidents involving radiation/ radioactive contamination from non-nuclear power businesses came in during the month. Procedures are being developed to address response and establish payroll for future events.

Statistics, NRC Reports, News, and ADAMS References

Operating Power Levels

May

Date	BV1	BV2	DB	Perry	Fermi2	
1	100	100	0	100	100	
2	100	100	0	100	100	
4	100	100	0	100	0	Fermi maintenance outage
9	100	100	0	100	0	
10	100	100	35	100	0	DB coming out of refueling outage
13	100	100	100	100	3	
16	100	100	100	100	86	
23	100	100	100	100	100	
30	100	100	100	100	100	
31	100	100	100	100	100	

Event Reports

Part 21	Event Number: 51907
Rep Org: ROTORK CONTROLS, INC. Licensee: JOHNSON ELECTRIC Region: 1 City: ROCHESTER State: NY County: License #: Agreement: Y Docket: NRC Notified By: PATRICK SHAW HQ OPS Officer: DONG HWA PARK	Notification Date: 05/04/2016 Notification Time: 14:56 [ET] Event Date: 01/25/2016 Event Time: [EDT] Last Update Date: 05/04/2016
Emergency Class: NON EMERGENCY 10 CFR Section: 21.21(d)(3)(i) - DEFECTS AND NONCOMPLIANCE	Person (Organization): FRED BOWER (R1DO) MIKE ERNSTES (R2DO) NICK VALOS (R3DO) JOHN KRAMER (R4DO) PART 21/50.55 REACTO (EMAI)

Event Text

PART 21 - ANOMALY RELATED TO MICRO SWITCHES

The following report was received via email:

"Based on test data, Rotork believes an unsafe condition may exist as defined under 10 CFR 21. The adhesive formulation used for the construction of V12 and K5 safety related micro switches was altered by the switch maker's sub-supplier. K5 switches have no reported failures, but are affected because of construction. The altered adhesive formulation outgases an insulating material at elevated temperatures, which coats the switch contacts as it cools and can prevent the conduction of electricity."

Part 21	Event Number: 51923
Rep Org: AZZ - NUCLEAR LOGISTICS, INC. Licensee: AZZ - NUCLEAR LOGISTICS, INC. Region: 4 City: FORTH WORTH State: TX County: License #: Agreement: Y Docket: NRC Notified By: TRACY BOLT HQ OPS Officer: VINCE KLCO	Notification Date: 05/12/2016 Notification Time: 19:23 [ET] Event Date: 05/10/2016 Event Time: [CDT] Last Update Date: 05/12/2016
Emergency Class: NON EMERGENCY 10 CFR Section:	Person (Organization): ART BURRITT (R1DO)

21.21(d)(3)(i) - DEFECTS AND NONCOMPLIANCE

JAMIE HEISSERER (R2DO)
ERIC DUNCAN (R3DO)
VIVIAN CAMPBELL (R4DO)
PART 21/50.55 REACT (EMAI)

Event Text

PART 21 - INITIAL NOTIFICATION OF MASTERPACT BREAKER FAIL TO CLOSE

The following information was a licensee received facsimile;

"Pursuant to 10CFR 21.21(d)(3)(ii), AZZ/NLI is providing written notification of the identification of a potential defect or failure to comply.

"On the basis of our evaluation, it has been determined that there is sufficient information to determine if the subject condition is left uncorrected could potentially create a Substantial Safety Hazard or could create a Technical Specification Safety Limit violation as it relates to the subject plant applications. The plants will need to evaluate their application to determine if the identified condition could have an impact to the plant operation.

"The following information is required per 10CFR 21.21(d)(4):

"(i) Name and address of the individual or individuals informing the Commission.

Tracy Bolt, Director of Quality Assurance
Nuclear Logistics, Inc.
7410 Pebble Drive
Ft. Worth, TX 76118

"(ii) Identification of the facility, activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

"Masterpact NT and NW style circuit breakers.

-The failure of the breaker being ready to electrically close after being subjected to an 'Anti-Pump condition'.

Note: The specific application where the failures have occurred is when the breaker is being utilized as a starter for closing into an inductive load like a fan motor.

"(iii) Identification of the firm constructing or supplying the basic component which fails to comply or contains a defect.

AZZ/ Nuclear Logistics
Fort Worth, Texas 76118

"(iv) Nature of defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

"Possible 'failure to close' condition of Masterpact breakers NT and NW style, that are being used with specific logic schemes that are subjected to 'anti-pump' conditions during normal operation. These breakers have a higher susceptibility to not return to the ready to close position after the close signal has been removed.

"PSEG reported approximately 14 instances with different breakers in different cubicles where they initiated an electric close order, and the breakers failed to close. All of the 14 instances

were in applications of being used to start an inductive load.

"NLI inspected three of the breakers (all NWs) that were returned by PSEG and could not fully replicate the problem as described by the plant. NLI was only able to repeat the failure to close when performing an 'anti-pump' test. The failure to close was intermittent, but could be duplicated. When the anti-pump condition was not present, NLI could not duplicate a failure to close. Visual inspections of the tested breakers did not reveal any visible damage to the breaker linkages, latches, shunt close or shunt trip assemblies.

"Schneider Electric (SE) performed testing of three Masterpact NW08 breakers (operated to beyond design life) and duplicated the fail to close condition as described by the plant. It was determined that a standing close signal with a trip/open signal applied is determined to be the root cause of the fail to close issue. The SE testing confirms that the presence of this condition can cause the breaker anti-pump latch to receive excessive forward pressure. When the nose of the latch impacts the close coil plunger, it will 'rock' up in the rear, catching on the top of the mechanism plate. Once the close voltage is removed, and the plunger retracts, the latch may or may not let go. If the latch does not release, then application of the close coil voltage will simply activate the close coil plunger and without the latch underneath the plunger, the breaker will not close.

"PSEG performed extensive troubleshooting at the Hope Creek plant and discovered that all of the affected breakers were in an anti-pump condition when the breakers failed to close.

"(v) The date on which the information of such defect or failure to comply was obtained.

"This revised notification is being submitted based on the information gathered on 5/10/2016 after additional testing, at the request of River Bend, was performed. This additional testing was requested following the notification that was provided to the plants listed below, in the original issue of this letter in February 2016.

"The evaluation of the condition was originally completed in September of 2012. The issue was originally determined at that time to not be a reportable condition based on the breaker not containing a defect and the condition was believed to be attributed to the specific logic scheme at the plant. To date, this issue has only been reported to NLI from the following plants, PSEG Hope Creek and River Bend Station. No other plants have reported this specific fail to close condition. NLI was in direct communication with the plants when this issue was first being evaluated and the failure analysis were being conducted. The two affected plants were knowledgeable of the condition.

"(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for being supplied for, or may be supplied for, manufactured or being manufactured for one or more facilities or activities subject to the regulations In this part.

"Plants which have been supplied the Masterpact circuit breakers.

"PSEG Hope Creek - Issue Identified for NW style

River Bend - Issue identified for NT style

Callaway - This issue has not been identified however, the potential should be evaluated.

St. Lucie - This issue has not been identified however. the potential should be evaluated.

Turkey Point - This issue has not been identified however, the potential should be evaluated.
Beaver Valley - This issue has not been identified however, the potential should be evaluated.
Davis Besse - This issue has not been identified however, the potential should be evaluated.
 Three Mile Island - This issue has not been identified however, the potential should be evaluated.
 Calvert Cliffs - This issue has not been identified however, the potential should be evaluated.
 Hatch - This issue has not been identified however, the potential should be evaluated.
 STP - This issue has not been identified however, the potential should be evaluated.
 SONGS - This issue has not been identified however, the potential should be evaluated.
 KHNPULchin - This issue has not been identified however, the potential should be evaluated.
 KHNPKor i- This issue has not been identified however, the potential should be evaluated.
 Duke Oconee - This issue has not been identified however, the potential should be evaluated.
 Duke McGuire - Non-safety (not supplied by NU), This issue has not been identified.

"(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has been or will be taken to complete the action.

"NLI originally created a technical bulletin to address the issue and recommendations. However, since new information has been recently identified, NLI TB-12-007 will be revised, as the proposed solution will not reliably solve the problem for all postulated events. Upon completion of the revised technical bulletin, it will be re-submitted to the plants which have been supplied the Masterpact breakers from NLI.

"(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

"NLI is currently working with the OEM of the circuit breaker to determine the permanent solution to correct the possible failure to close event after the breaker is subjected to an Anti-Pump condition.

"Advice for plants with breakers currently installed: Evaluate the applications where the breakers may be potentially subjected to an Anti-Pump condition; where the close coil will be energized for an extended period of time.

"The circuit breaker will continue to operate if this condition is present however there may need to be human interaction with the circuit breaker by manually pressing the trip/open button on the front of the circuit breaker to free the mechanism.

"Please contact NLI with any questions or comments.
 Sincerely,
 Tracy Bolt
 Director of Quality Assurance"

Agreement State	Event Number: 51920
Rep Org: OHIO BUREAU OF RADIATION PROTECTION	Notification Date: 05/11/2016 Notification Time: 17:37 [ET]

Licensee: CTL ENGINEERING, INC. Region: 3 City: COLUMBUS State: OH County: License #: 312100250018 Agreement: Y Docket: NRC Notified By: STEPHEN JAMES HQ OPS Officer: VINCE KLCO	Event Date: 04/14/2016 Event Time: [EDT] Last Update Date: 05/11/2016
Emergency Class: NON EMERGENCY 10 CFR Section: AGREEMENT STATE	Person (Organization): ERIC DUNCAN (R3DO) NMSS_EVENTS_NOTIFICA (EMAI) ILTAB (EMAI)

This material event contains a "Less than Cat 3 " level of radioactive material.

Event Text

AGREEMENT STATE REPORT - THEFT AND RECOVERY OF A PORTABLE GAUGE

The following information was received by email:

"On 4/13/16 CPN Model MC Series gauge was left in marked licensee vehicle parked outside technician's home in Columbus at end of work day, reportedly properly secured in vehicle with two independent locking devices. Gauge contains 10 mCi Cs-137 and 50 mCi Am-241:Be sources.

"Technician found gauge missing when came out to go to work on 4/14/16. Technician claims RSO was notified, RSO does not recall. No police report was filed and no report was made to ODH [Ohio Department of Health] at that time.

"On 5/10/16, gauge was found in vacant lot during separate police investigation. Police called fire department HAZMAT unit. Transport case was not locked, but gauge rod was locked. Licensee was identified by paperwork in the transport case. Licensee was contacted by fire department to retrieve gauge. Licensee RSO took possession of gauge and returned it to office in Columbus.

"On 5/11/16 licensee reported theft and recovery of gauge to ODH. ODH investigators visited site to determine cause of incident and reasons for lack of notifications."

Ohio Item Number: OH160003

THIS MATERIAL EVENT CONTAINS A "LESS THAN CAT 3" LEVEL OF RADIOACTIVE MATERIAL

Sources that are "Less than IAEA Category 3 sources," are either sources that are very unlikely to cause permanent injury to individuals or contain a very small amount of radioactive material that would not cause any permanent injury. Some of these sources, such as moisture density gauges or thickness gauges that are Category 4, the amount of unshielded radioactive

material, if not safely managed or securely protected, could possibly - although it is unlikely - temporarily injure someone who handled it or were otherwise in contact with it, or who were close to it for a period of many weeks. For additional information go to http://www-pub.iaea.org/MTCD/publications/PDF/Pub1227_web.pdf

Power Reactor	Event Number: 51948
Facility: BEAVER VALLEY Region: 1 State: PA Unit: [1] [2] [] RX Type: [1] W-3-LP,[2] W-3-LP NRC Notified By: MIKE ADAMS HQ OPS Officer: STEVEN VITTO	Notification Date: 05/20/2016 Notification Time: 18:40 [ET] Event Date: 05/20/2016 Event Time: 15:31 [EDT] Last Update Date: 05/20/2016
Emergency Class: NON EMERGENCY 10 CFR Section: 50.72(b)(2)(xi) - OFFSITE NOTIFICATION	Person (Organization): ANNE DeFRANCISCO (R1DO)

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

OFFSITE NOTIFICATION DUE TO INADVERTENT SOUNDING OF THE EMERGENCY NOTIFICATION SIRENS

"At approximately 1531 [EDT] hours, a tornado signal was inadvertently activated from Hancock County, West Virginia which sounded 118 out of 120 Emergency sirens. The remaining 2 sirens do not receive a tornado signal. The sirens alarmed for approximately 3 minutes. A silent test was subsequently performed for all 120 sirens and validated the emergency siren system remains functional.

