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**Full-text Links:** Clicking the hypertext links in our write-ups will take you to the newspapers' original full-text articles.

**Interactive Table of Contents:** Clicking a page number on the table of contents page will take you directly to that story.

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# NUCLEAR REGULATORY COMMISSION NEWS SUMMARY

FRIDAY, APRIL 8, 2011 7:00 AM EDT

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## NRC NEWS:

### ACRS Questions NRC Officials On 50-Mile Evacuation Decision.

The AP (4/8, Capiello) reports, "A recommendation for all US citizens living within 50 miles of the crippled Japan nuclear power plant to leave was based on incomplete information and assumptions about the reactors' condition," NRC officials told an Advisory Committee on Reactor Safeguards panel Thursday. The ACRS pressed NRC officials on "how they concluded that 50 miles was a safe distance from the crippled reactors" when the Japanese government set a 12-mile evacuation zone. According to

Randy Sullivan, who leads an NRC protective measures team, the decision was not based on data from the site, but "on 'a big release'" scenario, which "US officials could not confirm was happening."

According to Reuters (4/8, Rampton), the former chief of GE's nuclear fuel business, Sam Armijo, said he "would have expected there would have been high-level conversations between our regulatory bodies and our government" with their counterparts in Japan. Armijo added, "I want to make sure we get the analysis and the numbers that were actually used."

Under the headline, "NRC Officials Offer Panel Few Answers On Japan Disaster," E&E News PM (4/7, Northey) reported the ACRS panel questioned NRC staff about "who

vetted NRC Chairman Gregory Jaczko's" 50-mile recommendation, but got few answers. The ACRS "voiced concern" about the lack of knowledge surrounding Chairman Jaczko's "high-level statement."

On its website, Fox affiliate, WJBK-TV Detroit (4/7) reported that according to Randy Sullivan, senior emergency-preparedness specialist with the NRC, US "officials failed to get 'succinct information' from Japanese authorities" before the decision to declare the 50-mile evacuation zone, and even when they did get some information, it "wasn't at all what we would have expected [during] a nuclear event in the US." Sullivan said officials did not get "much information that would tell us things were going in the right direction."

### **Lawmakers Say NRC Study Points To Vulnerabilities At US Plants.**

AFP (4/8) reports, "At a hearing in the House of Representatives' energy and commerce committee Wednesday, Democratic Congresswoman Diana DeGette said a study conducted last year by the Nuclear Regulatory Committee (NRC) raised 'grave questions about US preparedness to address reactor accidents.'" DeGette cited an NRC study which examined what would happen at Peach Bottom Station in Pennsylvania, and a number of other plants, in the event that the reactors "lost both [main] power and back-up generators after an extreme event such as a quake, flood or fire." AFP says the Peach Bottom reactor came "perilously close to meltdown in the simulations."

On Time's (4/8) "Swampland" blog, Mark Benjamin writes that the "simulation by the NRC" showed "that given a two-day power failure, the Peach Bottom plant" would come "shockingly close" to a reactor meltdown. "The Peach Bottom plant came within one hour of core damage in a severe loss-of-power scenario," Committee Ranking Member Henry Waxman (D-Calif.) said yesterday. "That result raises questions about whether our reactors may be as vulnerable as those in Fukushima," he said."

The New Yorker (4/8, Kolbert) reports on the "State of the Art Reactor Consequence Analyses," known by the acronym SOARCA, which "are a set of studies conducted by the Nuclear Regulatory Commission starting in 2006," to "develop the most realistic evaluations possible for the potential consequences of severe nuclear accidents." SOARCA examined two nuclear plants "with different designs—the Surry Power Station, a pressurized water reactor in Virginia, and the Peach Bottom Atomic Power Station, a boiling-water reactor in Pennsylvania." The New Yorker says that while the results of the study would be helpful to know, as nuclear security expert Ed Lyman, of the Union of Concerned Scientists, points out in a recent blog post, "the NRC has yet to make the results of this particular

analysis—or any others performed for SOARCA—available to the public."

On its "All Things Nuclear" blog for the Union of Concerned Scientists (4/7) Ed Lyman wrote that contrary to its assertions that "US nuclear plants are better prepared to withstand a catastrophic event like the March 11 earthquake and tsunami than Japanese plants," according to internal NRC documents, "there is no consensus within the NRC that US plants are sufficiently protected. The documents indicate that technical staff members doubt the effectiveness of key safety measures adopted after the September 11, 2001, terrorist attacks."

### ***NRC To Discuss Peach Bottom Plant Performance***

April 13. The York (PA) Dispatch (4/8, Kauffman) notes that while "tens of thousands of Yorkers could be in jeopardy if there were ever an incident at Peach Bottom Atomic Power Station, public attendance at the annual meetings held to discuss the plant's safety assessment is sometimes lighter than at a school board meeting." Though the NRC is preparing "for a larger turnout than average because of the nuclear disaster in Japan that followed an earthquake last month." NRC spokesman Neil Sheehan said the public meeting April 13 will give "attendees an opportunity to ask questions regarding the plant's performance and the government's oversight."

### **US Said Unprepared For Catastrophic Nuclear Emergency.**

The Washington Post (4/8, Fink) runs a ProPublica story reports, "US officials say the nation's health system is ill-prepared to cope with a catastrophic release of radiation, despite years of focus on the possibility of a terrorist 'dirty bomb' or an improvised nuclear device attack." A current assessment from the Department of Homeland Security said responders "can only handle a few radiation injuries at any one time" and said there was "no strategy for notifying the public" on recommendations for shelter or evacuation priorities. The report specifically mentions that the Strategic National Stockpile stopped purchasing potassium iodide, a decision partly made because distribution could take too long in a rapidly-developing emergency.

### **Edison Officials Weigh Prospects For San Onofre Relicensing.**

The San Diego Union-Tribune (4/8, Soto) reports that "parallels are easy to draw" between the stricken plant at Fukushima and the San Onofre Nuclear Generating Station. SONGS is on the "ocean and near fault lines" and its "reactors are nearly 30 years old." But Southern California Edison will likely have to decide soon whether or not to pursue relicensing the two units there. SCE spokesman Gil Alexander said, "We're getting closer and closer," adding that SCE is "still studying the feasibility." But with nearly 11 years left on the current operating licenses the

company cannot afford to "wait too long to begin the process leading to relicensing."

**NRC To Discuss San Onofre Performance In Meeting.** The Orange County (CA) Register (4/8, Swegles) reports, "The Nuclear Regulatory Commission's staff is inviting the public to an April 28 meeting in San Juan Capistrano to discuss federal regulators' annual evaluation of how the San Onofre Nuclear Generating Station is operating." According to the NRC, the plant operated safely in 2010, after addressing "longstanding concerns" having to do with "problem identification and resolution." Plant operators have not been "fully successful in addressing several longstanding human performance issues." The NRC meeting will be held at the Capistrano Unified School District's offices.

On its website, KPBS-Radio San Diego (4/7) reported, Southern California Edison spokesman Gil Alexander "said the NRC will also answer questions from residents who live near the plant. ... 'There are two or three resident inspectors who look over our shoulders all the time,' Alexander said." Those inspectors then "roll up their observations into semi-annual and annual report cards." San Clemente (CA) Patch (4/8) also reports about the meeting.

**Town Calls For Meeting In September To Discuss San Onofre Concerns.** The Orange County (CA) Register (4/7, Swegles) reported on a San Clemente City Council town meeting called for September 27, on concerns about safety and evacuation issues at San Onofre Nuclear Generating Station in the wake of the "earthquake- and tsunami-related nuclear-plant crisis in Japan." The council "set the date well in advance with the idea that it gives San Onofre owner Southern California Edison and staff of the US Nuclear Regulatory Commission time to develop information to present to the city and the public."

**SONGS Evacuation Plan Said "Inherently Flawed".** In a commentary for San Clemente (CA) Patch (4/7), "Barnes-Eye View" columnist Tom Barnes, wrote the "evacuation plan for San Clemente in case there is an accident at SONGS. The city, and presumably SONGS' plan is to use the I-5 North and Pacific Coast Highway (PCH) west as the evacuation routes to relocate San Clementians to the Orange County Fairgrounds." Barnes says if the stakes weren't so high, such a plan would be "laughable." Barnes wonders how officials can consider the plan to use the freeway to evacuate, adequate and says the "evacuation plan is inherently flawed."

**NRC To Conduct Special Inspections At Byron, Braidwood Stations.** The Morris (IL) Daily Herald (4/7, Hustis) reported, the NRC is reviewing two "equipment issues" at Braidwood and Byron Generating Stations. The NRC said that a special inspection team will review backup water pumps at the plants, which "remove

heat from the reactors in case of a trip or accident," and will also examine "the loss of control room equipment alarms in February of this year and late-August 2010." The Daily Herald says the NRC will make a special inspection report available to the public within 45 days after the investigation is completed. Meantime, both NRC spokeswoman Viktoria Mitylyng and Neal Miller of Braidwood Station said there was no "immediate threat to public health or safety, and the two equipment issues have been resolved." The team began the review April 4.

The Rockford (IL) Register-Star (4/7, Gary) also reported briefly on the special inspections, while on his Rockford Register-Star (4/8) "Get Real" blog, Alex Gary noted that the issue came to light when "inspectors became concerned with the design of the auxiliary feedwater pumps (AFW) at Byron. Exelon's initial evaluation was that the pumps would be able to perform their safety function," though after more calculations, Exelon determined the pumps "would not be operable in an accident or reactor trip at either Byron or Braidwood, since both systems are similar in design."

Concerning the problem with Byron Station's back-up cooling pumps, which the NRC said might not work in the event of a system failure, MyStateline (4/7, Kasper) reported that NRC spokesperson Viktoria Mitylyng "said safety inspectors found an air pocket inside a pipe that pumps water into the reactor and asked the company to make some changes. 'If that air got pushed into the pump, which is the system that would pump coolant into the reactor, that pump could be damaged,' said Mitylyng."

MyStateline (4/8) added, "Backup systems at nuclear power plants have come under scrutiny since [those] at Japan's Fukushima facility failed during the earthquake and tsunami on March 11th."

WQRF-TV Rockford, IL (4/7, 9:18 p.m. CT, 20.560) reported that the NRC has launched an investigation into the Byron Nuclear Power Plant "following reports that back-up cooling pumps might not work in the event of a system failure." NRC spokesperson Viktoria Mitylyng said that they launched the investigation after "it became apparent that the system would not be operable" and they asked the Exelon, the company that owns the plant, to make some changes. Paul Dempsey, Byron Station's communication manager, said that they have rectified the situation and configured the system according to NRC's requests.

**NRC Says Fort Calhoun Moving In Right Direction.** The Omaha World-Herald (4/8, Gaarder) reports that the Fort Calhoun Nuclear Station "north of Omaha appears to be solving the problems that placed it among the handful nationwide that have required the most oversight, federal regulators said Wednesday." NRC's regional deputy director Troy Pruett told Omaha Public Power

District officials that it appears they “are heading in the right direction,” in their efforts to correct “somewhat poor marks” the NRC gave last year after “concluding that the utility’s plans to protect against catastrophic, 1-in-1,000-year flooding were vulnerable to failure.” NRC reactor inspector Gerond George said that one problem had to do with how Fort Calhoun planned to “stack sandbags atop flood gates,” which the NRC says were positioned in such a way that they could have washed away during flooding.

### **Vermont Officials Say They Will Enforce Law To Shut Yankee Plant Down.**

The Brattleboro (VT) Reformer (4/8, Audette) reports that if Entergy attempts to continue operating the Vermont Yankee nuclear plant past March 21, 2012, “the state will be ready to enforce its laws,” according to Vermont Attorney General William Sorrell, who said, “We are not going to sit on our hands and let Vermont law be ignored.” Sorrell insists he and his staff are prepared for “whatever legal action might be necessary” if Entergy “ignores the state’s refusal to issue a certificate of public good for continued operation of Yankee.” The Reformer notes that Entergy may ask a federal court “for a declaratory ruling prior to March 2012, or prior to the October refueling” which would assert that Vermont is trying to pre-empt the NRC’s decision. Or it might continue to operate and wait for the state to sue to shut the plant down.

The Addison (VT) Independent (4/7) reported Gov. Shumlin “reiterated his desire to see the plant closed when its current license expires next year — in spite of the fact that the federal Nuclear Regulatory Commission has issued VY a renewal.” Shumlin predicted Yankee’s future might be decided by the courts, and suggested Entergy, “might argue that the Vermont Legislature doesn’t have the right to decide the facility’s fate; or Entergy might try to continue operation past 2012 with its NRC permit in hand, forcing the state to take court action.”

**Benefits Of Closing Yankee Expected.** In an opinion piece for the Burlington (VT) Free Press (4/8), Sandra Levine of the Conservation Law Foundation talks up the benefits awaiting the state after Vermont Yankee closes. Levine said that “A cleaner, more prosperous energy future is available without Vermont Yankee. Let’s set aside the bogey men and scare tactics and look at the facts.” Levine says there is an “excess supply” of power, which all but “guarantee that the retirement of Vermont Yankee will have at most a small impact on Vermont’s electricity supply.”