"In accordance with 10 CFR 50.72(b)(2)(xi), News Release or Notification of Other Government Agency, a 4 hour notification is required.

"The [NRC] Senior Resident Inspector has been notified. No press releases are planned."

The licensee notified state and local agencies.

News

Industry to study threat from high-altitude nuclear blast

[Peter Behr](#), E&E reporter

Published: Friday, May 6, 2016

The impacts on the U.S. power grid from a high-altitude nuclear explosion will be examined in a new industry-funded study, reflecting increased concern about what experts have called an unlikely but potentially devastating strategic threat to society. The three-year study of electromagnetic pulse (EMP) attack scenarios by the Electric Power Research Institute (EPRI) can guide the development of defenses, said Rob Manning, vice president of transmission at EPRI's Power Delivery and Utilization research sector.

The project has the backing of the Electricity Subsector Coordinating Council (ESCC), a policy committee of utility chief executives engaged in grid security issues; the Department of Energy; and the North American Electric Reliability Corp., said Duane Highley, chief executive of Electric Cooperatives of Arkansas and an ESCC co-chairman.

"We hope to undergird the utilities and scientists in the country with some real science on the technical basis of what would actually occur in an EMP type of threat," Manning said. "Once we have a technical basis for that, we can look at what mitigation plans would actually work, what recovery plans would be appropriate, and what the technical gaps might be."

The study is directed against the threat of a nuclear bomb, detonated above North America, that would unleash three different energy bursts that would strike different types of electrical equipment, from electronic devices to large power grid transformers. "Any of these effects can cause voltage problems and instability on the electric grid, which can lead to wide-area blackouts," said Joseph McClelland, director of the Office of Energy Infrastructure Security at the Federal Energy Regulatory Commission, in Senate testimony last July.

"We've been running on speculation for years," Highley said in an interview. "There have been books written that sensationalize the risk and talk about the likelihood of the grid being down for a year and thousands and thousands of people dying over this. "We raised this issue a year ago," he added. "The government has some data that is classified ... that they can't share with us. So we wanted to get our own data on how likely are things to be damaged with what level of impulse generated by a thermonuclear device."

Slow action on EMPs

Executives speaking for the industry have argued that an EMP attack, an act of war, represents a strategic issue for the federal government. They have also pushed back against proposals for specific EMP defenses that might be required by regulation, saying protection needs to be targeted to specific sites on the grid.

FERC has adopted regulations requiring high-voltage grid companies to protect equipment against a related threat -- a geomagnetic disturbance (GMD) -- caused by a massive electromagnetic pulse from the sun. Devices that can protect transformers against a solar storm could also help protect against some of the EMP threats, experts said.

Although Congress created a commission in 2001 to examine the EMP threat, and two reports followed in 2004 and 2008, regulations targeted specifically at the nuclear weapon scenario have not been adopted. One commission report estimated the cost of protecting key transformers at \$2 billion, but estimates depend on the magnitude of an attack and the level of grid protection called for.

"We have seen just a handful of utilities move forward with EMP mitigation; one or two have been very proactive," McClelland testified.

McClelland noted that FERC has surveyed the interstate high-voltage grid to identify the most critical transformer substations, in collaboration with the departments of Energy and Homeland Security, and has shared that information with power companies. DHS and DOE's national laboratories have conducted studies on a range of EMP and GMD issues. But the administration's grades are mixed. A report in March by the Government Accountability Office found fault with some of the Department of Homeland Security's efforts.

"Specifically, DHS has not identified internal roles and responsibilities for addressing electromagnetic risks, which has led to limited awareness of related activities within the department and reduced opportunity for coordination with external partners," the GAO report concluded.

'From squirrels to nation-states'

The EMP threat has given rise to a vocal lobbying effort, both in Congress and recently in several states, where legislators are demanding that utilities be required to install EMP defenses. The argument has become heated in places.

Texas state Sen. Bob Hall (R), a former Air Force officer, blasted utility executives in his state who he said undermined efforts to pass EMP legislation last year. He said, "In my opinion, power company executives, by refusing to work with the Legislature to protect the electrical grid infrastructure, are committing an egregious act that is equivalent to treason."

"The EMP threat has the industry's attention," Scott Aaronson, national director for security policy at the Edison Electric Institute, said yesterday. "What the ESCC and EPRI are doing is to look at what the threat actually would be to critical components of the electric power grid, the mitigation options, and how effective they would be.

"There are people out there who are claiming the sector doesn't take this threat seriously. That is patently false. The ESCC has spent a considerable amount of time focused on this issue," said Aaronson, the ESCC secretary.

"We are looking at all threats to the electric grid, from squirrels to nation-states. And each one deserves to be considered based on the likelihood and consequence of that threat. The industry is investing and coordinating and partnering and protecting accordingly.

"If there are snake-oil salesmen out there who suggest there is a low-cost solution to these threats -- that will protect everything from anything -- then the science will bear that out," he added.

Twitter: [@pbehr](#) Email: pbehr@eenews.net

Source: <http://www.eenews.net/energywire/2016/05/06/stories/1060036819>

The Columbus Dispatch

Editorial

Help Ukraine contain Chernobyl

Monday May 9, 2016 5:10 AM

Everyday, Ukraine slogs through another day of dysfunction. The death toll from the country's war with Kremlin-backed separatists in the east now tops 9,300, and there's no end in sight to the two-year conflict. Kiev's failure to make any headway with rampant corruption and an economy in shambles is why the country's embattled prime minister, Arseniy Yatsenyuk, had to step down last month.

It all points to a country far from ready take on the job as caretaker of the dangerous remnants of the world's worst nuclear disaster: In April 1986, an explosion and subsequent fire showered radioactive particles over much of the western part of the Soviet Union and Europe.

For three decades, the Chernobyl site has been sealed but only with temporary, not permanent, protections. Finally, there's movement to contain it. The European Bank for Reconstruction and Development is about to put in place an already constructed \$1.7 billion, 30,000-ton, hangarlike shell over what's left of the ruined Reactor 4. By November 2017, the giant arch-shaped enclosure —tall enough to house Paris' Notre Dame Cathedral —should become operational.

At that point, the bank and the more than 40 countries that have helped finance the structure are supposed to hand over to Kiev two crucial tasks: dismantling the concrete and steel sarcophagus hastily built by Soviet workers in 1986 to contain radiation emanating from the damaged reactor, and disassembling the reactor itself. Ukraine will also assume responsibility for disposing 200 tons of a lava like mass of uranium, sand, boric acid and lead buried in the heart of the damaged reactor.

The most urgent task is dismantling the 30-year-old makeshift sarcophagus, which is showing signs of deterioration. Less of a priority is disposal of the reactor's uranium waste.

Made of steel cladding and a weblike network of trusses, the new protective shell was built to last 100 years. Nevertheless, Ukrainian officials have expressed doubts about their country's ability to shoulder the burden alone.

So far, the international community has followed the right blueprint for managing the dangers posed by the site. The shell this partnership of bankers and governments has built is an engineering marvel: An elaborate ventilation and humidity control system will prevent corrosion. To safeguard construction workers and technicians from radiation exposure, the whole structure was built adjacent to the site and will be gently wheeled into place over Reactor 4 later this year.

Spent fuel from Chernobyl's two other reactors will be encased in concrete capsules and housed at a new storage facility built by a U.S. company. A nearby waste-treatment plant will process and store the site's liquid radioactive waste.

But the job won't be finished until Reactor 4 is safely taken apart and its dangerous core of nuclear waste is safely removed. If the Ukrainians want help coping with the delicate last phase of making Chernobyl as safe as possible, they should get it.

Washington is part of the partnership that financed the protective shell. Now isn't the time for that partnership to collapse or fade away. We hope the Obama administration, and its successors, exert the diplomacy and pay the relatively modest costs to keep this dangerous site sealed, in perpetuity.

Chicago Tribune

toledoBlade.com

Davis-Besse returns to service

5/11/2016

BLADE STAFF

OAK HARBOR, Ohio - FirstEnergy Corp.'s 908-megawatt Davis-Besse nuclear plant has returned to service and is expected to be back at full power by the end of this week. Spokesman Jennifer Young said the plant synchronized to the region's electric grid at 11:07 p.m. Monday. That typically happens when reactors coming off a shutdown have reached 20 percent power. It was operating at 65 percent power this morning.

The 44-day outage, which began March 26, was for normal refueling and maintenance that occurs at least once every two years.

One of the bigger projects during the outage was the construction of a multimillion dollar emergency feedwater facility that would provide additional backup in the event of an accident that goes beyond the plant's original design. Such upgrades are required on a case-by-case basis by the U.S. Nuclear Regulatory Commission in response to the unanticipated tsunami-related disaster at Japan's six-reactor Fukushima Daiichi nuclear complex on March 11, 2011.

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The Columbus Dispatch

Environment

Davis-Besse nuclear plant on Lake Erie restarts after refueling shutdown

Wednesday May 11, 2016 9:24 AM

OAK HARBOR, Ohio (AP) —An Ohio nuclear plant has returned to service after a biennial shutdown for refueling and maintenance.

The Davis-Besse Nuclear Power Station that sits along Lake Erie in northern Ohio is owned by FirstEnergy Nuclear Operating Co., a subsidiary of Akron-based FirstEnergy Corp.

FirstEnergy says the plant returned to service Monday night after a shutdown that began March 26. The company said the 908-megawatt plant is expected to reach full power in the next week.

Officials say the plant's two steam generators were inspected. Crews also replaced about a third of the reactor's 177 fuel rod assemblies and two of the 50-ton electric motors that drive the reactor's coolant pumps.

The company also constructed a new emergency water and power supply building designed to meet current federal and industry emergency standards

Nuclear Economics Consulting Group

April 28, 2016

U.S. merchant nuclear power plants are losing money selling power into wholesale electricity markets. Two have retired early and more than a dozen are threatened. A recent state regulatory deal to save Davis Besse is promising, but faces challenges. The complicated cases and decisions discussed here are very important to the Davis-Besse nuclear power plant (and potentially other threatened merchant nuclear plants). These cases will provide important guidance to other states.

Ohio PUC Decision

On 31 March 2016, the Ohio Public Utilities Commission (PUCO) approved the FirstEnergy application for a power contract that would prevent the early economic retirement of the Davis-Besse nuclear power plant.[\[2\]](#)

The 137-page Opinion and Order reflects a contentious process that took almost two years.

This deal involves an eight-year arrangement with:

- A non-bypassable rider, the Retail Rate Stability Rider (Rider RRS), that will be applied to the rates for all retail customers;
- Power sales under a new power contract between the regulated FirstEnergy companies and FirstEnergy Solutions based on the Davis-Besse Nuclear Power Station, the W.H. Sammis Plant, and the FirstEnergy entitlement to the output of the Ohio Valley Electric Corporation (OVEC);
- Sale of the acquired power by the regulated entity into the PJM electricity markets;
- Comparison of the revenue from sales of power into the PJM wholesale market and the costs of the power contract, with the resulting net cost or credit included in Rider RRS.

If PJM market prices are high, the credit applied to Rider RRS would reduce customer rates. If PJM market prices are low, customer rates will be increased by Rider RRS. According to the application, this plan will ensure that Davis-Besse continues to operate to provide long-term, reliable base load power. The plan will also reduce retail electricity cost volatility, limit future retail market price increases, enhance system reliability, protect jobs, and promote Ohio economic growth and development.

This PUCO Order is certain to be challenged in court, with the recent U.S. Supreme Court Decision in *Hughes v Talen Energy Marketing* Decision potentially setting a precedent.

In the meantime, the U.S Federal Energy Regulatory Commission (FERC) issued an Order rescinding affiliate power contract waivers for FirstEnergy that will put this deal on hold.

FERC Order rescinding waiver of affiliate power sale restrictions

On 27 April 2016, FERC issued an Order[\[3\]](#) rescinding the waiver of affiliate power sales restrictions previously granted to FirstEnergy's unregulated generation subsidiaries with respect to the power sale contract approved by the PUCO on 31 March 2016. This FERC Order was a response to complaints filed by a group of companies.[\[4\]](#)

Electricity industry reform in the U.S. has a mix of federal and state actions. All wholesale power transactions in the U.S. are regulated by FERC and are considered interstate transactions because bulk power moves over transmission lines without respect for state borders.

Ohio deregulated its electricity industry by allowing the vertically-integrated utilities in Ohio to move generation assets to a deregulated subsidiary rather than divesting these assets (i.e., as required in some other states).

FERC has exclusive jurisdiction on wholesale power contracts between affiliates and evaluates such power contracts under a set of standards intended to protect captive retail customers, prevent affiliate abuse, and ensure that the prices in such contracts are market-based. The earlier FirstEnergy waiver was granted because the FirstEnergy deregulated generation subsidiaries had no captive retail customers.

Complaints to FERC argued that the deal approved by the PUCO would require the FirstEnergy regulated utilities to buy power from the unregulated affiliates, including Davis-Besse, and resell this power into the PJM wholesale market.

To the extent that these resales of power resulted in losses, the losses would be recovered from all retail customers in the state through a surcharge/rider on regulated distribution charges. Ohio has retail choice and end use customers can select a competitive retail electricity supplier, but all retail customers in the state pay regulated distribution utility charges. In effect, this arrangement means that the FirstEnergy unregulated generation companies now have captive customers.

The Complainants also argued that the arrangement would mean that some generation units that would have retired (e.g., Davis-Besse), would remain in operation and artificially suppress PJM wholesale market prices. FERC dismissed these claims of potential adverse effects on the PJM electricity market as irrelevant to the waiver issues upon which this Order was decided.

Hughes v Talen Energy Marketing

A unanimous opinion was issued on 19 April 2016 by the U.S. Supreme Court^[5] that upheld a lower court decision to invalidate a Maryland program to incentivize construction of a new natural gas plant.

The Maryland program infringed upon FERC's exclusive jurisdiction over the wholesale power markets. The decision's narrow ruling was the Maryland program use of "contracts for differences" with a power plant developer based on the new power plant sales in the PJM capacity market. The Maryland program would guarantee a price for capacity from the plant, making up the difference between that guaranteed price and the price in the PJM capacity auction, with the difference payments passed on to Maryland retail electricity customers.

This Supreme Court decision affirmed that states may use incentives to encourage power plant construction, including "clean" power plants. The narrowness of the Hughes decision may mean that there is little guidance for other states, aside from avoiding arrangements that are the same as the Maryland program.

It is unclear how the Hughes Decision will apply to the Ohio deals or how lower courts will apply the Hughes Decision in other cases.

The bright line between FERC jurisdiction over wholesale markets and state jurisdiction over retail markets is becoming more blurred. The traditional role of state governments and utility regulators to manage the electricity industry in their state is diminished by this decision.

Three articles on this decision are recommended. The first is an article in UtilityDive by Robert Walton, with input from Travis Kavulla (President of NARUC).^[6] The second is from the Natural Resource Defense Council (NRDC) on why the Hughes decision

should not change renewable mandates or similar state programs, including the proposed New York State Clean Energy Standard.[6] The third is the SCOTUS Blog Opinion Analysis on how this decision enhances FERC powers.[8]

[1] Photo: Davis-Besse nuclear power plant on 2 May 2009; Abigail E. Appleby, Fate Design Art Studio; <https://www.flickr.com/photos/14652292@N07/3506143891>

[2] PUCO Docket 14-1297-EL-SSO
(<http://dis.puc.state.oh.us/TiffToPDF/A1001001A16C31B41521H01842.pdf>)

[3] FERC Docket No. EL16-34-000
(http://elibrary.ferc.gov/idmws/file_list.asp?accession_num=20160427-3051)

[4] Complainants in Docket No. EL16-34-000 are the Electric Power Supply Association, the Retail Energy Supply Association, Dynegy Inc., Eastern Generation, LLC, NRG Power Marketing LLC, and GenOn Energy Management, LLC.

[5] http://www.supremecourt.gov/opinions/15pdf/14-614_k5fm.pdf

[6] <http://www.utilitydive.com/news/what-the-hughes-v-talen-supreme-court-decision-means-for-state-power-incen/418046/>

[7] <https://www.nrdc.org/experts/miles-farmer/why-supreme-courts-decision-hughes-good-clean-energy>

[8] <http://www.scotusblog.com/2016/04/opinion-analysis-u-s-energy-regulators-authority-grows/>

[PDF Version](#)

Source: <http://nuclear-economics.com/13-davis-besse/>

House, Senate panels to vote on bills to promote new technology

[Hannah Northey](#), E&E reporter

Published: Monday, May 16, 2016

Members of both chambers will take up legislation this week to spur new and innovative nuclear reactors, a goal that continues to draw rare bipartisanship on Capitol Hill.

The congressional push to clear the path for new nuclear technology arrives as a growing number of plants -- the bulk of them built decades ago -- are closing ahead of their expiration date in markets with low demand and cheap natural gas.

In the House, the Energy and Commerce Committee is scheduled to vote on [H.R. 4979](#) tomorrow. The bill, introduced by Reps. Bob Latta (R-Ohio) and Jerry McNerney (D-Calif.), would require the Nuclear Regulatory Commission and Energy Department to craft a new framework for reviewing advanced reactors and vet them publicly within 270 days.

Critics say the measure wouldn't provide the agencies enough time to get the job done. Still, the legislation passed the Energy and Commerce Subcommittee on Energy and Power last week on a unanimous voice vote ([Greenwire](#), May 12).

In the Senate, the Environment and Public Works Committee will vote on Chairman Jim Inhofe's (R-Okla.) [S. 2795](#), known as the "Nuclear Energy Innovation and Modernization Act," on Wednesday.

Co-sponsors -- including Republican Sen. Mike Crapo of Idaho and Democratic Sens. Sheldon Whitehouse of Rhode Island and Cory Booker of New Jersey -- warned during a hearing last month that NRC's current costly and onerous licensing regime that focuses mainly on traditional "light water" reactor designs could stifle new designs.

But a top official at NRC warned lawmakers that their language could stifle the agency's ongoing work on advanced reactors ([E&E Daily](#), April 22).

And NRC Chairman Stephen Burns said during an interview at the National Press Club last week that the commission was already preparing a strategy looking at knowledge and technical gaps for licensing non-light-water reactor technologies. NRC plans to release the strategy this summer at a conference with DOE.

"I think people are serious about [new designs], the question is when is that going to come, is that a five, 10, potentially 15 years [away]?" Burns said.

Critics of the Senate bill, including Democratic Sen. Ed Markey of Massachusetts, have also warned that the language would eliminate critical design reviews before NRC's Atomic Safety and Licensing Board Panel.

Separately, the Senate Energy and Natural Resources Committee is scheduled to hear from developers of new reactors tomorrow.

The panel will hear from companies like small modular reactor developer NuScale Power LLC and well-known utility Southern Co., which is interested in Generation IV reactors that can operate at lower temperatures ([EnergyWire](#), May 2).

The hearing will also feature new faces in the nuclear industry, including Jacob DeWitte, co-founder and CEO of a nuclear technology startup, Oklo Inc. DeWitte, a nuclear engineer, is developing "very small nuclear power generators that bring clean, reliable power to remote and off-grid areas while also consuming nuclear waste," said his online bio.

Schedule: The House Energy and Commerce Committee markup begins Tuesday, May 17, at 5 p.m. in 2123 Rayburn and reconvene Wednesday, May 18, at 10 a.m. in the same room.

Schedule: The Senate Environment and Public Works Committee markup is Wednesday, May 18, at 9:30 a.m. in 406 Dirksen.

Schedule: The Senate Energy and Natural Resources Committee hearing is Tuesday, May 17, at 10 a.m. in 366 Dirksen.

Witnesses: Jacob DeWitte, CEO of Oklo Inc.; John Gilleland, chief technical officer at TerraPower LLC; John Hopkins, CEO of NuScale Power LLC; Steve Kuczynski, chairman of Southern Nuclear Operating Co.; and Mark Peters, director of the Idaho National Laboratory.

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Source: <http://www.eenews.net/eedaily/2016/05/16/stories/1060037269>

Security officers' high-powered ammo could damage plants

Published: Tuesday, May 17, 2016

Nuclear plants that beefed up security forces' firepower by purchasing more powerful ammunition could risk damaging equipment during an attack, experts warn.

The new ammunition could pierce control panels and critical piping, presenting security risks, said Dave Lochbaum, the director of the Nuclear Safety Project at the Union of Concerned Scientists.

Though analysts largely agree that nuclear security workers should have high-powered weapons, it's not clear how much facility hardening should be required to prevent accidental damage during a firefight. In addition, workers may need more training on how to use their new firepower.

Newly released records show the Nuclear Regulatory Commission investigated the issue as plant security was increased after Sept. 11, 2001.

Lochbaum said the agency's response failed to address the problem. The agency essentially said, "Don't let your security officers miss the bad guys," Lochbaum said. NRC spokesman Eric Stahl said security workers annually must recertify their expertise with each weapon.

"It is recognized that 'friendly fire' could damage some plant equipment should it be struck by weapons fire; however, every effort is made to avoid such incidents," Stahl said (Teri Sforza, [San Jose Mercury News](#), May 16). -- **SP**

Source: <http://www.eenews.net/greenwire/2016/05/17/stories/1060037382>

Committee approves bills to stall ozone standard, boost nuclear

[Sean Reilly](#) and [Hannah Northey](#), E&E reporters

Published: Wednesday, May 18, 2016

Bills to stall implementation of U.S. EPA's new ozone standard and spur the spread of new nuclear design technology are headed to the full House after winning approval from the Energy and Commerce Committee this morning.

The nuclear bill, [H.R. 4979](#), is aimed at advancing new reactor designs. It sailed through the committee with a unanimous voice vote.

But the panel split along party lines on [H.R. 4775](#). The bill, which passed 30-23, would delay full adoption of EPA's ground-level ozone standard of 70 parts per billion by eight years, with state implementation plans not due until 2026.

The bill, sponsored by Rep. Pete Olson (R-Texas), passed the Energy and Power Subcommittee last week on a similarly partisan basis, and the debate during this morning's markup rehashed many of the same concerns and talking points.

EPA set the new standard last October, citing new scientific evidence about the health effects of ozone, which can inflame lung passageways and help trigger asthma attacks.

The previous benchmark, set in 2008, had been 75 ppb.

At today's markup, Republicans again noted that EPA had only issued implementation instructions for that previous standard early last year and argued that states are now in the position of simultaneously having to meet two standards.