**Emergency Response Exercise Conducted At Vermont Yankee.** On its website, WTEN-TV Albany, New York (4/7) reported, “Emergency officials in Vermont conducted drills near the Vermont Yankee Nuclear Power Plant on Thursday,” to prepare for “if there was a leak at the plant.” Richard Cogliano, of Vermont Emergency

Management said officials conduct “a federally evaluated exercise every two years, with every six years doing the ingestion pathway.”

**Lawmakers Sideline Power Bill Tax.** The AP (4/8) reports, “The Vermont House has agreed to pull a new 55-cent charge on electric bills from a bill designed to promote renewable energy” and replace funding that had been coming from Vermont Yankee plant. “Gov. Peter Shumlin says he’s working on an alternative to the new tax to fund the Clean Energy Development Fund, but he won’t say what his plan is.”

### **NRC Criticized For Response On Oyster Creek Relicensing.**

In a commentary for Gloucester County (NJ) Times (4/8), Jeff Tittel, director of the Sierra Club writes to criticize the NRC, suggesting that it shows it “cares more about protecting industry interests than the public in a brief the agency filed with the Third Circuit Court of Appeals, which is hearing an appeal of the relicensing of the Oyster Creek power plant.” Tittel calls the NRC a “cheerleader for industry” that “looks the other way it comes to relicensing, especially around issues of public safety.” Tittel says that when the court asked the NRC to determine what impact the Fukushima disaster would have on the relicensing of Oyster Creek, the NRC said it would “have no bearing on the relicensing of Oyster Creek.”

PhillyBurbs (4/8) reports, “In light of the disaster at the Fukushima Dai-ichi nuclear plant in Japan after last month’s earthquake and tsunami, and knowing Oyster Creek’s nuclear reactor design and age are virtually identical to that of Fukushima’s, some residents are casting a wary eye toward the Jersey shore.” Perry Belnich of Shamong said “I know the tsunami caused the problem in Japan; we’re not likely to get one here. But you worry about it because it’s so old.”

### **NRC Cited Beaver Valley Plant For Submerged Cables.**

Drawing coverage from the Beaver County (PA) Times, the AP (4/8) reports that Beaver Valley Station was cited last December by the NRC for having electrical cables to safety systems the previous year in an environment where they could be submerged in water, which could cause the cables to fail. But FirstEnergy Corp., which operates the plant, said that the problem has since been corrected. The NRC report says Beaver Valley Station was “one of nine found since 2007 to have cables improperly submerged in water.”

### **Unusual Event Declared At Columbia Station.**

The AP (4/8) reports, “A small amount of hydrogen gas trapped in a pipe at a Washington nuclear power plant ignited in a brief, six-inch flame Thursday when workers cut into the pipe, a utility spokesman said.” Energy Northwest spokesman Mike Paoli said the “puff” lasted less than a second and did no damage and caused no injuries, but still

"Columbia Generating Station declared an 'unusual event' and temporarily evacuated the immediate area." The AP notes that the NRC was notified. Paoli said, "There's no association whatsoever with the reactor building or radiation."

The Tri-City-Herald (4/8) reports, "Workers were cutting the pipe, which had been closed and purged, when a small amount of residual, trapped gas escaped the pipe. The immediate area was evacuated and an unusual event declared, said the release."

**Columbia Station Enters Refueling Outage.** The Tri-City (WA) Herald (4/7) reports, "The Columbia Generating Station near Richland powered down a couple days early on Saturday, but Energy Northwest decided to keep its planned outage schedule starting Wednesday." The plant began its longest scheduled refueling outage in its history. The "Bonneville Power Administration requested the early stop to operations because high water flows through the federal hydroelectric dam system would allow ample power production." More than 1,800 outage personnel will replace 244 of the 764 fuel assemblies during the 78-day shutdown. They will also replace the "condenser, which turns steam from the turbines back into water for reuse."

### **Group Holds Sail Event To Build Opposition To Indian Point Plant.**

The Westchester (NY) Journal News (4/7 Clary) reported on a three-hour sail event sponsored by the Hudson River environmental group, Clearwater, in which "passengers talked about a future without the nuclear plant." Clearwater Executive Director Jeff Rumpf said "We cannot afford the nuclear option," and added, "We are finally at a tipping point in the history of nuclear power and must move forward in advancing a renewable energy agenda." Some in the group "focused on risks to the region, including radiation exposure, earthquake potential, what would happen under evacuation plans, long-term storage of nuclear waste and the possibility of terrorism."

Mid-Hudson (NY) News (4/8) also covered the event, and said "Speakers including representatives from the Lamont-Doherty-Earth Institute, environmental groups, and former Congressman John Hall. Among the concerns expressed were the possibility of earthquake and the 10 mile radius evacuation zone around Indian Point."

N12WC New York (4/8, 12:10 a.m. ET) reported that during the Westchester County, New York's State of the County Address, County Executive Robert Astorino emphasized that the safety of the Indian Point Nuclear Plant "is the county's number one priority." Astorino also said that he "personally sent a letter to the Nuclear Regulatory Commission inquiring about the safety of the plant and they have assured us the plant is safe." However, Astorino said that they "continue to monitor the situation, updating all of our past assumptions with new information as it becomes

available and we are committed to keeping our residents informed every step of the way."

### **New Jersey Regulator Says Samples Show No Signs Of Elevated Radiation Levels.**

The AP (4/8, Delli Santi) reports, "Samples of milk, air and rainwater in New Jersey show no sign of elevated radiation from the Japan nuclear disaster, the state's top environmental official said Wednesday." According to Environmental Protection Commissioner Bob Martin, milk samples "taken last week show no signs of elevated radiation" and "preliminary air samples show trace amounts of radioactivity, but at levels far below those considered hazardous to human health." Martin spoke on emergency preparedness and nuclear power plant safety at the Statehouse, one of among five environment and security experts to testify at the briefing. on and at the on Wednesday.

### **Group Wants NRC To Reconsider Approval Of AP1000 Design.**

WUNC-Radio (4/7, DeWitt) reports, the "AP-1000 Oversight Group filed a petition with the NRC" urging regulators "to reconsider approval of a new design for nuclear power plants in North and South Carolina." The "group argues that the AP-1000 reactor design is flawed and should not be used at Shearon-Harris and other sites." Attorney John Runkle says the group is troubled that the "NRC seems poised on approving reactor designs that have not been fully reviewed nor fully resolved."

### **Small Amount Of Fukushima Plant Radiation Detected In Kansas.**

The Lawrence (KS) Journal World (4/8, Rothschild) reports, "State officials said Thursday that 'minuscule' levels of radiation from the damaged nuclear power plant in Japan have been detected in Kansas but posed no health threat." Lt. Gov. Jeff Colyer said that while Kansans may have concerns, "What we are seeing is a minuscule blip on the meter. The consensus remains from international, national and state health experts that this does not pose a health risk to Kansans." The Journal World adds Kansas Department of Health and Environment Secretary Robert Moser, said the "elevated levels of radiation" across the US are not unexpected.

The AP (4/8) notes that "Lt. Gov. Jeff Colyer, who's a surgeon, said while Kansans may be concerned, tests show only what he called a minuscule blip in readings for radioactive iodine."

On its website, KAKE-TV Wichita, Kansas (4/7) carries a news release from the Kansas Governor's office that reiterates that "these types of findings are being found all across the country and are far below levels of human health concern, including for infants and children."

KSNT-TV Topeka, KS (4/7, 10:09 CT, 19,642) reported that "Kansas officials say environmental testing has detected minimal levels of radiation from Japanese nuclear reactors damaged by last month's earthquake and tsunami." However, Lt. Governor Jeff Coyer said that the tests only showed "a miniscule blip in readings for radioactive iodine." The officials also "stressed...that the radiation doesn't represent a health hazard."

**NRC Discusses Nuclear Fuel Services Performance Review.** The Johnson City Press (4/8, Hicks) reports Anthony Gody with the NRC said the Licensee Performance Reviews "are compiled using data from public reports and are used to develop items to be addressed by the NRC and its licensees." Gody said that while "NFS has demonstrated improvement in the area of safety operations, he said two items mentioned in a confirmatory action letter issued by the NRC to NFS on Jan. 7, 2010, which outlined measures to be implemented by NFS prior to the restarting of several process lines voluntarily halted in December 2009, have not adequately been addressed and that the area of safety operations as a whole requires continued focus from the NRC and NFS."

On its website, WJHL-TV Bristol, TN (4/7, Jackson) added, "NRC said NFS improved performance in 2010 but needs to address operational and safety concerns. They also criticized NFS management." Newly appointed president, Retired Rear Admiral Joseph Henry "said NFS now has a 200-man security team and more on-floor supervision. 'One system process we have not started back up yet is the uranium hexafluoride processing line,' Henry said. 'Once we're satisfied that we are on the right path, we'll ask the NRC to come in, inspect us.'" WJHL-TV Tri-Cities (TN-VA), VA (4/7, 11:00 p.m. ET) also broadcast the story.

Prior to the meeting, WCYB-TV Bristol, Virginia (4/7, Taylor) reported on its website that NRC "representatives will be in Erwin tonight to talk about performance and safety of Nuclear Fuel Services." The Commission was to host a public meeting at the Unicoi County Courthouse, beginning at 6:30 pm. WCYB-TV Tri-Cities (TN-VA), VA (4/7, 5:35 p.m. ET) also broadcast the story.

**TVA Board To Discuss Nuclear Safety Thursday.** The Chattanooga (4/7) reported, "The TVA board will discuss the topic of nuclear safety at a meeting in Chattanooga next Thursday." The paper said "items on the agenda include a nuclear safety review and a report of the nuclear oversight committee." Notably, the board "will also discuss the future of the Bellefonte Nuclear Plant, which has long been moth-balled."

**TVA Delays Decision On Bellefonte Plant.** The AP (4/8) reports the TVA "has delayed giving the go-ahead on a

reactor at its Bellefonte Nuclear Plant in northeast Alabama, due to the emergency situation at a plant in Japan." AP says TVA President and CEO Tom Kilgore "told The Daily Sentinel in Scottsboro that the utility's board will not be asked at its April 14 meeting to approve completing the reactor."

**TVA Studying Use Of MOX Fuel.** Reuters (4/7, O'Grady), citing a TVA official, reported that the agency is weighing whether to use mixed-oxide fuel obtained from excess weapons-grade plutonium that the US government is looking to dispose of. MOX contains uranium and plutonium, and the US government is looking to getting rid of plutonium from dismantled nuclear weapons. Some groups have expressed concerns about using the highly radioactive plutonium, but Mick Mastilovic, TVA's nuclear fuel manager, said that "all nuclear plants produce plutonium over time as a byproduct of uranium fission."

**Nuclear Safety Hot Topic At Public Meetings On Dominion Plants.** The Central Virginian (4/8, Luck) reports, "The North Anna Nuclear Power Station received an overall positive assessment from the Nuclear Regulatory Commission for 2010 with Unit 2 receiving a 'white' indicator in one area." Although "the focus of the meeting was the annual NRC assessment of the power station, the approximately 25 citizens in attendance had many questions related to nuclear energy in general given the situation in Japan. Several representatives of the NRC were in attendance at the meeting in anticipation of the concerns and questions and provided as many answers in as much depth as they were able."

The Newport News Daily Press (4/7, Gillard) reports, "Safety was the hot topic during a public meeting Wednesday in Surry about nuclear safety." NRC officials "tried to dispel safety concerns residents had due to the recent earthquake, tsunami and nuclear disaster in northeast Japan." Local resident Betsy Shepard said, "Nuclear is not perfect ... but in relative terms, most people here are fairly comfortable with the nuclear plant here."

**Entergy Officials Defend Pilgrim Nuclear While State Leaders Urge Relicensing Delay.** The WBUR-FM Boston (4/8, Thys) reports on its website that Massachusetts "Gov. Deval Patrick, Senate President Therese Murray and House Speaker Robert DeLeo" want the NRC to delay relicensing of Pilgrim Nuclear. The officials admit that the Daiichi disaster affected their decision, adding, "they want to wait until 'we can all be sure that we have learned what we need to from the experience in Japan.'" During a Wednesday hearing with Entergy officials, Murray noted she's concerned about storm surges, wind monitoring, and spent-fuel storage. Entergy officials cautioned that they're committed to safety, including additional generators

not in use at Daiichi, and that natural events in Japan are unlikely to be replicated in Massachusetts.

The Quincy (MA) Patriot Ledger (4/8, Stewart) reports that officials at the hearing received a "surprise" from Energy executives, who "revealed that they already plan to start transferring waste to dry storage by 2014." Murray said, "They've never said anything about it." Along with Massachusetts Attorney General Martha Coakley, Murray wrote the NRC asking that dry storage be a relicensing condition.

**Rep. Gibson Remains Committed To Nuclear Power.** Will Doolittle writes in a column for the Glen Falls (NY) Post Star (4/8, 27K), "Events in Japan of the last month would seem to cry out for a reassessment by Congressman Chris Gibson of his cheerleading for nuclear power," but "he has not wavered, despite nature's unfortunate timing." Gibson pushed to build a nuclear plant in his district shortly before Japan's earthquake and tsunami. Doolittle says that "while headlines around the world cry of the dangers of radiation poisoning the air and water in Japan," Gibson "has insisted on the necessity of alternative energy production, starting with nuclear."