"It's not fair to industry, it's not fair to clean air," Olson said.

In an opening statement delivered at the markup's outset late yesterday, Rep. Marsha Blackburn (R-Tenn.) said 45 of 95 Tennessee counties would be unable to meet the new ozone threshold and that the bill would take a "more practical and effective" approach.

But EPA estimates that the 70 ppb standard will prevent hundreds of premature deaths and forestall hundreds of thousands of asthma attacks each year when fully in place.

Committee Democrats also voiced alarm at provisions in the legislation that would extend EPA's statutory review cycle for ozone, lead and four other "criteria pollutants" from once every five years to once every decade, and allow the agency to take technological feasibility into account as a secondary factor in revising the benchmarks.

The bill "delays improvements in air quality, delays review of scientific evidence and deprioritizes public health," said Rep. Jan Schakowsky (D-Ill.).

Amendments

Democrats offered several amendments targeting key elements in the measure. All failed on party-line tallies.

The panel did approve an amendment by Rep. Mike Pompeo (R-Kan.) to require EPA -- working with the states and the National Oceanic and Atmospheric Administration -- to carry out a study of ozone formation that looks at the relative contributions of man-made and natural sources. It passed by voice vote.

The committee also agreed to an Olson amendment to allow industries classified as minor air pollution sources to seek preconstruction permits under the previous 75 ppb standard. The bill already extended that leeway to major sources.

The legislation, whose co-sponsors include House Majority Leader Kevin McCarthy (R-Calif.) and Majority Whip Steve Scalise (R-La.), could go to the House floor as early as next week.

In what could be a precursor to an Obama administration veto threat, however, the measure has already drawn EPA objections and currently has little chance of clearing the Senate.

While fiercely opposed by public health groups, it has staunch support within the business community. In a statement today, Greg Bertelsen, senior director of energy and resources at the National Association of Manufacturers, urged lawmakers in both chambers to listen to the concerns of businesses and state regulators, "and work to provide much needed relief from this burdensome regulatory program."

Nuclear bill

With no dissent, the Energy Committee approved Reps. Bob Latta (R-Ohio) and Jerry McNerney's (D-Calif.) H.R. 4979 to require the Nuclear Regulatory Commission and Energy Department to craft a new framework for reviewing advanced reactors and vet them publicly within 270 days.

Committee members also signed off on a change in a manager's amendment that Latta introduced aimed at beefing up liability and protections for taxpayers when DOE partners with private reactor developers.

McNerney praised the manager's amendment, which received unanimous approval, saying it would require private companies building reactors on federal land to show they have funds on hand to manage accidents and store nuclear waste.

"It sends a strong message to the multitude of gaps in these [reactor] proposals," said McNerney, a known proponent of nuclear power.

House members also unanimously approved an amendment from Democratic Rep. Kurt Schrader of Oregon, which would require NRC to lay out a timeline for reviewing advanced reactor licenses and provide a response if those targets are not met.

Oregon is home to NuScale Power LLC, a startup company developing a 45-megawatt modular reactor with federal support.

Schrader said his amendment would ensure regulatory certainty for new reactors and prevent private investment of hundreds of millions of dollars from being lost from a lengthy regulatory regime at NRC. The language drew support from Rep. Greg Walden (R-Ore.).

In the Senate, the Environment and Public Works Committee also approved legislation to encourage nuclear technology and reform NRC reviews ([see related story](#)).

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Source: <http://www.eenews.net/greenwire/2016/05/18/stories/1060037487>

Panel advances nuclear licensing bill, EPA nominee

[Geof Koss](#), E&E reporter

Published: Wednesday, May 18, 2016

The Senate Environment and Public Works Committee this morning approved legislation to overhaul the federal licensing process for advanced nuclear reactors. It also approved a stalled U.S. EPA nomination.

The committee passed Chairman Jim Inhofe's (R-Okla.) [S. 2795](#) on a 17-3 vote, with ranking member Barbara Boxer (D-Calif.), Sen. Kirsten Gillibrand (D-N.Y.) and Sen. Bernie Sanders (I-Vt.) opposing the measure. Sanders voted by proxy.

The legislation, introduced last month with the support of some EPW Democrats, would direct the Nuclear Regulatory Commission to develop "technology-inclusive" regulations for licensing advanced reactors ([E&E Daily](#), April 18).

"The NRC's existing processes were designed around one particular technology: light water reactors," Inhofe said at the outset of today's markup. "These processes are poorly suited for the wide range of advanced technologies currently being pursued." The House Energy and Commerce Committee this morning approved similar legislation, [H.R. 4979](#) (*see related story*).

Despite broad support for the nuclear bill, the markup highlighted several obstacles ahead for the measure as it makes its way to the Senate floor.

Gillibrand unsuccessfully offered an amendment to require the NRC to give lawmakers a report on the cause and effects of more than 200 missing or degraded bolts from a shuttered reactor at New York's Indian Point nuclear plant.

The amendment would also have required the NRC to inspect for bolt degradation at another reactor at the plant before the end of the year.

Gillibrand raised her concerns with NRC commissioners during an April hearing and today slammed the agency's responses as insufficient ([E&E Daily](#), April 7).

"Their answers were horrible," she said, accusing the NRC of bending to industry resistance to additional oversight.

Inhofe attempted to broker a compromise by arranging an NRC briefing for members on the issue. "That is a necessary first step to craft a solution without unintended consequences," he said.

Boxer said she was sending a letter to the NRC today to press the issue beyond Indian Point. "It's important that NRC look at similar problems," she said.

Gillibrand's amendment fell on a party-line 9-11 vote, although Sen. Dan Sullivan (R-Alaska) said he would consider later supporting it on the floor if the New York senator remained unsatisfied after the NRC briefing.

Despite voting "no" on the legislation, Boxer hailed the bipartisan cooperation on the nuclear bill as "terrific" but said the measure needed to address emergency evacuation plans for nuclear plants and include more funding for the NRC.

"If we can make it better just in these two areas, I think it will fly through," she said.

Sen. Tom Carper (D-Del.) decided against offering an amendment to strike a section of the bill repealing NRC fees created by a 1990 budget law. Carper said he was satisfied by tweaks Inhofe made to the legislation. Lawmakers approved those changes today.

The committee also approved the following measures en bloc by voice vote:

- The nomination of Jane Nishida to become EPA's assistant administrator of the Office of International and Tribal Affairs.
- [S. 1479](#), from Inhofe, to update EPA's brownfields program ([E&E Daily](#), April 22).
- [S. 2816](#), from Carper, to reauthorize the Diesel Emissions Reduction Program.
- [H.R. 3114](#), from Rep. Grace Napolitano (D-Calif.), to fund Army Corps of Engineers efforts to hire veterans and other members of the military in conservation and historical preservation activities.
- [S. 921](#), from Carper, to require the Fish and Wildlife Service to establish a nonregulatory Delaware River Basin restoration program.

The panel did not vote on legislation authorizing states to develop their own permitting programs for disposal of coal ash, or the nomination of Thomas Burke to head EPA's Office of Research and Development. A GOP aide said discussions were ongoing on those items, which were originally slated to receive votes today ([E&E Daily](#), May 18).

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Source: <http://www.eenews.net/greenwire/2016/05/18/stories/1060037483>

toledoBlade.com

UNSTABLE ECONOMICS

Nuclear plants need boost to stay open, industry warns

Davis-Besse on list of most at-risk sites

5/30/2016

BY TOM HENRY BLADE STAFF WRITER

Make no mistake: America's nuclear industry is in trouble.

Many of the strongest statements about it are no longer found in the hyperbole of anti-nuclear groups but in dire predictions from industry figures such as the Nuclear Energy Institute's Marvin Fertel, who said at a recent U.S. Department of Energy conference in Washington there's a "sense of urgency" to improve economics of the nation's 99 remaining nuclear plants.

If the playing field isn't leveled to account more for nuclear power's attributes as a low-carbon, high-output source of electricity, the industry could have as many as 20 more plants shut down prematurely over the next decade, he said.

Advocates say that would mean tens of thousands of jobs lost while jeopardizing national security with greater dependence on more intermittent energy sources such as wind and solar power.

"We need a much, much greater sense of urgency to address the issues that we're seeing right now," Mr. Fertel, the nuclear lobbying group's president and chief executive officer, said of rapidly changing market forces driven largely by an abundance of cheap natural gas to produce electricity, as well as a greater national push toward renewables. They claim the market has become especially skewed during the modern era of hydraulic fracturing, or "fracking," of shale bedrock that the oil and gas industry has described as a game-changer in their industry.

Drills moving horizontally can reach previously untapped reserves across the world.

"We thought the first shutdowns at Kewaunee and Vermont Yankee would galvanize actions to prevent additional shutdowns, and we were obviously mistaken," Mr. Fertel said.

Three years ago this month, the Kewaunee nuclear plant in Wisconsin became what is widely believed to be the nation's first plant shuttered because of economics. In 2014, the Vermont Yankee plant in New England followed. Since then, Energy Corp. has announced it will retire its FitzPatrick and Pilgrim nuclear plants in upstate New York and Massachusetts, respectively, by the end of the decade. Exelon recently said it cannot continue to incur losses from its twin-unit Quad Cities and single-unit Clinton plants in Illinois much longer. This month, the Omaha Public Power District announced it would close its Fort Calhoun nuclear plant in Nebraska this year.

"These are not isolated events. We have a systemic problem," Mr. Fertel said. "This is a serious, systemic problem, and it requires action now."

Davis-Besse is listed as one of a dozen plants most likely to close early because of economics on a 2013 Vermont Law School report.

Matt Bennett, senior vice president for public affairs of Third Way, a Washington think tank that claims to take moderate views on national issues, said he found Mr. Fertel's remark's "frightening."

But he said Americans need to acknowledge "the house is on fire."

Davis-Besse's future

In this part of the country, FirstEnergy Corp. has vowed to stick by its aging Davis-Besse nuclear plant east of Toledo and its Perry plant east of Cleveland. DTE Energy likewise has no immediate plans to shut its Fermi 2 nuclear plant north of Monroe. But Ohio and Michigan are among 13 states with deregulated electricity markets where nuclear plants have an especially hard time competing. Those with single units have even more difficulty, officials said.

A 2013 Vermont Law School report listed Davis-Besse as one of a dozen plants most likely to close early because of economics.

FirstEnergy's proposed power-purchase agreement with the Public Utilities Commission of Ohio has been criticized by opponents as a bailout because it would guarantee cash flow to the energy company for eight years. The deal is gaining attention nationally, according to Joseph Dominguez, Exelon executive vice president, who also said more subsidies for nuclear power may be necessary.

Iowa has a power-purchase agreement for its Duane Arnold plant. Industry officials also are seeking them for plants in New York and Illinois, he said.

Wind and solar power are attacked by pro-nuclear advocates these days because of their start-up subsidies.

But several years ago, a conservative group, Taxpayers for Common Sense, identified \$85 billion in subsidies to nuclear power since 1948, of which more than \$66 billion was spent on nuclear energy research and subsidies through 1998.

While Mr. Fertel blamed "dysfunctional market conditions" for threats to thousands of jobs and steady production of electricity, U.S. Energy Secretary Ernest Moniz said there's a lot more at stake.

Nuclear still provides almost 20 percent of the nation's electricity. But a lot of people don't realize it also accounts for 60 percent of the electricity today from low-carbon sources, he said.

Without as many nuclear plants operating, America will have a hard time achieving the commitment it made to other countries under last December's United Nations climate change treaty in Paris to reduce greenhouse gases 27 percent by 2025, Mr. Moniz said.

Technicians walk through the radiation protection check point at Davis-Besse nuclear plant. FirstEnergy Corp. has vowed to stick by its aging Davis-Besse and Perry plants.