**Potassium Iodide Tablets Distributed In Delaware.** The AP (4/8) reports, "Emergency management officials in Delaware say about 1,500 doses of potassium iodide have been distributed to residents who live within 10 miles of the Salem/Hope Creek nuclear power plant in New Jersey." According to the report, the pills, which protect against radioactive iodine, are distributed every year in the fall. However, "officials set up a second distribution after the earthquake and tsunami in Japan, which damaged one of Japan's nuclear power plants and resulted in radiation leaks."

The Wilmington (DE) News Journal (4/7, Montgomery) reports that the pills were distributed by Delaware Emergency Management Agency and Division of Public Health. According to the report, Roseann Pack, a spokeswoman for the agency, "said state officials scheduled Wednesday's distribution partly as a result of elevated public interest in the issue and after noting a significant population inside Salem-Hope Creek's 10-mile evacuation planning zone." The Journal also mentions that "in a report released Wednesday, the Union of Concerned Scientists cited Nuclear Regulatory Commission documents that they believe show NRC analysts' concern about the reliability of a study of reactor accident consequences." In that study, "some NRC analysts questioned the ability of some American reactors to avert severe damage under scenarios that involve problems seen in Japan."

**Japan Crisis Raises Concerns Over Diablo Canyon.** The Santa Barbara (CA) Independent (4/8, Welsh, 40K, 39K) reports, "Ongoing struggles to contain radioactivity spilling from the Japanese nuclear plants has reignited concern about the seismic vulnerability of Diablo Canyon," a nuclear reactor "built just off the coast from two earthquake faults." Rep. Lois Capps spoke on the phone last week with "Nuclear Regulatory Commission (NRC) chair Greg Jaczko, urging him to suspend Diablo Canyon's relicensing application pending the results from a high-energy 3-d seismic study on the new fault discovered in 2008, located 300-600 yards off the coast from Diablo Canyon." According to the report, "Capps has been joined in this demand by the San Luis Obispo County Board of Supervisors and State Senator Sam Blakeslee, a Republican who represents the district."

The San Luis Obispo (CA) Tribune (4/8, Sneed) adds that "as promised, county supervisors Tuesday will vote whether to send a letter to PG&E asking it to suspend the relicensing of Diablo Canyon nuclear power plant until seismic studies have been completed and verified." According to the report, the letter "says that staying license renewal would be a good way for the utility to restore the trust of the community." However, "PG&E and the federal Nuclear Regulatory Commission have insisted that license renewal and the seismic studies can proceed concurrently."

In a report about how a "megaquake" could affect areas along the US Pacific Coast, the Hartford (CT) Courant (4/8, Thorson) says, "If...your concern for the Big One involves the potential for death and destruction, then I suggest you keep your thoughts in central and southern California, where the earthquakes are smaller, but where the threat is higher." The article further explains that "the problem" in these areas "is mostly about human population and infrastructure investment, both of which are roughly an order of magnitude higher than" in the northern Pacific Coast. "Additionally, large cities are built in basins directly above faults rather than at distant removes, and a pair of nuclear reactors — Diablo Canyon and San [Onofre] — bracket Los Angeles," according to the Courant.

Slate V (4/8), Slate's online video magazine, posts an episode of "Smashing Crayons" created by Illustrator Steve Brodner. In the video Brodner refers to the Diablo Canyon nuclear power plant, which is built near two fault lines, as a "great big monument to stupid."

**Japanese Crisis Could Usher In New Carbon-Emitting Plants.** The AP (4/8) reports that the Daiichi disaster could adversely affect efforts to reduce greenhouse emissions. If nations scrap nuclear expansion projects, they could turn to plants that use coal, oil, and natural gas. The IAEA believes that half of the nuclear projects on the table for

consideration may be scrapped because of the Daiichi. IAEA chief economist Fatih Birol added if that occurs, "the result will mean an additional 5 percent — or 500 million tons — of carbon dioxide emitted globally by 2035." However, some say the disaster could actually spur efforts to increase use of renewable sources. Tove Maria Ryding of Greenpeace said, "It's a false choice to give the public an alternative between a climate change disaster or a nuclear disaster. We need renewable energy. Now, we can either have a kick back or a leap forward."

**MIT Energy Director Predicts Impact Of Japanese Crisis For US Nuclear Industry.** The Wall Street Journal (4/8, Garland) reports that as a result of the Daiichi disaster, the US nuclear industry faces four certainties, according to MIT Energy Initiative director Ernest Moniz. He said that costs will increase and waste-storage policies will be reviewed. Furthermore, Moniz believes that 20-year extensions will come under increased scrutiny and some recent extensions may be reviewed. Moniz also predicts that US nuclear research will shift to an emphasis safety and cladding.

**Cobb Says Japan Crisis Shows Need For Storage Solution.** In a commentary for the Las Vegas Review-Journal (4/7), Tyrus W. Cobb, who served as special assistant to President Ronald Reagan for National Security Affairs, writes on how the Fukushima Daiichi nuclear plant crisis demonstrates how essential a long-term solution to spent fuel storage is, and suggests that the current US policy — or lack of it — on nuclear waste, in which the Obama Administration plans to shut down the Yucca Mountain Project, does not make sense.

**Commentary: US Should Move Away From Nuclear Energy.** In an opinion piece for the Cape Cod (MA) Times (4/8), Lawrence Brown of Hyannis teaches humanities at Cape Cod Academy, writes how in "many respects, we're in worse shape than Japan was prior to the quake." Fully a tenth of US residents live within 10 miles of a nuclear plant and there "are 23 General Electric Mark 1 plants operating here identical to the ones currently failing in Japan." Brown chafes that the country has no "national facility to store spent fuel rods" and seems "to have no emergency equipment or strategies worked out for when the unthinkable happens." He adds, "Of the 26 states with nuclear power plants, their average 'radiological preparedness' scores were 4.7 — of a possible 10." He concludes that it is "time to get out while we still can."

**WIPP Contractor Plans Layoffs.** The AP (4/8) reports Washington TRU Solutions, the contractor for the

Waste Isolation Pilot Plant, "announced Wednesday it is restructuring its work force" at the nuclear waste repository, and "could cut as many as 90 jobs." Company president Farok Sharif said "there are now more workers than the budget allows. The company plans a voluntary separation program, followed by layoffs if necessary."

**Concerns Raised About Safety At Hanford Vitrification Plant.** During a hearing about safety oversight of DOE nuclear defense facilities before the House Armed Services Strategic Forces Subcommittee, the Tri-City (WA) Herald (4/8, Cary) reports, Defense Nuclear Facilities Safety Board Chairman Peter Winokur said the board "has concerns about the safety attitude of employees and management at the Hanford vitrification plant." He cited Walt Tamosaitis, the former research and technology manager for the project, who believes he was fired for raising concerns about the plant, saying, "The board believed he was a credible individual who had played a major role in the project." Winokur added that "the crux of a strong safety culture is an empowered work force...people must be comfortable raising concerns to management and be confident the messenger will not be shot."

**DOE Says Additional SRS Layoffs Not Necessary.** Drawing coverage from the Aiken (SC) Standard, the AP (4/8) reports the DOE has said "additional layoffs aren't needed now at the Savannah River Site near Aiken," because "necessary restructuring at the former nuclear weapons complex can be done without costing additional jobs."

## INTERNATIONAL NUCLEAR NEWS:

**Strong Aftershock In Japan Kills Two, Injures Dozens.** ABC World News (4/7, story 6, 0:20, Sawyer) reported, "Today Japan was rocked by the most powerful aftershock yet, four weeks after the monster quake. Today's measured 7.1 and sent up new tsunami warnings for awhile, causing widespread blackouts. But it doesn't seem to have caused new damage to that Fukushima Nuclear Plant."

The CBS Evening News (4/7, story 6, 2:25, Smith) reported, "A massive 7.1 magnitude earthquake hit Japan today about 40 miles from Sendai. It is the strongest aftershock since last month's devastating quake and tsunami and it was felt 200 miles away in Tokyo. But no one was seriously hurt. And there was no new damage to those crippled nuclear reactors."

NBC Nightly News (4/7, lead story, 2:55, Curry), which opened with the story, reported the aftershock was "not far

from last month's 9.0 quake and tsunami struck off the coast of Japan, and after the shaking, there was again a fear of another tsunami and worries about whether the nuclear plant was further damaged. If you're wondering just how much more Japan can take, you're not alone." NBC (Cowan) added, "This certainly was a powerful quake, and as you say it hit along the same stretch of battered coastline hit so hard from the earthquake and tsunami last month. There weren't a lot of people left to evacuate, and so many places, the damage there had been done, but the big question is what happens to that stricken nuclear power plant that so many people fear is already hanging on by a thread. It struck nearly four weeks to the day since last month's massive quake. A grim reminder Japan is hardly out of the woods yet."

The AP (4/8, Alabaster, Hosaka) reports, "A strong aftershock ripped through northeastern Japan, killing two, injuring dozens and piling misery on a region still buried under the rubble of last month's devastating tsunami. The quake late Thursday was the strongest tremor since the March 11 jumbo and did some damage, but it did not generate a tsunami and appeared to have spared the area's nuclear power plants." According to the AP, "The Fukushima Dai-ichi complex – where workers have been frantically trying to cool overheated reactors since they lost cooling systems last month – reported no new abnormalities."

Bloomberg News (4/8, Inajima, Nakayama) reports, "Japan suffered the biggest aftershock since the day of the March 11 earthquake, prompting the operator of the stricken Fukushima nuclear plant to evacuate workers while they were cooling radioactive fuel. The magnitude-7.1 temblor struck at 11:32 p.m. local time yesterday near the site of last month's record quake in Japan, the US Geological Survey reported on its website." According to Bloomberg, "Work at Fukushima wasn't affected by the quake, Tokyo Electric spokesman Takashi Kurita said by telephone today." AFP (4/8, Hiyama) also runs a similar story, as does the New York Times (4/7, Tabuchi, Pollack, Subscription Publication, 950K), and Washington Post (4/8, Harlan, Higgins).

***Japan Nuclear Crisis Easing, US Officials Say.*** The Los Angeles Times (4/8, Vartabedian, 657K) reports, "Although the damaged Fukushima Daiichi nuclear power plant has not yet been stabilized, there is no evidence that overheating during the last month has resulted in any melting of the reactor vessels or their containment structures, Obama administration officials said Thursday." According to the Times, "The assessment, provided to The Times on background, suggests that the plant is unlikely to suffer a complete meltdown, in which uranium fuel gets so hot that it melts through the bottom of the reactor and containment vessels, spewing high-level radiation into the plant's underlying foundation."

The New York Times (4/8, Belson, Subscription Publication, 950K) reports, "Already, dozens of engineers from Toshiba, which helped build four of the Fukushima Daiichi reactors, have been joined by experts from the United States to prepare for the decommissioning work, a job so big that the planning needs to start even now, in parallel with the efforts to contain the crisis. The team includes experts from Westinghouse, whose majority owner is Toshiba; the Shaw Power Group, a civil engineering firm; and the Babcock & Wilcox Company, an energy technology and services company, one of whose specialties is the disposal of hazardous materials." According to the Times, "The plans to take apart the reactors are complicated not only by the volatility of the situation but also by the uncertainty about the reactors' condition once they finally cool."

The Dow Jones Newswires (4/8) notes that the IAEA says it is seeing "early signs of recovery" at the stricken Fukushima Daiichi nuclear plant in Japan. IAEA deputy director general Denis Flory, said "There are early signs of recovery in some functions such as electrical power and instrumentation." Still, he said, the situation "remains very serious."

Arnie Gundersen of Fairewinds Associates appeared on CNN's John King USA (4/7, 7:47pm) and said that TEPCO and the Japanese nuclear regulatory authorities were "dealt a crappy hand and they've done well with the hand that they were dealt, but in the process they added saltwater and now they're paying the price for adding that saltwater because it in itself is corrosive. So they bought a month, but in the process now we've got a tough problem in front of us."

Bloomberg News (4/8, Nishimae, Polson, Suzuki) reports that yesterday's earthquake "minutes before midnight spared the stricken Fukushima Dai-ichi" plant, "although workers struggling to cool radioactive fuel were evacuated, Tokyo Electric Power Co. said based on its initial assessment. ... 'The main fear is more structural damage, leading to additional cracks or reopening of the fixed crack,' Peter Hosemann, an assistant professor of nuclear engineering at the University of California at Berkeley."

***Two Of Three External Power Lines At Onagawa Plant Damaged.*** The Christian Science Monitor (4/8, Blair) noted that TEPCO said the "quake hasn't caused any further damage to the Daiichi nuclear power plant and that all the workers have been temporarily evacuated from the facilities." Two "of three external power lines to the Onagawa nuclear power plant, 75 miles northeast of Fukushima and near the epicenter of Thursday's temblor, have been damaged, causing power loss. The plant, operated by Tohoku Electric Power, has been shut down since the March 11 quake and has been relying on external power to cool the reactors."

Reuters (4/8, Nomiya) reports, Tetsuro Fukuyama, Japan's deputy chief cabinet secretary said the Onagawa plant was safe after the major aftershock.