Few new plants

The industry's hopes for a renaissance never materialized.

The Watts Bar 2 reactor in Tennessee is expected to become the nation's first new plant to come online since 1996, when Watts Bar 1 began operating. But Watts Bar 2 is the completion of a project that was suspended in 1985.

The industry expected 30 or more next-generation nuclear plants would be built after billions of dollars in incentives were offered by Congress in the Energy Policy Act of 2005.

But those efforts have resulted in the construction of only four new reactors, the twin-unit Vogtle plant in Georgia and the twin-unit V.C. Summer plant in South Carolina.

That, according to Mr. Moniz, means the United States must get as much as it can out of the existing fleet.

Many of the plants, though, will turn 60 years old around 2030 and they can't be expected to run indefinitely, he said.

"We are supposed to be adding zero-carbon sources, not subtracting or simply replacing them to tread water,"

Mr. Moniz said. "We need to prevent more closures and get on the trajectory of adding capacity."

Ironically, a rule many utilities are fighting —the Obama Administration's controversial Clean Power Plan to reduce greenhouse gases from coal-fired power plants — is becoming one of the potential tools for saving nuclear plants, Mr. Moniz said.

Keeping more nuclear around would help states comply with that rule, he said.

"We know the economics of building new plants isn't real good now," said U.S. Rep. Adam Kinzinger, an Illinois Republican whose 16th Congressional District has four nuclear plants and eight reactors, more than any other congressional district.

One suggestion for getting the market to better value nuclear's attributes is changing state renewable energy mandates to "clean energy standards" that would give utilities more incentives to invest in nuclear power.

Thirty states have renewable-energy mandates. Ohio lawmakers are deciding whether to keep their two-year freeze in effect indefinitely. The law passed in Ohio several years ago required 12.5 percent of the state's electricity come from renewables by 2025 and 12.5 percent from a combination of undefined clean coal and advanced nuclear.

Craig Glazer, vice president of PJM, the 13-state regional grid operator that includes Ohio, said market incentives are being created to reward high-performing, low-emitting energy sources —but not nuclear per se.

"If the goal is to just save nuclear, that's another goal," he said.

Mike Langford, Utilities Workers Union of America national president, said states with deregulated energy markets might have to be re-regulated to save nuclear plants and the thousands of workers they employ.

"This industry is too vulnerable to be left up to chance," Mr. Langford said. "Energy is the engine of our economy, and we're leaving it up to chance. It blows me away."

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CIVIL NUCLEAR

Towards decommissioning Fukushima: 'Seeing' boron distribution in molten debris

by Staff Writers

Kyoto, Japan (SPX) May 18, 2016

Decommissioning the Fukushima Daiichi Nuclear Plant just got one step closer. Japanese researchers have mapped the distribution of boron compounds in a model control rod, paving the way for determining re-criticality risk within the reactor.

To this day the precise situation inside the Fukushima Daiichi Nuclear Plant is still unclear. "Removing fuel debris from the reactor contaminant vessel is one of the top priorities for decommissioning," says lead author Ryuta Kasada of Kyoto University.

Stainless steel tubes filled with boron carbide are used to control energy output in boiling water reactors, including at Fukushima Daiichi, as boron absorbs neutrons resulting from splitting atoms.

With such control rods functioning properly, nuclear fission occurs at a steady rate. In an extreme situation, such as during the Fukushima accidents, where overheated vapors come in contact with the rods, boron reacts with surrounding materials like stainless steel to create molten debris.

"When melting happens, phenomena like relocation occur such that the boron atoms - trapped in the debris - accumulate towards the bottom of the reactor," explains Kasada. "This can lead to a lack of control agents in the upper core structure and thus a higher risk of re-criticality in those areas."

"It's crucial to get a picture of how boron atoms are distributed inside the reactor, so that we know which areas have higher risk of re-criticality. It's also important to know the chemical state of boron, as some boron compounds can affect the formation of radioactive materials released to the environment."

Kasada and colleagues filled a model control rod with steam at 1250 degrees Celsius to imitate conditions of a severe nuclear accident. The team then mapped the distribution of molten boron debris and simultaneously determined its chemical state with a soft x-ray emission spectrometer, in which they combined a new diffraction grating with a highly-sensitive x-ray CCD camera, equipped to a type of scanning electron microscope.

The boron compounds - including boron oxide, boron carbide, and iron boride - each showed different peak structures on the x-ray spectrum.

"Previously this was only possible to visualize in large synchrotron radiation facilities. We've shown that the same is possible with laboratory-sized equipment."

"This finding demonstrated on a micro-scale what needs to be done in Fukushima," says Kasada. "This can't yet be applied in the field, but in the meantime, we plan to visualize the chemical state of other elements so as to create a sound materials base for decommissioning Fukushima."

Research paper: "Chemical State Mapping of Degraded B4C Control Rod Investigated with Soft X-ray Emission Spectrometer in Electron Probe Micro-analysis" will appear 10 May 2016 in Scientific Reports, with doi: 10.1038/srep25700

Source:

http://www.nuclearpowerdaily.com/reports/Towards_decommissioning_Fukushima_Seeing_boron_distribution_in_molten_debris_999.html

Fukushima news. This is included as a case study for the types of issues that may develop in the case of an incident at a US reactor. The Fukushima Daiichi Reactors are identical to some US reactors and are the closest incident that has occurred to compare to US concerns.

Source: <http://www.hiroshimasyndrome.com/fukushima-accident-updates.html>

May 30, 2016

- Tepco posts the latest progress report for its three nuke stations. The handout covers F. Daiichi, F. Daini, and Kashiwazaki-Kariwa (K-K) stations. At F. Daiichi, freezing of the land-side impermeable wall pipes has begun, "significantly" reducing the amount of contaminated water inflow into the buildings from groundwater. In addition, shifting the outlet of drainage channel K to the barricaded inner harbor (quay) and steady improvement of the on-site working environment are addressed. At F. Daini, risks with spent fuel pools have been reduced by sealing-off gates to prevent outflow of potentially contaminated pool water. At K-K station, safety measures for earthquakes and tsunamis, as well as hypothetical worst-case nuke accidents, have been upgraded. In addition, emergency response capabilities have been improved through repeated emergency training of personnel. Finally, the Nuclear Safety Reform Plan, focusing on Tepco management, has improved safety awareness, technical capability, and promotion of dialogue with workers and local officials. This last area of concern has been spurred by recent allegations of a Tepco cover-up of a delay in announcing meltdowns at F. Daiichi in 2011. http://www.tepco.co.jp/en/press/corp-com/release/2016/1292843_7763.html -- http://www.tepco.co.jp/en/press/corp-com/release/betu16_e/images/160530e0101.pdf
- A Fukushima professor says unfounded fear of radiation impedes recovery. Dr. Fuminori Tamba, associate professor of administration and social sciences at Fukushima University, explained his experiences with Fukushima citizens over the past five years. In 2011, severe anger and deep distrust with Tepco and Tokyo were the norm with Fukushima's population. The company and the government were unprepared to respond to the public in 2011, and there was no coordination between national and local administrators, resulting in differing opinions on what to do. Tepco and Tokyo assumed

defensive postures that made the situation worse than it might have been. Tamba says that after five years “an environment has gradually been created in which both sides can calmly discuss how to face the realities of the region instead of blaming each other for them.” Not that the public has forgiven Tepco for lack of adequate tsunami protection... they haven't. But, the company's willingness to squarely face the situation and meet the public face to face has gradually improved the communication environment. Tamba lauds the young people that have joined in on the recovery effort, “We are seeing more and more people who do not turn their backs on difficult problems, but who have the motivation to solve them—that is, who find meaning and significance in doing so.” However, he laments that unfounded fears of low level radiation and the possibility of another large radiation release during decommissioning at F. Daiichi has kept evacuees from going home. But, he has great optimism, “Currently, Fukushima bears the weight of unfounded fears and rumors, as well as important experiences fading from memory. Instead of waiting for attention, I want to tell others that Fukushima itself is an originator of new culture and new values, able to serve as a driving force for Japan and a light for the world, as an interesting place.” <http://www.jaif.or.jp/en/vol-4-special-interview-with-dr-fuminori-tamba/>

May 26, 2016

- Another country lifts restrictions on Japanese food imports. Kuwait has cancelled all restrictions on food shipped from Japan, including Fukushima Prefecture. The country is the first of the six-member Gulf Cooperation Council to do this. Kuwait began import restrictions in September, 2011. Japanese food imports were not totally banned, per se, but any of it brought into Kuwait had to pass tough radiation testing. This will no longer be required. Kuwait now feels that the safety of food from Fukushima has been adequately proven. The products include soft drinks, sauces, mixed seasonings, and marine products such as tuna and bonito.
<http://www.fukushimaminponews.com/news.html?id=671>
- 90% of the Fukushima Ice Wall is working as expected. However, one large Japanese Press outlet spins it in reverse fashion. The Asahi Shimbun, Japan's second-largest newspaper, headlines that 10% of the ice wall is not working. Tepco records show that 88% of the monitoring points show the ground to be frozen. The remaining 12% have recorded temperature drops, but have yet to freeze. At least one of the 1,568 monitoring points has a recorded temperature of just 10°C, which becomes the focal point of the Asahi's negative spin. Back in March when Tokyo allowed the system to begin running, Tepco said it could take as long as three months for the entire wall to form. But, the Asahi fails to mention this, rather posting that it has been a month-and-a-half and not all of the ground is frozen, so something is allegedly wrong. Pressured by the Asahi for a statement, a Nuclear Regulation Authority official said, “If the effects of the frozen soil wall fall short of what we have expected, we will hold talks with TECPO about additional steps.” http://www.tepco.co.jp/en/nu/fukushima-np/handouts/2016/images/handouts_160519_01-e.pdf -- <http://www.asahi.com/ajw/articles/AJ201605260056.html> (Comment - No other news outlet in Japan reported a Tepco ice wall failure...only The Asahi.)
- The NRA says some high-level nuclear waste should be buried at least 70 meters underground. This does not include used nuclear fuel, but rather focuses on highly radioactive waste material resulting from debris removal and disassembly during decommissioning. The proposed regulations say that the burial site should not be near active volcanoes or geological faults. The NRA says the burial site should be overseen for 300-400 years, in order to detect any leakage that might occur. The agency will begin seeking outside opinions today, and accept them for a month.
<http://mainichi.jp/english/articles/20160526/p2a/00m/0na/015000c>

- A Japanese council of local governments wants Tokyo to continue its efforts toward Fukushima reconstruction, while improving safety regulations to prevent future accidents. Council Chair, Mayor Takanobu Fuchikami of Tsuruga City, explained his ongoing concern for those living under a prolonged evacuation, but also stressed the need to restart nukes that pass all new safety standards in order to meet Tokyo's national policy on energy. Toru Shiraishi, who is responsible for nuclear emergency preparedness in the PM's Cabinet, vowed to work hard on improving training for nuke safety and accident recovery. When asked by a Futaba Town resident about what the government was doing about areas where residents will not be allowed to return home for a long time, Shiraishi said that would be clarified sometime this summer. Other concerns aired at the meeting dealt with storage of used nuclear fuel, delays with operations at Rokkasho reprocessing plant, and whether or not passing new safety regulations for restarts makes any difference given the ability of local courts to prohibit operation. <http://www.jaif.or.jp/en/meeting-of-all-japan-council-of-local-governments-with-atomic-power-stations-features-opinion-exchange-with-national-officials/>
- A Tokyo court orders Tepco to pay compensation for two evacuee deaths. Both individuals were evacuated from Futaba medical facilities by bus. One was a 97 year-old man, and the other a woman age 86. The compensation level was set at about \$250,000, to be paid to surviving relatives. Plaintiffs originally sought about \$600,000 in compensation. But, this was reduced because of the evacuees' pre-existing conditions unrelated to the nuke accident. Tepco posted a comment that says, "We will check the ruling and respond to it sincerely."
<http://mainichi.jp/english/articles/20160526/p2a/00m/0na/013000c>

May 23, 2016

- Rice farming returns to Naraha Town. Farmers planted seedlings on a four hectare paddy on Friday. They also introduced fertilizer designed to impede the uptake of radioactive isotopes. Naraha's evacuation order was lifted last September, and test farming was done to insure that rice radioactivity was below the 100 Becquerels per kilogram limit for marketing. After the test crop was found to be well-below the national standard, shipments of the rice began in March. The town plans to plant a total of 20 hectares this year, and harvest in October. This will be less than 4% of the area farmed before the evacuation. The problem is that only about 10% of the Naraha population has returned home, so there is a worker shortage.
http://www3.nhk.or.jp/nhkworld/en/news/20160520_20/
- The freshwater fishing business returns to Miyakoji. River fish distributor Yoshida Suisan is back in business shipping char, trout, and rainbow trout for the first time since the 2011 Great East Japan Earthquake. The company hatcheries were located within the Tokyo-mandated evacuation zone, so the operation came to a screeching halt. The hatcheries were re-opened last August and cultivated 900,000 of the three main product species. Radioactivity tests have been run on them every month, and none has been detectible. Company president Eimitsu Yoshida said, "I want people to eat delicious river fish from Miyakoji." Yoshida has worried about the high costs of restarting the business and unfounded rumors that might prevent people from buying local fish. He says, "I want to fight against rumors and restore sales to their level before the earthquake. I also hope I can contribute to my hometown, Miyakoji."
<http://www.fukushimaminponews.com/news.html?id=667>
- Tokyo says most of the remaining Minamisoma evacuation orders could be lifted July 1st. Two zones with a pre-evacuation population of nearly 11,000 are planned for re-opening unrestricted access. Only one other zone will have its restrictions continued. The Minamisoma assembly was apprised of Tokyo's plans on May 13. Chief repopulation official Osamu Goto said the government "would like to [repopulate the two areas] in

early July or mid-July, targeting as early as July first.” This would be the largest repopulation number, exceeding those in Naraha town, Kawauchi village and Tamura city’s Miyakoji district. <http://www.fukushimaminponews.com/news.html?id=670>

- Tokyo wants to begin deep burial of contaminated rural waste and debris later this year. The Environment Ministry proposes disposing of 730,000 tons of “specified” waste from the 2011 nuclear accident at a government-run facility in Tomioka town. The agency wants to begin packaging and transfer of the material from the myriad of temporary storage locations to the Fukushima Ecotech Clean Center later this year. The wastes will include ash from incineration of sewage sludge and other burnable debris, and solidified in cement before being shipped to Tomioka. Solidification will take place in Naraha town. The only condition to be satisfied, at this point, is getting approval from local residents. If all goes well, the entire mass of material should be buried by March, 2023. <http://www.fukushimaminponews.com/news.html?id=669>
- Tokyo will set up a Fukushima worker’s health counselling station near F. Daiichi. There are typically about 6,000 contract employees involved with decontamination and decommissioning at the station. Contractors are responsible for the worker’s health and safety, but Tokyo has concerns about contract worker radiation exposure and their possibility of heat stroke. So, the government will set up a free consultation desk near the plant in early July, and use physicians and health counselors knowledgeable about radiation. The Health Ministry believes this will assure everyone that contract worker health is a priority at F. Daiichi. http://www3.nhk.or.jp/nhkworld/en/news/20160523_06/
- Tepco received its June evacuee compensation payment from Tokyo. The amount paid by the Nuclear Damage Compensation and Decommissioning Facilitation Corporation for next month’s pay-outs is nearly 63 billion yen: a bit less than \$60 million USD. http://www.tepco.co.jp/en/press/corp-com/release/2016/1288543_7763.html The total amount of compensation paid to Fukushima evacuees as of May 20th has been 6.16 trillion yen. <http://www.tepco.co.jp/en/comp/images/jisseki-e.pdf>
- JAIF posted an interview with Engineering Professor Shigekazu Suzuki of Fukushima College. Suzuki supervised displays shown by his students at an Iwaki City exhibition. Fukushima College was historically an all-women school, but has been co-educational since the turn of the century. The displays were shown by five women students. In the interview with JAIF, Suzuki talks about what has happened to the college since 2011; capitalizing on F. Daiichi decommissioning as an opportunity to learn, collaborating with the industrial world and local municipalities, and the future possibilities for his students. <http://www.jaif.or.jp/en/vol-3-special-interview-with-dr-shigekazu-suzuki/>

May 19, 2016

- Tepco opens their new water treatment control room. The facility is now located in the main anti-earthquake building, to centralize control functions for water purification and improve the work environment for operators. The water treatment control room is adjacent to the emergency response headquarters. The original monitoring and control equipment from before opening the new facility will be used as back-up. Any remaining space in the water treatment facility will be a resting place for F. Daiichi workers. http://www.tepco.co.jp/en/nu/fukushima-np/handouts/2016/images/handouts_160517_01-e.pdf
- Minamisoma’s mayor says he is antinuclear. Speaking before a group of students from Taiwan, Mayor Katsunobu Sakurai verbally abused nuclear energy by saying, “Putting money ahead of people’s lives is totally unacceptable,” and, “27,000 residents including many children are still displaced.” He added that the municipal government is still monitoring radioactivity in tap water and local food

products, which is not normal anywhere else in Japan. But, realizing he was needlessly upsetting some of the students, he said that readings are now “low enough” for the students to be safe. His most antinuclear statement was, “Many local leaders tend to refrain from saying this, but I am making a strong plea to the central government, the business circles and the world that nuclear power plants are not needed because (if there is an accident) it can totally ruin people's lives.” On the other hand, Sakurai failed to mention that most of his city was never ordered to evacuate, the last of the evacuated parts of Minamisoma will be re-opened in June, the major reason for the delay in repopulation was his personal radiophobic concerns, and that more than 15,000 of those who remain evacuated are voluntary. <http://www.asahi.com/ajw/articles/AJ201605180045.html>

- Former PM Koizumi supports American sailors suing Tepco. The plaintiffs include crewmembers of the aircraft carrier Ronald Reagan that was involved in humanitarian relief called Operation Tomodachi. More than 400 sailors and service members are charging Tepco with lying about the levels of radiation in the atmosphere in March, 2011. Junichiro Koizumi expressed his alleged sorrow at a press conference in Carlsbad, California. Specific to the lawsuit, Koizumi said, "U.S. military personnel who did their utmost in providing relief are now suffering from serious illnesses. We cannot ignore the situation." He then seemed to begin crying before adding, "Proponents and opponents of nuclear energy must think together about what can be done." Koizumi also explained why he has turned against nuclear power, "I realized this is something that can't be skipped over, can't be ignored any longer. The three claims of being safe, cheap and clean were all lies." The sailor's legal team is trying to keep the \$1 billion case alive after it was “stayed” by a San Diego court on June 22nd, due to a lack of evidence sufficient to make a judgment. However, on April 5th of this year, U.S. District Judge Janis L. Sammartino said she will expedite the hearing of the case because some of the plaintiffs are “suffering and dying”. Fukushima-fee-chasing lawyer Paul Garner said, "I hope the Japanese people will realize there are American 'Tomodachi' who have been forgotten." Tepco has appealed the suit stating that the court is abusing legal discretion by allowing the case to continue. Medical experts say the exposure levels were miniscule and incapable of causing the physical suffering alleged by some of the sailors.

<http://www.cbs8.com/story/32000871/sick-sailors-meet-with-japans-former-prime-minister> -- <http://english.kyodonews.jp/news/2016/05/411935.html> --

<http://www.law360.com/articles/780512/9th-circ-agrees-to-speed-up-sailors-1b-fukushima-suit> -- <http://www.asahi.com/ajw/articles/AJ201605190065.html>

(Authors Comment – It is unfortunate that a few of the roughly 5,000 USS Reagan sailors have contracted health problems in the last five years, with one dying of a rare cancer. However, the measured levels of exposure were many times less than anything that has ever caused health problems, and never those purported in the lawsuit. For detailed information on the lawsuit prior to 2016, go to <http://www.hiroshimasyndrome.com/fukushima-commentary/fukushima-commentary-13.html> and scroll down the page to January 3, 2014.)

May 16, 2016

- All remaining Minamisoma evacuation orders will be lifted in July. Tokyo shared their plans with the city assembly on Friday. Much of Minamisoma lies outside the evacuation zone, and some of the zone has been re-opened. However, the remaining areas to have living restrictions lifted have a pre-accident population of nearly 12,000. This will make it the largest number of people to be allowed home since the government-ordered evacuation of 2011. Tokyo says decontamination has been completed and the living environment is safe for repopulation. A firm date for formal rescinding of the evacuation will not be set until after hearing opinions of the evacuees, in meetings that began Sunday. This will be the fourth evacuated community to be reopened inside the exclusion zone. Naraha was reopened last September, while Katsurao Town and Kawauchi Village will have the orders for the last communities lifted in June. The Ogi and Kainosaka districts of Kawauchi will have unrestricted residence beginning June 14th, making the entire town open for repopulation. Osamu Goto, deputy head of the Nuclear Emergency Response Headquarters, says decontamination has reduced outdoor exposures by 70% and conditions living conditions are safe. http://www3.nhk.or.jp/nhkworld/en/news/20160513_11/ -- <http://www.fukushimaminponews.com/news.html?id=664>
- Fukushima's child thyroid cancer rate is probably due to over-diagnosis. Japan Times, the nation's largest English-language newspaper, reports on the pain and suffering caused by child thyroid removal surgeries in Fukushima Prefecture since 2012. Two Fathers spoke at the launch of the 311 Thyroid Cancer Family Group, with their voices masked to protect their identities. Both have had children suffer thyroid surgery after the ultra-sensitive sonogram screening detected small anomalies that later tested positive for carcinoma. Both men said they do not want their speaking-out to be taken as linking the thyroid issue to the nuclear accident, and they fear social criticism if they reveal their identities. One said, "I couldn't tell anyone that my child had cancer. My child was also unable to tell her friends" because of rumors that the nodules were caused by F. Daiichi radiation. 166 of the roughly 300,000 children screened since 2011, have shown the anomalies, and 116 of the nodules tested positive for carcinoma. None of them were under the age of five, strongly indicating that the nuke accident had nothing to do with it. Some doctors are showing support for the beleaguered families. Sagami Seikyo Hospital's Motomi Ushiyama said, "[The families] were completely at a loss after being told their children had cancer and given little explanation. They were blaming themselves. It's heart-wrenching to listen to such voices." Shoichiro Tsugane, of the National Cancer Center, said over-diagnosis is probably the reason behind the rise in child thyroid cancers, "...based on scientific knowledge on thyroid cancer that we have, it is natural to think it is due to over-diagnosis." Kazuo Shimizu, a thyroid surgeon at Kanaji Hospital, adds that contrary to most Press reports, not all of the children with detectible thyroid anomalies have had their glands removed. He has been observing some of them for three years, and their tumors often have not grown. Kuma Hospital reports that some of the originally-discovered anomalies have actually shrunk with the passage of time. <http://www.japantimes.co.jp/news/2016/05/12/national/science-health/thyroid-cancer-spike-fuels-fukushima-fears-cause->

[diagnosis/#.VzcUZClf0dV](#) (*Authors Comment – This is the first national Press outlet to report on the over-diagnosis problem. Unfortunately, none of the major national News Media has done this.*)