### **Group Calls For Global Nuclear Regulatory Authority.**

Bloomberg News (4/8, Humber) reports, "Nikolai Steinberg, who worked at the Chernobyl nuclear plant when it suffered the world's worst nuclear disaster in 1986, and Harold Denton, a presidential adviser on the 1979 Three Mile Island accident, are part of a 16-person group from 11 nations that made an appeal to the United Nations this week" for a global nuclear regulator "with authority to enforce safety standards." The group wants "a united response on safety standards" after the Fukushima nuclear plant disaster. Bloomberg adds that Victor Murogov, who served as former deputy director general of the IAEA called the situation "no longer tolerable" and said countries need to "limit our national interests for the global good."

### **Physicians Group Calls For Ban On New Nuclear Power Plants In Canada.**

The Epoch Times (4/8 Zhu) reports, "As the nuclear crisis continues in Japan, Physicians for Global Survival are calling for a moratorium on new nuclear reactors in Canada and a suspension of operations at existing reactors on fault lines." The group said that radioactive emissions from nuclear power plants "expose entire populations and are 'gifts that keep on giving.'" According to the group, medical treatment for radiation exposure remains limited and PGS says it is "particularly concerned about a large radioactive release to densely populated areas and the financial effects of an accident."

### **French Strike Cuts 18,000 Megawatts Of Power Supply.**

Bloomberg News (4/8, Patel, Torsoli) reported, "A 24-hour strike by French energy workers over a possible threat to subsidized bills cut power nationwide by 18,000 megawatts, a union representative at Electricite de France SA said." Bloomberg said that "about 9,000 megawatts of the cuts were from 12 of EDF's nuclear plants," citing Laurent Langlard, a member of the CGT union.

### **Effect Of French Politics On Implementation Of Electricity Law Discussed.**

The Financial Times (4/7 Hollinger) reported that the French president, Nicolas Sarkozy, who faces a tough re-election battle if he again runs for office, is loathe to risk losing popular support by taking controversial decisions on energy-related matters. The Times said a plan was on the cards for the French government to set the price at which EDF would sell 25 percent of its nuclear-generated power to other competitors, as part of a compromise agreed with Brussels two years ago. The move would have done away with the artificially low

power rates that consumers now enjoy. But its implementation now seems remote in view of political challenges that Sarkozy now faces, the paper noted.

### **Iran Opposition Group Claims To Have Discovered Secret Nuclear Facility.**

The Washington Post (4/8, Warrick, 572K) reports, "An Iranian opposition group claimed Thursday to have discovered the location of a secret factory that manufactures high-tech equipment for Iran's nuclear program, a facility the group says is disguised as a tool-making plant. The National Council of Resistance of Iran said the alleged plant makes centrifuge parts for Iran's uranium enrichment program and is closely tied to Iran's Defense Ministry." The Post notes that "UN nuclear officials have long known that Iran is operating factories for centrifuge parts, but Iranian officials have never allowed visits by UN inspectors or even revealed the location of the facilities."

The Christian Science Monitor (4/8, 48K) reports, "An Iranian dissident group with a track record of revealing secret sites involved in Iran's nuclear program on Thursday offered more information – this time, on industrial facilities where it says the Iranian regime is producing parts for the centrifuges used in its uranium enrichment program. Flanked by poster boards with aerial photos of the alleged sites northwest of Tehran, two members of the National Council of Resistance of Iran told a Washington audience that the two sites have produced as many as 100,000 centrifuges under the direction of Iran's Defense Ministry." According to the Monitor, "For several years, the International Atomic Energy Agency (IAEA) has noted Iran's growing numbers of centrifuges – the machines used to produce low- and highly-enriched uranium - but has been stymied in its efforts to ascertain where and how the centrifuges were produced." AFP (4/8) also covers this story.

### **Iran Promises IAEA To Operate Bushehr Plant Safely.**

Voice of America News (4/7, Young) reports, "As last month's nuclear disaster at Japan's Fukushima power plant shows, such safety considerations can become a life-or-death matter." Efforts of workers at the Fukushima power plant in Japan, "reflect the extensive emergency training they, and other nuclear power workers worldwide, are given. That includes the personnel at Iran's new Bushehr nuclear power plant." Iran's "Atomic Energy Agency has repeatedly said that as an IAEA member, it will follow that UN agency's operational and safety protocols at the Bushehr plant."

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# NUCLEAR REGULATORY COMMISSION NEWS CLIPS

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## **NRC NEWS:**

### **NRC: US 50-mile Evacuation Based On Assumptions (AP)**

By Dina Cappiello, Associated Press

Associated Press, April 8, 2011

WASHINGTON – A recommendation for all US citizens living within 50 miles of the crippled Japan nuclear power plant to leave was based on incomplete information and assumptions about the reactors' condition, US nuclear officials told an independent advisory panel Thursday.

Members of the Nuclear Regulatory Commission's Advisory Committee on Reactor Safeguards pressed officials Thursday to explain how they concluded that 50 miles was a safe distance from the crippled reactors. The Japanese government had set a 12-mile evacuation zone.

On March 16, the Obama administration recommended that Americans evacuate from a 50-mile radius of the stricken nuclear plant, raising questions about US officials' confidence in Tokyo's risk assessments. Japan's government established a 12-mile evacuation zone after the March 11 earthquake and tsunami and has said that people living 12 to 20 miles from the plant should stay inside.

Randy Sullivan, who leads a protective measures team, said that no data from the site was used to determine the distance. Instead, he said, it was based on the potential conditions of the reactors.

Sullivan told the committee that the calculation was based on "a big release," which US officials could not confirm was happening. The scenario model assumed 100 percent fuel damage at Unit 2, leading to a radioactive release lasting 16 hours, Sullivan said.

Michael Corradini, chairman of the nuclear engineering program at the University of Wisconsin, said, "You were doing a what-if calculation."

Corradini continued: "Thirty-two years ago if Japan had done a what-if calculation about Three Mile Island and said all the Japanese living within 50 miles of Harrisburg should get out, what would our response be to that?" He referred to the partial meltdown of a nuclear reactor in Pennsylvania in 1979.

William Ruland, director of the Division of Safety Systems within the NRC's Nuclear Reactor Regulation Office said the 50-mile evacuation recommendation would be evaluated. Actual measurements taken since the March 17 decision have confirmed, according to NRC, that the decision was prudent.

"We were trying to ... protect our citizens or to make recommendations as appropriate based on the limited information we had," Ruland said. "Sometimes, during emergencies, you basically have to make a decision on the spot based on limited data. And sometimes you have to make a decision, and sometimes that is better than no decision."

## **Engineers Scrutinize US NRC's Japan Evacuation Call (REU)**

By Roberta Rampton

Reuters, April 8, 2011

Full-text stories from Reuters currently cannot be included in this document. You may, however, click the link above to access the story.

## **NRC Officials Offer Panel Few Answers On Japan Disaster (EPM)**

By Hannah Northey

E&E News PM, April 8, 2011

A panel that sought answers today from the Nuclear Regulatory Commission about the crisis at a crippled nuclear power plant in northeast Japan got little satisfaction.

Under questioning by the Advisory Committee on Reactor Safeguards, NRC staff were unable to say who vetted NRC Chairman Gregory Jaczko's recommendation last month that Japan evacuate people living within 50 miles of the Fukushima Daiichi plant, which was damaged by a March 11 earthquake and tsunami.

Japanese officials have maintained an evacuation area of 12 miles around the reactor complex, but Chief Cabinet Secretary Yukio Edano said that decision may be reconsidered after the country was hit today by a 7.4-magnitude aftershock (Greenwire, April 7).

The advisory committee – which includes part-time government employees with expertise in nuclear engineering, risk assessment and engineering – voiced concern over the lack of knowledge surrounding Jaczko's high-level statement.

"This is a very, very important decision, and I would have expected there would have been high-level conversations between our regulatory bodies and our government-equivalent people in the Japanese government on the worst-case analysis of why we were doing this," said John Sieber, a panel member and retired senior vice president of Duquesne Light Co.'s nuclear division.

NRC staff said the "conservative" decision to call for a 50-mile evacuation zone was based on assumptions that the spent fuel pool was full of fuel, as are American spent fuel pools. But NRC staff said they were surprised to later learn that the Japanese spent fuel pools were not as packed with nuclear fuel as they would have been in the United States.

Bill Ruland, acting deputy director for engineering and corporate support in the Office of Nuclear Reactor Regulation, said the commission usually does not make "protective action recommendations" but that the agency's role in a US emergency is to determine whether local authorities' or licensee's recommendations are sufficient. In Japan, he said, NRC played a "different role."

But Sieber said that it is "exactly how that role is portrayed in the United States that I'd be concerned about."

NRC staff also could not confirm the validity of an NRC report that Rep. Henry Waxman (D-Calif.) claimed to have obtained at a House Energy and Commerce subcommittee hearing yesterday.

Rep. Ed Markey (D-Mass.), the subcommittee chairman, said a nuclear watchdog group, the Union of Concerned Scientists, obtained the NRC models through freedom-of-information requests and the group had released excerpts from the draft assessment.

The model showed that the Peach Bottom Atomic Power Station in Pennsylvania would come within hours of suffering core damage in the event of a highly unlikely, sustained loss of primary and backup power (Greenwire, April 6).

Markey also said that NRC had told his office the Fukushima plant had kept pace with US nuclear safety requirements and had hardened vents to release hydrogen from the reactor's separation pools.

But commission officials today said they could not confirm whether the damaged reactor's owner, Tokyo Electric Power Co. (TEPCO), was still venting the reactors or if the plant actually has hardened vents.

The advisory panel said the commission should take care that incorrect information is not spread and recommended an immediate investigation.

"Somebody ought to follow up as to why these incorrect facts are getting out," said Michael Corradini, a member of the advisory panel and retired director of the Nuclear Engineering Department at Northeast Utilities in Connecticut.

NRC staff said they learned through media reports that a safety valve on Unit 1 was stuck open on April 5, possibly allowing coolant to flow out of the cooling system and making the system ineffective. But again, NRC could not confirm that information.

TEPCO officials yesterday began injecting Unit 1 with nitrogen gas to "inert the containment" and ensure hydrogen left in the reactor does not mix with oxygen and explode.

NRC staff members said they were not sure if venting was ongoing but that the utility is dealing with the stuck valve on Unit 1. They said they are "working to obtain" up-to-date drawings of the General Electric Mark 1 boiling water reactor, a statement that received smirks from the panel that advised NRC to ask GE for the drawings.

The agency's staff said they were also unsure why Units 5 and 6 at the reactor complex experienced less damage during the earthquake and tsunami, how much used nuclear fuel was in the spent fuel pools or how the rods were arranged.

"I'm sure during the weeks and months ahead, we'll be trying to get that information," Ruland said.

## **US Specialists Expand Evacuation Radius At Power Plant (WJBK)**

WJBK-TV Detroit, MI, April 8, 2011

US officials failed to get "succinct information" from Japanese authorities before clearing a 50-mile (80.5-kilometer) evacuation zone around the Fukushima nuclear plant on March 16, a move that raised alarm bells by going beyond a 12-mile (19-kilometer) zone imposed at the time by the Japanese.

Even when US officials were able to get information from Japan, it "wasn't at all what we would have expected [during] a nuclear event in the US," said Randy Sullivan, a senior emergency-preparedness specialist with the US Nuclear Regulatory Commission (NRC).

"We didn't get much information that would tell us things were going in the right direction," Sullivan said Thursday during a meeting of the NRC's Advisory Committee on Reactor Safeguards.

A decision by the US to evacuate citizens and military personnel within 50 miles of the Fukushima Daiichi nuclear plant has been scrutinized and questioned, in part because it appeared to undermine Japanese officials who had cleared a smaller area.

During the meeting, the NRC's Advisory Committee on Reactor Safeguards – an independent committee made up of scientists and nuclear experts – asked the NRC to reveal which risk calculations served as the basis for the 50-mile determination.

Committee members also asked the NRC to disclose the identity of top-level officials who reviewed these calculations before the evacuation decision was made.

One committee member, Michael Corradini, who is the chairman of the engineering physics department at the University of Wisconsin, asked the NRC to consider how the US would respond if Japan had done the same thing during the 1979 meltdown at Three Mile Island in Pennsylvania.

"Let me reverse this, 32 years ago if Japan would have done an [independent] calculation about Three-Mile Island and said all the Japanese within 50 miles of Harrisburg should get out. What would be our response? From a policy standpoint?"

The move "could potentially create a misimpression," Corradini said.

NRC officials said they decided to recommend a wider evacuation zone amid concern over spent nuclear fuel pools while suffering from a lack of clear information.

Sullivan said the NRC called Japan's Nuclear and Industrial Safety Agency on the morning on March 16. Sullivan said one official with the agency "did his best to inform us of what he knew," but did not provide a clear picture of the risks, Sullivan said.

## **US Unprepared For Japan-style Nuke Accident: Lawmaker (AFP)**

AFP, April 8, 2011

A US nuclear reactor near Baltimore would come dangerously close to meltdown within two days of a disaster on the scale of what happened in Japan three weeks ago, a lawmaker said, citing a draft report by the US nuclear watchdog.

At a hearing in the House of Representatives' energy and commerce committee Wednesday, Democratic Congresswoman Diana DeGette said a study conducted last year by the Nuclear Regulatory Committee (NRC) raised "grave questions about US preparedness to address reactor accidents."

The NRC modeled what would happen at two US nuclear power plants in the event of a major accident such as the one still unfolding at Fukushima in Japan three weeks after a massive earthquake and tsunami knocked out power that is critical to cooling the reactors' cores and "pools" of spent fuel rods.

One of the plants analyzed in the NRC report, Peach Bottom in Pennsylvania, is a GE Mark I boiling water reactor – the same model as reactors at Fukushima.

The NRC modeled scenarios in which Peach Bottom – which lies less than 40 miles from Baltimore, the largest city in Maryland with a population of 620,000 – lost both mains power and back-up generators after an extreme event such as a quake, flood or fire.

In one simulation, the reactor was equipped with the latest technology, introduced after the attacks on the United States of September 11, 2001 – in which some say nuclear reactors in Pennsylvania or New Jersey may have been a target – and in the other, it used older equipment and procedures.

Peach Bottom's reactor came perilously close to meltdown in the simulations.

"When a major earthquake, flood or fire was assumed to knock out all of the power of a nuclear reactor that is the same design as Fukushima and stands less than 40 miles from Baltimore – well within the contamination zone the US called for in Japan – that plant came less than an hour away from partial nuclear meltdown" in the NRC simulation, said DeGette.

Meltdown occurs when the core of a reactor overheats, allowing radiation to escape.

Congressman Henry Waxman said the NRC report "raises questions about whether our reactors may be as vulnerable as those in Fukushima," and said lawmakers "should be asking tough questions" about US nuclear safety in the light of the report's findings.

The United States has 104 operating nuclear reactors, 23 of which are the same Mark I model as the reactors that have come close to melting down in Japan.

## **How The Feds Are Reacting To Fukushima (TIME)**

By Mark Benjamin

Time, April 8, 2011

Stark similarities between the stricken nuclear plant in Japan and dozens of sites in the United States continue to emerge, suggesting that under similar drastic scenarios, the United States might face the same kind of disaster. It's unclear what the Nuclear Regulatory Commission or Congress are prepared to do about it, but they do have the power to force the industry to implement new, costly safety measures.

A simulation by the NRC conducted last November showed that given a two-day power failure, the Peach Bottom plant in Lancaster, Pa. would come shockingly close to a reactor meltdown. Democrats on the House Energy and Commerce Committee released the model Wednesday. The plant is 40 miles away from Baltimore.

"The Peach Bottom plant came within one hour of core damage in a severe loss-of-power scenario," Committee Ranking Member Henry Waxman (D-Calif.) said yesterday. "That result raises questions about whether our reactors may be as vulnerable as those in Fukushima," he said. "Congress should be asking tough questions."

There are 35 so-called "boiling water" reactors operating in the United States similar to those under duress in Japan. Of those, 23 are virtually identical to those in Japan, though the industry says that additional safety precautions implemented domestically after 9-11 make US plants safer. Those measures were taken into account in the NRC simulation at the Peach Bottom plant.

The NRC is currently conducting a 90-day review of US nuclear reactors in the wake of the disaster in Japan. Critics have long argued that the commission is too close to the industry it regulates and sometimes eschews costly or burdensome regulation.

Meanwhile, Democrats and Republicans in Congress seem divided on how to respond. While Waxman says Congress should take a hard look at safety at US plants, some Republicans have expressed concern that reflexive overreaction to the events in Japan could stifle the industry, which generates 20% of electricity in the US

## **News Desk: What We Don't Know About Reactors (NYORKER)**

By Elizabeth Kolbert

The New Yorker, April 8, 2011

The "State of the Art Reactor Consequence Analyses," known by the acronym SOARCA, are a set of studies conducted by the Nuclear Regulatory Commission starting in 2006. In the words of the commission, the purpose of the studies was to "develop the most realistic evaluations possible for the potential consequences of severe nuclear accidents." SOARCA focussed on two

plants with different designs—the Surry Power Station, a pressurized water reactor in Virginia, and the Peach Bottom Atomic Power Station, a boiling-water reactor in Pennsylvania. As it happens, Peach Bottom is very similar the reactors at the Fukushima Daiichi plant, and, also as it happens, one of the hypothetical accidents that the N.R.C. examined was a so-called “station blackout,” which is just the situation that led to the nuclear crisis in Japan.

The results of this exercise would, it seems, be extremely useful in trying to figure out what went wrong at Fukushima—where the crisis has not yet been resolved, even as a new earthquake hit this morning, causing power outages in the region. Unfortunately, however, as Ed Lyman, an expert on nuclear security at the Union of Concerned Scientists, points out in a recent blog post, the N.R.C. has yet to make the results of this particular analysis—or any others performed for SOARCA—available to the public.

About a month before the before the crisis in Japan started, the U.C.S. filed a Freedom of Information request for all information associated with SOARCA. The commission withheld the actual results of the analyses; still, days ago, the commission released some information—including many e-mails. Their contents are not particularly encouraging. It seems that in some of its analyses, the N.R.C. was crediting plants with certain safety “strategies” that not even the plants’ operators were counting on. In one e-mail, a concerned staff member wrote,

Generally, we have not even seen licensees credit these strategies in their own [probabilistic risk assessments] but for some reason the NRC decided we should during SOARCA.

On another occasion, a staff member voiced dismay that in the analyses certain “mitigation measures” were being treated as if their success was guaranteed. However, as the staff member pointed out, “mitigation measures” are

just equipment on-site that can be useful in an emergency when used by knowledgeable operators if post-event conditions allow. If little is known about these post-event conditions, then assuming success is speculative.

It’s not clear how the actual events in Japan will figure into the N.R.C. analyses of hypothetical accidents, when—or if—these analyses are ever publicly released. Maybe the real lesson is that, in a crisis, it doesn’t matter how many strategies you’ve listed in a report; what matters is whether they work.

## **Lisbeth Gronlund (UCS)**

Union of Concerned Scientists, April 8, 2011

Two nuclear plants northeast of Tokyo were initially the main focus of concern after the March 11 earthquake and tsunami: Fukushima Dai-ichi (or Fukushima I) with six reactors and Fukushim Daini (or Fukushima II) with four reactors.

Currently, all the reactors at Fukushima Daini have reached cold shutdown, meaning the water in the reactors is below boiling temperature and should remain that way as long as nothing disrupts the cooling. There have been no reported problems with the spent-fuel pools at this site.

Serious problems remain at Fukushima Dai-ichi with both the reactors and spent fuel pools, which contain large amounts of radioactive fuel. All the operating reactors were shut down in the period after the earthquake but before power was knocked out by the tsunami.

However, fuel in an operating reactor becomes highly radioactive and that radioactivity continues to generate heat even after the reactor has been turned off and the fuel has been removed from the reactor, so the radioactive fuel rods must be continually cooled for years. This is done by circulating cooling water around the fuel that is in the storage pools and in the reactor.

If the cooling stops, the fuel begins to heat up. If this continues long enough the cladding may get hot enough to react with water in the air to release hydrogen, which can explode if it builds up. If the cladding continues to heat up and react with water, it can expand and rupture, releasing radioactive gases. If the fuel heats up enough, the fuel pellets can begin to melt, which releases larger amounts of radioactive gases.

While the reactor has several layers of containment to keep gases in the core from escaping to the atmosphere—a steel reactor vessel and a steel and concrete containment structure—damage to the reactor vessel and reactor containment can allow some of this to escape, as can intentional venting of gas from the containment to reduce pressure. Gases released from spent fuel in the pools are contained by the reactor building, but can be released if the building is damaged.

The earthquake and tsunami caused a loss of AC power to the facilities so that motor-driven cooling of the reactors and spent fuel pools stopped. Cooling was provided for a few more hours to the reactors by steam-driven pumps, but those stopped when the batteries needed to operate the systems ran out of power. Workers have struggled to resume cooling to minimize damage to the fuel and release of radioactivity.

Current Status at Fukushima Dai-ichi

The Fukushima Dai-ichi facility has 6 reactors, all built in the 1970s. Three—Units 1, 2, and 3—were operating at the time of the earthquake, while Units 4, 5, and 6 were shut down for maintenance. All the fuel had been moved from the Unit 4 reactor vessel into the spent fuel pool, so there is no concern about the Unit 4 reactor vessel. The Unit 5 and 6 reactor vessels still contain more than 75% of the fuel they use when operating, so they require cooling.

Units 5 and 6 are located a short distance away from the other reactors and do not appear to have been as badly damaged. The cooling systems have reportedly been restored to both these reactors and their associated spent fuel pools, so they are not considered a threat at this time.

Image from New York Times

The Fukushima Dai-ichi facility also has a common storage pool for spent fuel, which contains fuel that has been out of a reactor for at least 19 months. Since the radioactivity of the fuel rods falls with time, this fuel is not generating as much heat as fuel more recently removed from the reactors, which is stored in the spent fuel pools located in the reactor buildings at each of the 6 reactors. Workers have reportedly been adding cool water to the common pool as needed, and this pool is apparently not currently seen as a threat.

So the concern at the Fukushima Dai-ichi site is focused on the fuel in the reactor cores at Units 1, 2, and 3, and the spent fuel in cooling pools at Units 1, 2, 3, 4.

Reports say that electric power has now been reconnected to all four reactor buildings. While lights have been turned on in the control rooms of these reactors, few other systems appear to be working, including instrumentation that would allow workers to know what is happening in the reactor cores and spent fuel pools.

Atmospheric radiation releases

A significant amount of radiation has been released to the atmosphere from this site since the beginning of the crisis. Two of the main health hazards from the radioactive gases that have been released are from iodine-131 (I-131) and cesium-137 (Cs-137). One analysis estimated that roughly 20% of the I-131 and up to 50% of the Cs-137 released in the Chernobyl accident was released from Fukushima to the atmosphere within the first few days of the accident.

Very high radiation levels are being detected at some points many kilometers away from Fukushima, outside of the evacuation zone, although there is no clear picture at this point because the locations of the readings are not publicly available and there has not been a systematic survey.

Japan initially ordered residents to evacuate out to 3 km (1.9 miles) around the Fukushima site, with residents out to 10 km (6.2 km) told to stay indoors. By late on March 12, Japan expanded the evacuation zone to 20 km (12 miles) with sheltering to 30 km (19 miles). On March 25, Japanese officials said they were encouraging residents to evacuate out to 30 km.

In contrast, on March 17 the US embassy told US citizens to evacuate out to a radius of 80 km (50 miles) from the site.

As the radiation is carried by winds across the ocean, it spreads out and becomes diluted. While trace amounts have been detected in the US, these amounts have been much lower than the natural background levels of radiation that people are constantly exposed to, and are not a serious health hazard.

The radiation released to the atmosphere at Fukushima came from two main sources. First, when cooling stopped in the reactor cores, the fuel began to heat up and the pressure in the reactor vessels increased. To reduce the pressure, workers vented to the atmosphere some of the radioactive gas that had built up in the vessel and primary containment. There are also reports that the primary containment of Unit 2 and possibly Unit 3 may be damaged; if that is true, that would also allow radioactive gases to escape.

Second, loss of water in the spent fuel pools led to fuel assemblies being exposed to air, which caused damage to the fuel that then released radioactive gases. While the pools are contained in the reactor buildings, hydrogen explosions in the buildings of Units 1, 3, and 4 created holes in the walls that allowed these gases to escape. And vents were opened in the walls of the Unit 2 reactor building to prevent a buildup of hydrogen that could cause an explosion.

Fortunately, monitoring indicates that deposition of Cs-137 is currently no longer occurring around the site. This is because efforts to cool the reactors and spent fuel pools have been successful enough to eliminate the need for additional venting and to stop further releases from the spent fuel pools. However, as discussed below, additional venting may soon be needed.

It is also important to note that the amount of Cs-137 and other radioactive material that remain in the fuel in both the core and spent fuel pool is much larger than the amount that has already been released. Some of this remaining radioactive material could be released if new problems occur, so this remains a very serious concern.

Other releases of radiation

The other source of radioactive contamination around the plant is from contaminated water. To attempt to cool the reactors and spent fuel pools, many thousands of tons of water were dropped by helicopter or sprayed by hoses at the plants. Some of

the runoff water from these efforts has apparently become contaminated and run into the ocean, since radiation has been detected in the coastal waters.

More recently, there is a concern about very highly contaminated water in trenches outside the buildings, especially at Unit 2, which appears to be coming from water that has collected in the lower parts of the reactor turbine buildings. Japanese officials apparently believe this is water that was pumped in to cool the fuel in the reactor that has somehow leaked out into the turbine buildings.

On Monday March 28, press reports said the radiation level of this water from the Unit 2 reactor was 1,000 milli-Sv/hr. This is high enough that an hour-long exposure would give someone a radiation dose sufficient to cause acute radiation syndrome. At an April 2 press conference Japanese officials said that this highly contaminated water is leaking into the ocean.

Less highly radioactive water has also been found in tunnels under the turbine buildings at Units 1 and 3.

This issue is creating new problems for workers at the plant. The volume of radioactive water is so large that they are running out of places to store it. To cut down on the volume of water they need to remove and store, they are trying to reduce the amount of water they pump into the reactors to cool the fuel in the cores. But without that cooling, the fuel in the cores has been heating up. This leads to a buildup of pressure in the reactor that may require additional venting of radioactive gas to the atmosphere. If the heating becomes great enough, it can also lead to additional fuel damage and further release of radioactive gases from the fuel.