- More than half of the forests in re-populated communities have radiation levels below the national decontamination goal. Of the nearly 5,700 forest sites monitored between September and November of last year, 58% were found to be below the 0.5 microsievert per hour goal. As such, these locations have been declared open for logging by the Prefectural Federation of Lumber Cooperative Associations. The analysis covered a total of 5,694 forest locations -- 1,619 in Tamura's Miyakoji district, 1,269 in Naraha and 2,806 in Kawauchi.
<http://www.fukushimainponews.com/news.html?id=666>
- Tepco agrees to a decommissioning lull during the Group of Seven summit, May 26-27, including President Obama's visit to Hiroshima on May 27. A Tepco spokesperson said that the suspension of most work at F. Daiichi will be a precaution against "risks" that could disturb the meeting of leaders. These alleged risks include leaks of radioactive waters and airborne monitoring device alarms. All essential operations to maintain cooling of the formerly melted fuel and internal reactor components (corium) will not be suspended, and decontamination of waste waters will also continue. The spokesperson said, "We have made the decision without any request from the government."
<http://www.japantimes.co.jp/news/2016/05/13/national/tepco-put-fukushima-decommissioning-work-hold-g-7-summit/#.VzXA4Clf0dV> (*Authors Comment – This move makes no sense. Tepco should continue all work at F. Daiichi during the summit. The suspension of work will only send a message to the world that decommissioning is too risky for the world leaders 500 kilometers from the nuke station. This will surely result in the antinuclear demographic alleging that if decommissioning is too risky for Obama and company, it must be too risky for the tens of million living within 500 km. Tepco has everything to lose and nothing of any significance to gain. IMHO, this is a major mistake.*)

May 12, 2016

- Another smaller Japanese nuke will be scrapped. On Tuesday, Shikoku Electric Power Co. announced it will decommission Ikata unit #1, a 566 MWe Pressurized Water Reactor plant. It will reach its 40 year licensing limit in September of 2017, and the company believes it could not recoup the estimated \$1.59 billion cost of upgrading to meet Japan's post-Fukushima standards. There is no word on the fate of the similarly-sized unit #2 at Ikata station, which will reach its 40 year licensing limit in 2014. Ikata #1 is the sixth Japanese nuke to suffer decommissioning plans, all of which had outputs less than 600 MWe. The six units are Mihama-1 and -2 (Kansai Electric Power Co., Fukui Prefecture), Genkai-1 (Kyushu Electric Power Co., Saga Prefecture), Tsuruga-1 (Japan Atomic Power Co., Fukui Prefecture) and Shimane-1 (Chugoku Electric Power Co., Shimane Prefecture). As a result of these decommissioning plans, the maximum number of Japanese nukes that could possibly be restarted stands at 42. <http://english.kyodonews.jp/news/2016/05/410415.html> -- <http://www.japantoday.com/category/national/view/6th-nuclear-reactor-scrapped-under-strict-safety-rules> -- <http://www.jaif.or.jp/en/shikoku-electric-power-to->

[decommission-ikata-1-reducing-japans-npps-to-42/](#) (It is interesting to note that Shimane Electric Co. estimates that decommissioning could take up to 30 years, which positively parallels the estimated 30-40 years Tepco estimates for F. Daiichi. The Tepco estimate has been constantly bemoaned by Japan's Press, the international news media, and the world's antinuclear community for five years. Yet a similar estimation of decommissioning time for Ikata #1 has generated nothing negative from any of them. There is a double-standard at work, to be sure.)

May 9, 2016

- Post-WWII fisherman file suit against Tokyo for a radiation exposure cover-up, in Kochi District Court. The plaintiffs are twenty-three still-living fishermen and members of 20 families of men who have died over the past six decades, who were on ships near Bikini Atoll when the Castle Bravo hydrogen bomb was detonated. They allege that the government has illegally withheld information for six decades that would have possibly allowed them financial compensation. Records from 1954 indicate that 556 of the ~1,000 vessels in the region around Bikini Atoll might have experienced fallout. Tokyo found that ten of the vessels probably did receive detectable fallout, so those crews were included in a financial compensation package. But, this information was not made public until 2014. One tuna boat, Fukuryu Maru No.5, was immediately downwind of the blast and showered with considerable bomb fallout. One of the crew died six months later of hepatitis, exacerbated by reduced immune system function. Those with Acute Radiation Syndrome symptoms fully recovered a few weeks later. The United States agreed to pay Japan \$2 million in compensation in January, 1955, to be divided among the Fukuryu Maru No.5 crew. The other ten exposed crews were found to not have received enough exposure to be harmful, but were also compensated. However, the fishermen filing the Kochi suit have not been party to the pay-outs, and they want \$18,000 each because they might have experienced some fallout exposure. The suits says (in part), "We lost an opportunity to be compensated because the government deprived us of the chance to prove our exposure by ending the official investigation, with Japan and the United States closing the curtain on the issue through a political solution in 1955... The information was deliberately kept from us. It is beyond words to describe the extent of psychological damage and outrage of former crew members about how their health problems were neglected." The suit also says Tokyo failed to conduct health check-ups on crews of ships other than Fukuryu Maru No.5. They claim that many shipmates suffered radiation-related health effects, but were never acknowledged as such. http://www3.nhk.or.jp/nhkworld/en/news/20160509_23/ -- <http://www.asahi.com/ajw/articles/AJ201605090088.html> -- <http://www1.american.edu/ted/lucky.htm> [Authors Comment – As with most, if not all of the post-Fukushima lawsuits filed over the past five years, the Kochi plaintiffs want compensation due to the mere possibility of low-level radiation exposures. Thus, we feel this story warrants inclusion in our Fukushima Updates.]
- This week's Nuclear Blogger's Carnival is at Atomic Insights. The authors include Dr. Jim Conca, Andy Dawson, Dr. Gail Marcus, Dan Yurman, Meredith Angwin,

and this week's host Rod Adams. Topics include comparing fracking gas pollution to coal, using nuclear to decarbonize UK power generation, a Texas firm files for a nuclear waste storage license, and much more. (Aside – If anyone knows of nuclear writers who might wish to have their articles included in future Carnivals, please let us know. This site hosts the Carnival regularly, and we are in constant contact with the other participating bloggers. – End aside.)

<http://atomicinsights.com/carnival-nuclear-blogs-308/>

May 5, 2016

- Japan and the USA agree to study earthquake safety for nukes. On Sunday at the Group of Seven summit, Economy, Trade and Industry Minister Motoo Hayashi and U.S. Energy Secretary Ernest Moniz agreed that the two countries would conduct the joint study. Hayashi said Tokyo wants to solidify cooperation with Washington on the safety of nuclear plants, while Moniz proposed a joint study on measures to ensure nuclear plants' safety against large earthquakes be made by the Japan-U.S. Bilateral Commission on Civil Nuclear Cooperation.

<http://the-japan-news.com/news/article/0002917379>

- Tepco's compensation payments have reached nearly 6.125 trillion yen. 2.65 trillion yen has been paid to the more than 70,000 mandated evacuees that were ordered to abandon their homes by Tokyo in 2011. This means that every man, woman and child has accrued roughly 380 million yen. At the average exchange rate over the past five years, each evacuee has made roughly \$350,000 (USD). Further, this does not include the \$1,000 per month being paid-out to each evacuee for mental anguish, which was grandfathered back to the summer of 2011, which would bring individual earnings to nearly \$640,000 (USD). Beyond the individual compensation payments, nearly 3 trillion yen has been disbursed for property and business compensation.

<http://www.tepco.co.jp/en/comp/images/jisseki-e.pdf>

May 2, 2016

- The Environment Ministry sets a minimum criterion for rural radioactive waste. Until now, materials with activity levels at or below 8,000 Becquerels per kilogram were deemed "specified waste" and disposed of as low level radioactive material. On April 28th, the ministry decided that debris with activity below 8,000 Bq/kg is no longer "specified" and may be handled as "ordinary" waste. However, the ordinance will not become an official designation until discussions occur between Tokyo and local governments. Environment Minister Tamayo Marukawa said, "The national government will deal with the matter, after lifting the [current] designation, together with local municipalities." The revised criterion could drastically reduce the volume of wastes now stored at temporary locations in Miyagi, Ibaraki, Tochigi, Gunma, and Chiba Prefectures. It could also reduce storage issues in Fukushima Prefecture. Though the currently-stored materials all exceeded 8,000 Bq/kg when collected and bagged, five years of radioactive decay has lowered much of the debris activity to well-below the criterion. For example, two-thirds of the bagged debris in Miyagi Prefecture is now below 8,000 Bq/kg. <http://www.jaif.or.jp/en/moe-revises-ordinance-changing-waste-designation-to-ordinary-when-radioactive-concentration-falls/>

- More than 10,000 F. Daiichi workers will remain for at least a year. The reconstruction Agency surveyed 24 of the companies involved with decommissioning work, including subcontractors. The Agency finding has been shared with the twelve municipalities evacuated in 2011, to give them an idea of long-term employment at the station. This was the first such long-stay worker projections have happened. The companies were asked what the workers would need, including living accommodations, grocery stores, and other support infrastructure. In addition, the survey found what type of mass transportation would be needed for trips to restaurants and recreational facilities in the region. Some of the surveyed workers are evacuees anticipating return to their homes. In addition to the above needs, they wanted available nursing care for elderly parents and children. <http://www.fukushimainponews.com/news.html?id=663>
- Soma City resumes littleneck clam harvesting. It began on April 20th. 25 fishermen from the Soma-Futaba Fisheries Cooperative Association took part, wearing waterproof pants and boots. They used long-handled dredges to scoop 300 kilograms of shellfish; about average for a day's work. Of course, the clams were screened for radioactivity, but none was detected. Tokyo has not banned clamming, but the association regards the restart as "test fishing" due to consumer concerns over contamination of the species. Clamming will be conducted once a week through August. <http://www.fukushimainponews.com/news.html?id=662>
- A Tokyo citizen's judicial panel absolved NISA of nuke accident culpability. The now-defunct Nuclear and Industrial Safety Agency had been charged with professional negligence resulting in death and injury because of the Fukushima accident. The citizen's panel voted to support the prosecutors' prior decision to not indict three former senior officials of NISA. Plaintiffs were unhappy with the original decision so they took the case to the citizen's panel, as allowed by Japanese law. The panel finding means that NISA has become effectively exempt from criminal responsibility for allegedly failing to prevent the accident. <http://english.kyodonews.jp/news/2016/04/409084.html>
- The Sendai station owner is besieged by local demands for shutdown. Literally thousands of Emails and phone calls have flooded Kyushu Electric Co. since the deadly twin earthquakes in mid-April. Fears of a Fukushima-level accident caused by a quake are at the root of the fearful public reaction. It doesn't matter that the March 11, 2011, quake of 9 on the Richter scale did nothing to any of the 14 nuke units along the Tohoku coast. Nuclear-phobics on Kyushu Island are trying to shut down the only two operating nukes in Japan, anyway. Kyushu Electric's President Michiaki Uryu said, "We are operating (the Sendai plant) after confirming its safety and concluding that there is no problem with continuing to operate it." The mid-April quakes caused ground movement at Sendai station about twenty times less than the SCRAM set-point, and more than 70 times less than the station's design criterion. NRA Chairman Shunichi Tanaka has insisted that "There are no compelling scientific grounds [for shutdown]. We are not going to shut down the plant just because of calls from the public or politicians. What has been going on is within our expectations... The plant is also designed to be quake-proof, so people do not need to worry about those things." But voices of

fear don't care. They claim that if a nuke accident happened, damage to physical infrastructure would prohibit public evacuation. They also point out that the future could witness a natural calamity many times worse than what is expected and damage a nuke enough to release radiation. <http://www.asahi.com/ajw/articles/AJ201604290059.html>

- Nuclear emergency sheltering is questioned by some Japanese residents. Post-Fukushima emergency plan regulations call for virtually immediate evacuation within five kilometers, and sheltering in the 5-30 kilometer radius. Evacuation in the outer locations would be determined by radiation levels detected by installed monitoring equipment. However, some residents object, saying that if the nuke accident is caused by an earthquake, local infrastructure will be severely damaged and make evacuation much more difficult for those who want to flee along with the residents from the 5km radius. The objections have been spawned by the recent dual quakes on Kyushu Island, which did absolutely nothing to the operating nukes at Sendai station. One public servant said, "If there were a nuclear accident, remaining indoors would be impossible. The Kumamoto Earthquake has made me even more anxious. Even if we were to evacuate indoors, then we would have to go outside (to receive supplies, etc.) and wouldn't be able to avoid exposure to radiation. I would want to evacuate immediately, but evacuation routes would probably be crowded." A Kagoshima official replied that sheltering is the most reasonable approach and post-Fukushima emergency plans will not be revised.