There is speculation about the amount of fuel in the reactor cores that may have melted, and given the lack of cooling it may be substantial. But because of the lack of monitoring in the reactor vessels no one really knows the condition of the fuel. The state of the fuel at Three Mile Island was not known for several years after the accident there. Similarly, because of lack of water in some of the spent fuel pools early during the Japanese crisis, people assume that some of the fuel in the pools may have melted, but the status is not known.

I-131 and Cs-137

Because I-131 has a half-life of only 8 days, it reaches a stable concentration when the reactor is operating but decreases relatively quickly once the reactor stops. So very little of this material remains in the fuel in the spent fuel pools; for example, fuel that has been out of the reactor for two months would have less than 1% of the I-131 it had when it was removed from the reactor. This means that the I-131 found outside the plant likely came from venting the reactor cores.

If at this point workers can control the temperature and pressure in the cores to eliminate the need for additional venting, this would essentially cap the amount of I-131 released. Moreover, even if future venting is required, the longer venting can be delayed the more the level of I-131 in the core will decrease. Already, the amount in the fuel in the core is only about one-fifth of the amount present when the earthquake hit.

Recent reports say that seawater collected near the Fukushima I facility showed I-131 levels several thousand times safety standards. This high level seems to indicate that the iodine must have come from fuel in the core.

Cs-137, however, has a half-life of 30 years so it decays much more slowly and its release remains a serious concern. This is the main contaminant that has caused long-term evacuation of areas around Chernobyl.

The fuel in the core of Unit 3 has been a particular concern because it contains mixed-oxide (MOX) fuel, which is made from both uranium and plutonium oxide rather than just uranium. While releases from fuel with larger amounts of plutonium raises additional health concerns, the MOX fuel in Unit 3 only makes up about 6% of the core (32 out of 548 total fuel assemblies), so the increased risk due to the presence of MOX fuel is probably negligible. Public opposition to MOX in Japan slowed down the program and is the chief reason why there is so little MOX in the core and why the risk from the additional plutonium is limited.

Updated information about the reactors can be found on the New York Times site.

## **Yorkers Invited To Discuss Nuclear Safety At Peach Bottom (YORKDIS)**

By Christina Kauffman

York (PA) Dispatch, April 8, 2011

Though tens of thousands of Yorkers could be in jeopardy if there were ever an incident at Peach Bottom Atomic Power Station, public attendance at the annual meetings held to discuss the plant's safety assessment is sometimes lighter than at a school board meeting.

The public is once again invited to discuss safety performance at the plant, an Exelon Nuclear-owned site that houses two boiling-water nuclear reactors.

And the Nuclear Regulatory Commission is preparing for a larger turnout than average because of the nuclear disaster in Japan that followed an earthquake last month.

The April 13 meeting will give attendees an opportunity to ask questions regarding the plant's performance and the government's oversight of the facility, said NRC spokesman Neil Sheehan.

Regulatory staff members are prepared to speak about their response in the wake of the Japanese disaster, such as the extra reviews that plants are undergoing and the "longer-term lessons learned from what's going on in Japan," he said.

The review: However, the primary focus of the meeting is Peach Bottom's 2010 review; the NRC found that the plant operated safely last year.

The NRC uses color codes to measure plant performance, with "green" representing very low safety significance, and increases to "white," "yellow" or "red" depending on the significance of the offense, he said.

Peach Bottom's performance indicators were green, and there were no inspection findings that were "greater than green," he said.

That means that, for 2011, the plant will continue to receive the inspection regime used for plants that are operating well.

Comparing years: The 2010 "green" assessment was similar to the NRC's findings for 2009. There were, however, extra inspections last year because of "two acts of deliberate misconduct" noted, Sheehan said.

The first incident involved a maintenance supervisor who provided incomplete and inaccurate information for unescorted access to the site. The second involved a reactor operator who deliberately failed to report his drunk-driving arrest, Sheehan said.

Routine inspections are carried out by two NRC on-site inspectors assigned to the plant and by inspection specialists from the agency's office in King of Prussia, Pa.

In 2010, the NRC devoted 5,500 hours to inspection at Peach Bottom, Sheehan said.

Exelon spokesman David Tillman said the company is undergoing a five-year, \$1.3 billion initiative at the site to enhance safety through plant-component upgrades.

For example, the company is replacing its six main power transformers for \$90 million.

Tillman said Exelon enjoys having a venue to interact with the public and answer questions. He said he also expects a larger crowd this year because of the radiation leak in Japan.

The meeting will be held starting 6 p.m. Wednesday at the Peach Bottom Inn, 6805 Delta Road, Delta.

## **US Health-care System Unprepared For Major Nuclear Emergency, Officials Say (WP)**

By Sheri Fink

Washington Post, April 8, 2011

US officials say the nation's health system is ill-prepared to cope with a catastrophic release of radiation, despite years of focus on the possibility of a terrorist "dirty bomb" or an improvised nuclear device attack.

A blunt assessment circulating among American officials says, "Current capabilities can only handle a few radiation injuries at any one time." That assessment, prepared by the Department of Homeland Security in 2010 and stamped "for official use only," says "there is no strategy for notifying the public in real time of recommendations on shelter or evacuation priorities."

The Homeland Security report, plus several other reports and interviews with almost two dozen experts inside and outside the government, reveal other gaps that might increase the risks posed by a nuclear accident or terrorist attack.

One example: The US Strategic National Stockpile stopped purchasing the best-known agent to counter radioactive iodine-induced thyroid cancer in young people, potassium iodide, about two years ago and designated the limited remaining quantities "excess," according to information provided by the US Centers for Disease Control and Prevention to ProPublica. Despite this, the CDC Web site still lists potassium iodide as one of only four drugs in the stockpile specifically for use in radiation emergencies.

The drug is most effective when administered before or within hours of exposure. The decision to stop stockpiling it was made, in part, because distribution could take too long in a fast-moving emergency, one official involved in the discussions said. The interagency group that governs the stockpile decided that "other preparedness measures were more suitable to mitigate potential exposures to radioactive iodine that would result from a release at a nuclear reactor," a CDC spokesperson said in an e-mail to ProPublica.

Japan's ongoing nuclear crisis might prompt officials to revisit that conclusion. With radiation levels higher than expected outside the evacuation zones in some areas, the Japanese government recently asked the United States for potassium iodide. The federal government agreed to send some of its dwindling stockpile of the liquid version used in children or adults, which is due to reach its expiration date within about a year. The government is "finalizing the paperwork," according to an official with the US Department of Health and Human Services.

Another example: Although hospitals near nuclear power plants often drill for radiological emergencies, few hospitals outside of that area practice such drills. Most medical personnel are untrained and unfamiliar with the level of risk posed by

radiation, whether it is released from a nuclear power plant, a “dirty” bomb laced with radioactive material or the explosion of an improvised nuclear weapon.

Many states don’t have a basic radiation emergency plan for communicating with the public or responding to the health risks. Even something as fundamental as the importance of sheltering inside sturdy buildings to avoid exposure to radioactive fallout from a nuclear explosion — which experts say could determine whether huge numbers of people live or die — hasn’t been communicated to the public.

Recently the White House and other federal officials concerned about deficiencies in public readiness met with experts to explore what might be done to make nuclear events more survivable. “The bottom line is that the citizenry are not prepared at all,” said Michael McDonald, president of Global Health Initiatives, who participated in White House and congressional briefings.

The Department of Homeland Security report acknowledges that officials are poorly prepared to communicate with the public and that the current organization of medical care “does not support the anticipated magnitude of the requirements” following an attack with an improvised nuclear device. It says the United States has “limited” treatment options for radiation exposure and notes that staff and materials aren’t in place to carry out mass evacuations after a large-scale release of radiation. “The requirements to monitor, track, and decontaminate large numbers of people have not been identified,” the report said.

Underlying the preparedness problems is the need for additional research. It isn’t known, for example, how a nuclear blast and electromagnetic pulse would affect modern communications infrastructure, or to what extent modern buildings can protect people from nuclear blast, heat and radiation effects.

A report prepared last year by the Council on State and Territorial Epidemiologists was equally pessimistic about US readiness. Based on surveys of public health officials in 38 states, it concluded that “in almost every measure of public health capacity and capability, the public health system remains poorly prepared to adequately respond to a major radiation emergency incident.” Forty-five percent of the states surveyed had no radiation plan at all for areas outside federally mandated nuclear power plant emergency zones. Almost 85 percent of the officials said their states couldn’t properly respond to a radiation incident because of inadequate planning, resources, staffing and partnerships.

More troubling was the fact that the situation hadn’t improved since a similar survey was taken in 2003. “Most of those comparisons appear to indicate either the same poor level of preparedness and planning or a decline in capacity,” the report said.

The nation’s investment in emergency preparedness seems likely to decrease rather than increase, experts say, because of massive federal and state deficits.

President Obama’s proposed budget would cut funding for a federal hospital preparedness program by about 10 percent. The release of proposed federal regulations that would require hospitals to meet emergency management standards has been delayed.

“If the public isn’t demanding that we be better prepared, the politicians won’t put the money in for us to be better prepared and the regulators” won’t require it, said Arthur Cooper, a professor of surgery at Columbia University and director of trauma and pediatric surgical services at Harlem Hospital Center. “It all begins with the public knowing this is a problem that’s got to be solved and it’s worth spending some money and effort to try to be prepared in a real way.”

#### Hospital preparedness

In the days after nuclear fuel at Japan’s Fukushima power plant began to overheat, the greatest threat to one hospital within 50 miles of the plant wasn’t radiation, but fear. Many staff members had fled, and government emergency workers hadn’t delivered food and medicine needed for the 120 patients. Masaru Nakayama, director of Kashima Hospital in Iwaki, Japan, said it took time to convince people that the area around the hospital was in fact safe.

Yet in national surveys, US hospital workers have expressed fears similar to those of Nakayama’s staff, saying they would be less willing to report to work for a radiological or nuclear incident than for other types of emergencies. They also said they feel unprepared for the work they would be required to do, even though the risk of radiation exposure from treating contaminated patients outside the danger zone is considered negligible when workers are properly trained and wear protective equipment.

“The level of education for disasters across the board in American hospitals is really pretty terrible,” Cooper said. “People don’t have a good sense of how to focus on any disaster, let alone a radiation disaster. Radiation adds a level of complexity that most folks aren’t prepared to face.”

Cooper said hospital drills have improved in recent years, “but they occur far too seldom and they end far too quickly and they’re far too superficial to really prepare a hospital for a major disaster.”

“Shutting down part of the hospital’s work for a period of time to conduct a full-scale exercise, that’s daunting for a hospital,” he said. “Trying to ‘do the right thing’ and provide employees with in-depth disaster education across the board is not something they’re going to do unless it becomes a major regulatory mandate.”

William Fales, an associate professor of emergency medicine at Michigan State University and a regional medical director in southwest Michigan, said he has yet to see a hospital outside of a nuclear reactor's emergency planning zone conduct a drill for a nuclear or radiological emergency.

In the courses Fales teaches for medical professionals, he has seen firsthand what little baseline knowledge many of them have. In one exercise they are treating mock bombing victims when they are suddenly told that the explosive was a dirty bomb packed with radioactive material. Typically they drop everything, run the patients outside and decontaminate them. But that reflects a lack of knowledge of a basic principle — that medical workers should treat a patient's life-threatening traumatic injuries from a bomb blast before worrying about radiological decontamination.

"It's amazing," Fales said. "It's a knee-jerk reaction because they hear the word 'radiation.' ... Imagine what would happen if, God forbid, we had a real terrorist bombing and a rumor started on TV that it was a dirty bomb. How many potentially salvageable trauma patients would be compromised by that reaction?"

Health workers made a different mistake at a recent radiation emergency conference sponsored by the CDC. When a workshop leader in a white decontamination suit asked nurses to practice cutting the garments off a mock contamination patient, one volunteer slid the scissors quickly from ankle to torso. That could send radioactive debris flying, the leader warned. The more careful approach took about two minutes—a long time if hundreds are awaiting assistance.

Knowing when a patient has been contaminated versus exposed to radiation is an important distinction that is acquired with simple training. "If you put a chicken in a microwave and cook it, it comes out a rubbery chicken, but it doesn't come out contaminated," Fales said. "It's been irradiated, but it's not radioactive."

Fales said few participants in his training courses think about doing a quick survey with a radiation detector to verify the existence of contamination. At many hospitals, most workers don't even know where the Geiger-Müller counter is kept.

#### Facing a worst-case emergency

The American Medical Association devoted the March issue of its journal, *Disaster Medicine and Public Health Preparedness*, to the No. 1 scenario on the federal government's list of 15 planning scenarios for emergency preparedness: a nuclear explosion equivalent to the force of a 10-kiloton trinitrotoluene (TNT) blast on a major population center.

Using Washington as an example, one study estimated that 180,000 hospital beds could be needed after such a detonation and that 61,000 of those patients could require intensive care. But Washington typically has only about 1,000 vacant beds — and there are only about 9,400 vacant intensive care unit beds in the entire United States.

After a nuclear blast, hospitals probably would fill with trauma patients. Later, others would arrive with acute radiation syndrome, which can take days to manifest and affects multiple organ systems. Without supportive care, about 50 percent of people exposed to 3.5 Gray, a measure of radiation dose, would die. Proper care would almost double the exposure level at which 50 percent would survive, but only a small fraction of American medical professionals have training and expertise in treating radiation injury.

Given that not enough beds would be available, hospitals and first responders would have to choose which patients to save. Authors of the journal articles recommend basing those decisions in part on how much radiation exposure patients have received and treating only those with a reasonable chance of surviving. "It's very hard to turn someone away who needs medical care who comes to your hospital," Cooper said. "I don't think any American hospital is prepared to do this kind of triage."

The staff would be hampered by a shortage of the laboratory equipment needed to help evaluate so many patients, a lack of approved devices to rapidly quantify the level of radiation exposure and a lack of approved medicines to counter the cellular effects of radiation. About \$200 million in federal funding has been invested since 2008 to develop diagnostics and treatments, but HHS officials say most are still years away from approval.

Even getting the protective measures that do exist, including potassium iodide, where they are needed is a challenge. Michigan has developed a round-the-clock dispatch system with ready-to-go medical packs designed for a range of emergencies and stored at 16 sites around the state. Four of those sites stock radiological countermeasures.

"We think we're one of the few states that's really designed a statewide system that can deliver these countermeasures," Fales said. In the case of one particularly expensive drug provided by the federal government, "my sense is in a lot of states it's sitting in a warehouse in the state capital, hopefully secure and warm. On a Saturday night if something goes boom in a location on another side of the state, how long will it take to get it to where it's needed?"

#### Improving future response

One of the top priorities in preparing for a major nuclear disaster is readying ordinary citizens for the role they will have to play. "The common misperception is any nuclear blast means everybody's vaporized," McDonald said. "That's just wrong."

But experts say the government has done little to educate the public about its responsibilities.

When police and fire departments have run nuclear exercises in conjunction with federal authorities, “they haven’t included the public,” McDonald said. “They’ve basically treated it like a classified event.”

The motivation might be to safeguard the public from fear and panic, McDonald said, but “it does almost no good for the federal government to be talking about this with the top officers and not have the public understand what to do.” Although government Web sites including ready.gov and cdc.gov contain useful preparedness information, there is no single Web site the public can turn to for up-to-the-minute public health information in disasters.

One of the crucial things the public must know is when to evacuate and when to shelter underground or in a heavily constructed building. Yet making decisions on sheltering and evacuation and communicating those decisions to the public is precisely what the Homeland Security report found government agencies aren’t inadequately prepared to do.

Sheltering in place could make a major difference in how many people live or die, because the danger of fallout decreases rapidly as radioactive elements decay and debris is dispersed. The dose rate drops 90 percent every seven hours.

“You can’t wait until the event to put out this information,” said James James, director of the American Medical Association’s Center for Public Health Preparedness and Disaster Response.

Many experts predict that without more education, people probably would flee as many are doing in Tokyo and as many Americans did after the Three Mile Island nuclear accident in 1979. An estimated 144,000 people — many times more than the number advised to do so — needlessly left the area because of fear and inadequate information.

“Such an exodus would extend panic and devastation far beyond the locus of the event, draining food, water, medicines, gasoline and other resources from surrounding communities and potentially causing gridlock that would severely compromise many elements of the official disaster response,” according to a modeling study published by University of Chicago researcher Michael Meit and colleagues in the same issue of the journal.

Not knowing what to do would be especially harmful to those who are least likely to be able get out of harm’s way: children and the elderly, people with disabilities, and patients with chronic illnesses requiring regular treatment. The federal government enacted a number of reforms after elderly and disabled people died after Hurricane Katrina. But those reforms aren’t necessarily reflected in critical front-line emergency plans. A federal court in California recently found the city of Los Angeles violated the Americans with Disabilities Act and other laws for failing to consider the needs of the disabled in its emergency response plans.

Eric Toner, a senior associate at the University of Pittsburgh Medical Center’s Center for Biosecurity in Baltimore, said the key to protecting as many people as possible during an emergency is offering them frank communication about what is known and unknown.

“Nature abhors a vacuum. If credible officials aren’t out there constantly, that void will get filled with people who don’t know what they’re talking about or have different agendas.”

Still, there is no guarantee the public will act on information once they get it. Several years ago Michigan, like many other states, sent vouchers for potassium iodide to people living within a 10-mile radius of a nuclear power plant. The goal was to give them the medication free of charge from local pharmacies, so they wouldn’t risk their lives searching for the drug in an emergency, when they should be sheltering in place or evacuating.

But only about 6 percent of the residents picked up their allotted supply, said Fales, the Michigan regional medical director, a rate that’s similar to some other states. “So much for pre-event planning,” he concluded.

ProPublica’s Sasha Chavkin contributed to this report.

## **US Health Care System Unprepared For Major Nuclear Emergency (PROPUB)**

By Sheri Fink

Pro Publica, April 8, 2011

US officials say the nation’s health system is ill-prepared to cope with a catastrophic release of radiation, despite years of focus on the possibility of a terrorist “dirty bomb” or an improvised nuclear device attack.

A blunt assessment circulating among American officials says “Current capabilities can only handle a few radiation injuries at any one time.” That assessment, prepared by the Department of Homeland Security in 2010 and stamped “for official use only,” says “there is no strategy for notifying the public in real time of recommendations on shelter or evacuation priorities.”

The Homeland Security report, plus several other reports and interviews with almost two dozen experts inside and outside the government, reveal other gaps that may increase the risks posed by a nuclear accident or terrorist attack.

One example: The US Strategic National Stockpile stopped purchasing the best-known agent to counter radioactive iodine-induced thyroid cancer in young people, potassium iodide, about two years ago and designated the limited remaining quantities “excess,” according to information provided by the US Centers for Disease Control and Prevention to ProPublica. Despite this, the CDC website still lists potassium iodide as one of only four drugs in the stockpile specifically for use in radiation emergencies.

The drug is most effective when administered before or within hours of exposure. The decision to stop stockpiling it was made, in part, because distribution could take too long in a fast-moving emergency, one official involved in the discussions said. The interagency group that governs the stockpile decided that "other preparedness measures were more suitable to mitigate potential exposures to radioactive iodine that would result from a release at a nuclear reactor," a CDC spokesperson said in an email to ProPublica.

Japan's ongoing nuclear crisis may prompt officials to revisit that conclusion. With radiation levels higher than expected outside the evacuation zones in some areas, the Japanese government recently asked the United States for potassium iodide. The federal government agreed to send some of its dwindling stockpile of the liquid version used in children or adults, which is due to reach its expiration date within about a year. The government is currently "finalizing the paperwork," according to an official with the US Department of Health and Human Services.

Another example: While hospitals near nuclear power plants often drill for radiological emergencies, few hospitals outside of that area practice such drills. Most medical personnel are untrained and unfamiliar with the level of risk posed by radiation, whether it is released from a nuclear power plant, a "dirty" bomb laced with radioactive material, or the explosion of an improvised nuclear weapon. A dirty bomb would cause major damage at the scene but spread little radiation. The explosion of a nuclear weapon would devastate the surrounding area and create radioactive fallout.

Many states don't have a basic radiation emergency plan for communicating with the public or responding to the health risks. Even something as fundamental as the importance of sheltering inside sturdy buildings to avoid exposure to radioactive fallout from a nuclear explosion – which experts say could determine whether huge numbers of people live or die – hasn't been communicated to the public.

Recently the White House and other federal officials concerned about deficiencies in public readiness met with experts to explore what might be done to make nuclear events more survivable. "The bottom line is that the citizenry are not prepared at all," said Michael McDonald, president of Global Health Initiatives, who participated in White House and congressional briefings.

The Department of Homeland Security report acknowledges that officials are poorly prepared to communicate with the public and that the current organization of medical care "does not support the anticipated magnitude of the requirements" following an attack with an improvised nuclear device. It says the United States has "limited" treatment options for radiation exposure and notes that staff and materials aren't in place to carry out mass evacuations after a large-scale release of radiation. "The requirements to monitor, track, and decontaminate large numbers of people have not been identified," the report said. The Department of Homeland Security has convened groups to work on filling the gaps.

Underlying the preparedness problems is the need for additional research. It isn't known, for example, how a nuclear blast and electromagnetic pulse would affect modern communications infrastructure, or to what extent modern buildings can protect people from nuclear blast, heat and radiation effects.

A report prepared last year by the Council on State and Territorial Epidemiologists was equally pessimistic about US readiness. Based on surveys of public health officials in 38 states, it concluded that "In almost every measure of public health capacity and capability, the public health system remains poorly prepared to adequately respond to a major radiation emergency incident." Forty-five percent of the states surveyed had no radiation plan at all for areas outside federally mandated nuclear power plant emergency zones. Almost 85 percent of the officials said their states couldn't properly respond to a radiation incident because of inadequate planning, resources, staffing and partnerships.

More troubling was the fact that the situation hasn't improved since a similar survey was taken in 2003. "Most of those comparisons appear to indicate either the same poor level of preparedness and planning or a decline in capacity," the report said.

The nation's investment in emergency preparedness seems likely to decrease rather than increase, experts say, because of massive federal and state deficits.

President Obama's proposed budget would cut funding for a federal hospital preparedness program by about 10 percent. The release of proposed federal regulations that would require hospitals to meet emergency management standards has been delayed.

"If the public isn't demanding that we be better prepared, the politicians won't put the money in for us to be better prepared and the regulators" won't require it, said Dr. Arthur Cooper, a professor of surgery at Columbia University and director of trauma and pediatric surgical services at Harlem Hospital Center. "It all begins with the public knowing this is a problem that's got to be solved and it's worth spending some money and effort to try to be prepared in a real way."

#### Hospital Preparedness

In the days after nuclear fuel at Japan's Fukushima power plant began to overheat, the greatest threat to one hospital within 50 miles of the plant wasn't radiation, but fear. Many staff members had fled, and government emergency workers hadn't

delivered food and medicine needed for the 120 patients. Dr. Masaru Nakayama, director of Kashima Hospital in Iwaki, Japan, said it took time to convince people that the area around the hospital was in fact safe.

Yet in national surveys, US hospital workers have expressed fears similar to those of Dr. Nakayama's staff, saying they would be less willing to report to work for a radiological or nuclear incident than for other types of emergencies. They also said they feel unprepared for the work they would be required to do, even though the risk of radiation exposure from treating contaminated patients outside the danger zone is considered negligible when workers are properly trained and wear protective equipment.

"The level of education for disasters across the board in American hospitals is really pretty terrible," said Dr. Cooper. "People don't have a good sense of how to focus on any disaster, let alone a radiation disaster. Radiation adds a level of complexity that most folks aren't prepared to face."

Cooper said hospital drills have improved in recent years, "but they occur far too seldom and they end far too quickly and they're far too superficial to really prepare a hospital for a major disaster."

"Shutting down part of the hospital's work for a period of time to conduct a full-scale exercise, that's daunting for a hospital," he said. "Trying to 'do the right thing' and provide employees with in-depth disaster education across the board is not something they're going to do unless it becomes a major regulatory mandate."

Dr. William Fales, an associate professor of emergency medicine at Michigan State University and a regional medical director in southwest Michigan, said he has yet to see a hospital outside of a nuclear reactor's emergency planning zone conduct a drill for a nuclear or radiological emergency.

In the courses Fales teaches for medical professionals, he has seen firsthand what little baseline knowledge many of them have. In one exercise they are treating mock bombing victims when they are suddenly told that the explosive was a dirty bomb packed with radioactive material. Typically they drop everything, run the patients outside and remove their contaminated clothing. But that reflects a lack of knowledge of a basic principle—that medical workers should treat a patient's life-threatening traumatic injuries from a bomb blast before worrying about radiological decontamination.

"It's amazing," Fales said. "It's a kneejerk reaction because they hear the word 'radiation.' ... Imagine what would happen if, God forbid, we had a real terrorist bombing and a rumor started on TV that it was a dirty bomb. How many potentially salvageable trauma patients would be compromised by that reaction?"

Health workers made a different mistake at a recent radiation emergency conference sponsored by the CDC. When a workshop leader in a white decontamination suit asked nurses to practice cutting the garments off a mock contamination patient, one volunteer slid the scissors quickly from ankle to torso. That could send radioactive debris flying, the leader warned. The more careful approach took about two minutes—a long time if hundreds are awaiting assistance.

Knowing when a patient has been contaminated versus exposed to radiation is an important distinction that is acquired with simple training. "If you put a chicken in a microwave and cook it, it comes out a rubbery chicken, but it doesn't come out contaminated," Fales said. "It's been irradiated, but it's not radioactive."

Fales said few participants in his training courses think about doing a quick survey with a radiation detector to verify the existence of contamination. At many hospitals, most workers don't even know where the Geiger-Müller counter is kept.

#### Facing a Worst Case Emergency

The American Medical Association devoted the March issue of its journal, *Disaster Medicine and Public Health Preparedness*, to the No. 1 scenario on the federal government's list of 15 planning scenarios for emergency preparedness—a nuclear explosion equivalent to the force of a 10-kiloton trinitrotoluene (TNT) blast on a major population center.

Using Washington, D.C. as an example, one study estimated that 180,000 hospital beds could be needed after such a detonation and that 61,000 of those patients could require intensive care. But Washington typically has only about 1,000 vacant beds—and there are only about 9,400 vacant intensive care unit beds in the entire United States.