<http://mainichi.jp/english/articles/20160502/p2a/00m/0na/021000c> (Authors Comment - It seems that a fraction of the Japanese public plans on fleeing as soon as a nuke accident is announced because they fear the possibility of radiation exposure. In other words, the radiophobic demographic wants special treatment because they refuse to believe that low-level exposure is essentially harmless.)

Information Notices

Unless otherwise noted, these are ADAMS Accession documents, are publicly available, and will be accessible via the public web site Electronic Reading Room in the Agency Document Access and Management System (ADAMS),

<http://www.nrc.gov/reading-rm/adams.html>

or to access generic communications files on the NRC Homepage:

<http://www.nrc.gov/reading-rm/doc-collections/gen-comm/reg-issues/2013/>.

To access these documents use the ADAMS Accession number listed with the title.

This is in the format of : ML #####A###

Part 21 and Miscellaneous

Regulatory Issue Summary 2016-05, "Embedded Digital Devices in Safety-Related Systems," dated April 29, 2016

ADAMS Accession No.: ML15118A015

Regulatory Issue Summary 2016-08, Revision 1, "Regulatory Requirements for Transfer of Control (Change of Ownership) of Specific Materials Licenses," dated May 5, 2016 ADAMS Accession No.: ML15181A223

Regulatory Issue Summary 2016-06, "NRC Regulation of Radium-226 Under Military Control and for Coordination on Cercla Response Actions at DOD Sites with Radioactive Materials," dated May 9, 2016

ADAMS Accession No.: ML15167A323

PDF version of the enclosure to RIS 2016-06 (ML15167A323) that has been posted to the NRC Generic Communications (See the previous RIS above.)

ADAMS Accession No.: ML15167A349

Regulatory Issue Summary 2016-07, "Containment Shell or Liner Moisture Barrier Inspection," dated May 9, 2016

ADAMS Accession No.: ML16068A436

On May 20, 2016, the NRC published Docket ID NRC-2016-0101 in the *Federal Register* detailing Superseded or Outdated Generic Communications that have been "Withdrawn." The withdrawals include selected generic communications that contain information that is no longer applicable or have been superseded by newer guidance. The withdrawn Generic Communications have been noted on the Generic Communications web site, accordingly. <http://www.nrc.gov/reading-rm/doc-collections/gen-comm/>

The notice can be found in the *Federal Register* (**81 FR 31969; May 20, 2016**). <https://www.gpo.gov/fdsys/pkg/FR-2016-05-20/pdf/2016-11994.pdf>

FirstEnergy

Beaver Valley, Davis-Besse, and Perry - Application to Revise Technical Specifications to Adopt TSTF-545, Revision 3, "TS Inservice Testing Program Removal & Clarify SR Usage Rule Application to Section 5.5 Testing," and to Request an Alternative to....

ADAMS Accession No.: ML16148A047

Davis-Besse

Davis-Besse Nuclear Power Station - Post-Approval Site Inspection for License Renewal Report 05000346/2016007

ADAMS Accession Number ML16123A331

Davis-Besse Nuclear Power Station, Unit No. 1 - Issuance of Amendment Revising Emergency Diesel Generator Minimum Voltage and Frequency Acceptance Criteria (CAC No. MF6060)
ADAMS Accession No. ML16083A481

Ltr. 05/03/16 Davis-Besse Nuclear Power Station - Information Request to Support the NRC Annual Baseline Emergency Action Level and Emergency Plan Changes Inspection
ADAMS Accession Number ML16125A503

Davis-Besse Nuclear Power Station, Unit No. 1 - Summary of April 12, 2016, Teleconference Regarding Steam Generator Tube Inservice Inspection (CAC No. MF7398)
ADAMS Accession No. ML16130A750

EA-16-022; Davis-Besse Nuclear Power Station – NRC Inspection Report 05000346/2016008; Investigation Report No. 3-2015-009 and Apparent Violation
ADAMS Accession Number: ML16138A562

NUCLEAR REGULATORY COMMISSION REPORT FOR THE AUDIT OF FIRSTENERGY NUCLEAR OPERATING COMPANY'S FLOOD HAZARD REEVALUATION REPORT SUBMITTAL RELATED TO THE NEAR-TERM TASK FORCE RECOMMENDATION 2.1- FLOODING FOR: DAVIS-BESSE NUCLEAR POWER STATION, UNIT 1 (CAC NO. MF3721)
ADAMS Accession No.: ML16134A695

Davis-Besse, Offsite Dose Calculation Manual, Revision 31.
ADAMS Accession No.: ML16147A010

Davis-Besse, Unit 1 - Transmittal of Combined Annual Radiological Environmental Operating Report and Radiological Effluent Release Report for the Davis-Besse Nuclear: Power Station - 2015.

ADAMS Accession No.: ML16147A006

Perry

PERRY NUCLEAR POWER PLANT—NRC INTEGRATED INSPECTION REPORT
05000440/2016001

ADAMS Accession Number ML16134A163

INFORMATION REQUEST TO SUPPORT UPCOMING TEMPORARY INSTRUCTION 191
INSPECTION AT PERRY NUCLEAR POWER PLANT

ADAMS Accession Number ML16134A198

Perry Nuclear Plant, Unit 1 - Safety Evaluation Regarding Implementation of Mitigating Strategies and Reliable Spent Fuel Instrumentation Related to Orders EA-12-049 and EA-12-051

ADAMS Accession No. ML16056A560

Perry Nuclear Power Plant-Reactive Inspection Report 05000440/2016008.

ADAMS Accession No.: ML16147A437

Perry Nuclear Power Plant, Unit No.1 - Safety Evaluation Regarding Implementation of Mitigating Strategies and Reliable Spent Fuel Instrumentation Related to Orders EA-12-049 and EA-12-051.

ADAMS Accession No.: ML16056A560

Perry Nuclear Power Plant-NRC Integrated Inspection Report 05000440/2016001.

ADAMS Accession No.: ML16134A163

Perry Nuclear Power Plant - Annual Environmental and Effluent Release Report for the Year 2015.

ADAMS Accession No.: ML16125A251

Perry Nuclear Power Plant - Response to Request for Additional Information Regarding a Request to Revise the Emergency Plan (CAC No. MF7046).

ADAMS Accession No.: ML16117A507

Beaver Valley

Beaver Valley Power Station - Integrated Inspection Report 05000334/2016001 & 05000412/2016001

ADAMS Accession No.: ML16125A037

Part 02 SSAR (Rev. 0) - Part 2 - SSAR - Chapter 2 - Site Characteristics - Section 2.5.1
Geologic Characterization Information

ADAMS Accession No.: ML16144A059

Beaver Valley, Units 1 and 2 - Discharge Monitoring Report for March 2016.

ADAMS Accession No.: ML16126A224

Beaver Valley, Units 1 and 2 - ODCM: Controls for RETS and REMP Programs.

ADAMS Accession No.: ML16126A312

Beaver Valley, Units 1 and 2 - ODCM: Liquid Effluents.

ADAMS Accession No.: ML16126A305

Beaver Valley, Units 1 and 2 - ODCM: Index, Matrix and History of ODCM Changes.

ADAMS Accession No.: ML16126A315

Beaver Valley, Units 1 and 2 - Submittal of 2015 Radioactive Effluent Release Report, 2015 Annual Radiological Environmental Operating Report, and 2015 Annual Environmental Operating Report (Non-Radiological). Part 2 of 2.

ADAMS Accession No.: ML16126A314

Beaver Valley, Units 1 and 2 - ODCM: Gaseous Effluents.

ADAMS Accession No.: ML16126A306

Beaver Valley, Units 1 and 2 - Submittal of 2015 Radioactive Effluent Release Report, 2015 Annual Radiological Environmental Operating Report, and 2015 Annual Environmental Operating Report (Non-Radiological). Part 1 of 2.

ADAMS Accession No.: ML16126A304

IR 05000334/2016001 & 05000412/2016001 - Beaver Valley Power Station - Integrated Inspection Report (Jan 1 2016 - Mar 31 2016).
ADAMS Accession No.: ML16125A037

Portsmouth Facilities

American Centrifuge Plant Regarding Transmittal of Security Incident Log, for American Centrifuge Operating, LLC - Security Related Information.

ADAMS Accession No.: ML16137A471

Preliminary Discussion of Lead Cascade Decommissioning and License Termination (SNM-7003), April 13, 2016.

ADAMS Accession No.: ML16131A051

Memo & Summary of April 13 2016 Drop-In Visit re American Centrifuge Lead Cascade Decommissioning and License Termination.

ADAMS Accession No.: ML16130A747

American Centrifuge Lead Cascade Facility and American Centrifuge Plant - Response to Request for Additional Information Related to the Summary of Changes for Calendar Year 2015 (TAC No. L34354).

ADAMS Accession No.: ML16118A083

Letter to Centrus Corp. Re: Response on Withholding Proprietary Information for AC 16-0008 Letter.

ADAMS Accession No.: ML16117A184

NRC Response to Centrus Energy Corp. Regarding Updated FOCl for American Centrifuge Enrichment, LLC-Cost Activity Code Number L34364.

ADAMS Accession No.: ML16113A389

Fermi 1

No reports

Fermi 2

Ltr. 05/03/16 Fermi Power Plant - Information Request to Support the NRC Annual Baseline Emergency Action Level and Emergency Plan Changes Inspection

ADAMS Accession Number ML16125A445

Fermi Power Plant, Unit 2 - NRC Security Baseline Inspection Report 05000341/2016403 - Cover Letter Only

ADAMS Accession Number ML16131A587

FERMI NUCLEAR POWER PLANT, UNIT 2—NRC INTEGRATED INSPECTION REPORT
05000341/2016001

ADAMS Accession Number ML16130A752

PUBLIC OPEN HOUSE TO DISCUSS THE 2015 END-OF-CYCLE PLANT PERFORMANCE
ASSESSMENT FOR FERMI POWER PLANT

ADAMS Accession Number ML16141A139

Fermi 2 - Annual Radioactive Effluent Release Report and Radiological Environmental
Operating Report.

ADAMS Accession No.: ML16120A509

Fermi 3

Fermi, Unit 3, Report of Quality Assurance Program Description (QAPD) Changes, Revision 9.

ADAMS Accession No.: ML16141A267

NUREG-2182, Vol. 2, "Final Safety Evaluation Report for the Combined License for Enrico
Fermi 3. Docket Number 52-033, DTE Electric Company, Chapters 10 to 20 Appendix A."

ADAMS Accession No.: ML16140A095

NUREG-2182, Vol. 1, "Final Safety Evaluation Report for the Combined License for Enrico
Fermi 3. Docket Number 52-033, DTE Electric Company. Chapters 1 to 9."

ADAMS Accession No.: ML16140A058