After a nuclear blast, hospitals would likely fill with trauma patients. Later, others would arrive with acute radiation syndrome, which can take days to manifest and affects multiple organ systems. Without supportive care, about 50 percent of people exposed to 3.5 Gray, a measure of radiation dose, would die. Proper care would almost double the exposure level at which 50 percent would survive, but only a small fraction of American medical professionals have training and expertise in treating radiation injury.

Given that not enough beds would be available, hospitals and first responders would have to choose which patients to save. Authors of the journal articles recommend basing those decisions in part on how much radiation exposure patients have received and treating only those with a reasonable chance of surviving. "It's very hard to turn someone away who needs medical care who comes to your hospital," Cooper said. "I don't think any American hospital is prepared to do this kind of triage."

The staff would be hampered by a shortage of the laboratory equipment needed to help evaluate so many patients, a lack of approved devices to rapidly quantify the level of radiation exposure, and a lack of approved medicines to counter the cellular effects of radiation. About \$200 million in federal funding has been invested since 2008 to develop diagnostics and treatments, but HHS officials say most are still years away from approval.

Even getting the protective measures that do exist, including potassium iodide, where they are needed is a challenge. Michigan has developed a round-the-clock dispatch system with ready-to-go medical packs designed for a range of emergencies and stored at 16 sites around the state. Four of those sites stock radiological countermeasures.

"We think we're one of the few states that's really designed a statewide system that can deliver these countermeasures," Fales said. In the case of one particularly expensive drug provided by the federal government, "my sense is in a lot of states it's sitting in a warehouse in the state capital, hopefully secure and warm. On a Saturday night if something goes boom in a location on another side of the state, how long will it take to get it to where it's needed?"

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Not knowing what to do would be especially harmful to those who are least likely to be able get out of harm's way: children and the elderly, people with disabilities, and patients with chronic illnesses requiring regular treatment. The federal government enacted a number of reforms after elderly and disabled people died after Hurricane Katrina. But those reforms aren't necessarily reflected in critical front-line emergency plans. A federal court in California recently found the city of Los Angeles violated the Americans with Disabilities Act and other laws for failing to consider the needs of the disabled in its emergency response plans.

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Still, there is no guarantee the public will act on information once they get it. Several years ago Michigan, like many other states, sent vouchers for potassium iodide to people living within a 10-mile radius of a nuclear power plant. The goal was to give them the medication free of charge from local pharmacies, so they wouldn't risk their lives searching for the drug in an emergency, when they should be sheltering in place or evacuating.

But only about 6 percent of the residents picked up their allotted supply, said Fales, the Michigan regional medical director, a rate that's similar to some other states. "So much for pre-event planning," he concluded.

## Relicensing San Onofre (SDUT)

**The license is good through 2022, but Edison says it can't wait until the last minute**

By Onell R. Soto

San Diego Union-Tribune, April 8, 2011

As reactors and spent fuel storage pools still leak radioactivity after an earthquake and tsunami in Japan a month ago, federal and state officials here are taking a second look at San Diego County's oceanfront nuclear plant.

The parallels are easy to draw. San Onofre also is on the ocean and near fault lines. Its reactors are nearly 30 years old. The plant houses more than 1,000 tons of spent fuel.

Southern California Edison, which operates the plant, and federal regulators say it can withstand the biggest quakes and tsunamis that can reasonably be predicted to happen in the region.

But Edison has not yet applied for the renewal of San Onofre's license, which expires in 2022. Officials say they need to consider a variety of issues before deciding whether to seek relicensing.

"We're getting closer and closer," Edison spokesman Gil Alexander said this week. "We're still studying the feasibility."

Although there are nearly 11 years left in the license for San Onofre Nuclear Generating Station, Edison says it can't wait too long to begin the process leading to relicensing. It would take several years to get approval for the funds and then to get a decision from nuclear regulators. The company wants a decision by about 2017. If its application is rejected, there would still be time to plan for additional generation and transmission to make up for the loss of the region's biggest power plant.

San Onofre generates about 20 percent of the region's electricity. Edison operates the plant and owns 79 percent. San Diego Gas & Electric owns 20 percent, and the city of Riverside the other 1 percent.

If Edison does apply for a 20-year extension, it's not simply a matter of determining whether the plant is safe today.

That question, in fact, isn't really part of the relicensing scheme, nuclear regulators say, because safety is evaluated all the time.

"If at any point during the time it has a valid license it fails to meet our requirements, we will not allow it to operate," said NRC spokesman Scott Burnell.

If San Onofre were deemed unsafe tomorrow, Edison would have to make it safe or shut it down, he said. Same thing if a 20-year license extension is granted and then it turns out the plant is dangerous.

Besides the safety issues — which aren't minor — there are decisions about the impact on the environment, the cost, and the alternatives, plus how to store the plant's spent fuel.

How things go from here will reflect the variety of values and decisions to be made by government officials and utility executives. Each decision will involve studies costing millions of dollars. Many will involve hearings giving the public an opportunity to comment.

Here is a look at the decisions to be made, who would make them and what goes into them.

Is San Onofre run safely?

Nuclear safety is a federal issue. The federal government decided long ago it didn't want to let states regulate nuclear plants and made that the exclusive responsibility of the Nuclear Regulatory Commission.

The NRC says San Onofre is safe and wouldn't be allowed to operate if it weren't. It says there's ongoing oversight of safety questions at the plant that is independent of the licensing process.

The NRC has cited problems with the culture at San Onofre, specifically that workers have said they're afraid of retaliation for bringing up safety issues.

Edison says it wants workers to know they can bring up safety issues and is working to change the culture at the plant, something that the NRC says has been improving.

But a former manager recently filed a lawsuit claiming he was wrongly fired just last October for bringing safety concerns to the NRC.

Is it quake-safe?

Southern California is earthquake country. When San Onofre's operating reactors were designed to withstand shaking of 67 percent the force of gravity. That's equivalent to a 7-magnitude quake within five miles. But some geologists say a complex of faults just off the coast could create a much bigger quake.

Edison said recently it wants to do a \$21 million seismic study. It wants approval from the Public Utilities Commission to charge it to ratepayers.

That study is one of the things Edison will look at before deciding whether to pursue a license renewal, Alexander said.

It may be that predictions of a bigger quake don't change anything because the plant was built to withstand stronger shaking than what was previously predicted.

If changes are necessary, they won't wait until the license renewal.

"That is an ongoing process that is separate from license renewal," the NRC's Burnell said.

Earthquake safety also is part of what the NRC and the California Coastal Commission look at.

The NRC is focused on nuclear safety. Before renewing a license, it needs to know the nuclear equipment and the buildings that house it can last 20 years past the current license with regular inspections and maintenance, and can do so in the event of a quake.

These are what it calls the passive systems: the bolts, the concrete, the tanks with radioactive water.

Beyond that, however, the California Coastal Commission is charged with the earthquake safety of buildings near the shore, whether they house power plants, businesses or people.

Without looking at the risks of a nuclear leak, it looks at the structural stability, said spokesman Tom Luster.

Is the plant tsunami-safe?

Tsunamis are a separate question. It's a problem in Japan, where the Fukushima Daiichi plant was overrun with water, which damaged the cooling systems for reactors and spent-fuel storage, leading to meltdowns.

San Onofre sits behind a 30-foot sea wall. (This is measured from the top of the wall to the water level.) Edison says the biggest tidal wave reasonably predicted in the region is 23 feet.

The risk of tsunamis here is lower than in Japan for a couple of reasons.

First, the faults here are the result of two plates in the crust of the earth sliding past each other. In Japan, it's one plate diving underneath another. As a result, the kinds of quakes we have are different. When an underwater quake releases energy from one plate diving under another, it pushes water up, causing a big tsunami. Faults in which plates slide past each other don't produce the same big tsunamis.

Second, the offshore geology here takes a lot of the energy out of tsunamis before they reach land.

Is it worth it trying to renew the license?

Getting the license renewed will cost millions of dollars. There are studies to be done. There are hearings to hold. And possibly lots of upgrades.

Whether it's worth doing has to be answered by the public and investors. Edison will have to decide whether the investment to extend the license and do any necessary upgrades is a good use of money it will get from investors and lenders.

Meanwhile, the California Public Utilities Commission will decide whether those investments are a good deal for ratepayers.

Utilities like Edison and San Diego Gas & Electric, which owns 20 percent of San Onofre, have their rates set in part on the value of their infrastructure. And that includes not only brick-and-mortar expenditures, but also the costs of exploring such expenditures.

In San Onofre's case, the question breaks down to this: Is the cost of applying for a license worth it? How does the cost of having the plant run for another 20 years, until 2042, compare to the best guess for costs of alternative sources of power, such as traditional natural gas-fired plants.

Should the plant continue to use seawater for cooling?

The state Water Resources Control Board says oceanfront power plants shouldn't use seawater for cooling if they can help it. Cooling is needed to turn the nonradioactive steam that drives turbines to make electricity back into water.

But sea creatures are killed in the process. Fish are trapped against screens — though San Onofre has fish-ladder-like devices designed to prevent this, and the vast majority survive. Plankton, larvae and fish eggs die after being sucked into the plant's innards, and the plant has paid for kelp reefs and wetlands restoration to make up for those losses. The warm water is sent back out into the ocean.

There are other ways to cool power plants, but San Onofre officials estimate that changing out the cooling system there could cost \$3 billion and have unintended consequences, such as putting salt in the air that would affect wildlife east of Interstate 5.

What about nuclear waste?

San Onofre was built under the assumption that the federal government would build a central repository for nuclear waste. That hasn't happened, and the spent fuel from the reactors is all still at the plant. Most of it — 885 metric tons — is cooling in pools of water. An additional 433 metric tons are in dry cask storage.

This storage is holding a lot more spent fuel than it was designed for. Although federal regulators have approved the way it is being used, some critics worry about long-term prospects.

The pools of cooling fuel have played a large part of the problem in Japan, where cooling systems have failed.

## **Feds To Issue San Onofre Report Card In Meeting (OCR)**

By Fred Swegles

Orange County Register, April 8, 2011

The Nuclear Regulatory Commission's staff is inviting the public to an April 28 meeting in San Juan Capistrano to discuss federal regulators' annual evaluation of how the San Onofre Nuclear Generating Station is operating.

"San Onofre operated safely in 2010," the NRC staff said in a news release. "The licensee addressed longstanding concerns in the area of problem identification and resolution but has not been fully successful in addressing several longstanding human performance issues. The NRC will conduct additional focused inspections in the human performance area and also in the safety-conscious work environment area to verify that corrective actions are effective and sustainable."

Nuclear Regulatory Commission staff is inviting the public to an April 28 meeting in San Juan Capistrano to discuss federal regulators' annual evaluation of how the San Onofre Nuclear Generating Station is operating.

Every year, the NRC staff holds a public meeting to discuss the San Onofre plant's annual performance evaluation, and this year's meeting will be at 6 p.m. April 28 at the Capistrano Unified School District's offices, 33122 Valle Road, San Juan Capistrano.

NRC personnel will be available after the meeting to answer questions from the public, the news release said. This will be a meeting between NRC staff and representatives of Southern California Edison, which operates the power plant south of San Clemente.

The NRC already has notified Edison of the results of the annual evaluation in a letter.

Gil Alexander, Edison spokesman, said the utility company looks forward to the April 28 meeting.

"The letter can be thought of as an annual report card," he said. "We saw reason for encouragement in the annual assessment that will be discussed but also recognize that we still have work to do."

Edison is planning an emergency drill next week during which residents

## **Feds Review San Onofre Nuclear Plant Safety (KPBS)**

By Ed Joyce

KPBS-Radio, April 8, 2011

The Nuclear Regulatory Commission NRC will issue the annual assessment for the San Onofre Nuclear Generating Station with Southern California Edison officials.

Gil Alexander with Southern California Edison said the NRC will also answer questions from residents who live near the plant.

He said on-site NRC inspectors compile information every day on the plant's safety.

"There are two or three resident inspectors who look over our shoulders all the time," Alexander said. "Then they roll up their observations into semi-annual and annual report cards."

Last year, the NRC told plant operators their concern about employee work habits which could lead to safety issues at San Onofre.

The meeting, which is open to the public, starts at 6:00 p.m. on April 28 at the Capistrano Unified School District Board Room, 33122 Valle Road, San Juan Capistrano in Orange County.

## **Is San Onofre Nuke Plant Safe? Find Out At These Meetings (SANCLEM)**

By Adam Townsend

San Clemente Patch, April 8, 2011

The Nuclear Regulatory Commission, Federal Emergency Management Agency and the city of San Clemente have all scheduled public meetings to talk about the safety of and potential risks at the San Onofre Nuclear Generating Station.

The first is a public meeting April 15 to present initial observations on nuclear power plant exercise.

Plant spokesman Gil Alexander said Tuesday that the plant will be undergoing a series of safety drills.

(Alexander said there will be some alarms going off inside the plant as part of the drill, so don't worry that there is an emergency. The public sirens will remain silent.)

The Tuesday meeting will be the public's chance to hear how they went.

The meeting begins at 4 p.m. at the Capistrano Unified School District Education Center at 33122 Valle Rd.

Participants in the exercise at San Onofre include the state of California; the counties of Los Angeles, Orange, Riverside, San Bernardino and San Diego; the cities of Dana Point, San Clemente and San Juan Capistrano; and the Capistrano Unified School District, each of which are required to activate their emergency operations during this exercise, according to the release.

The NRC will observe and evaluate the on-site performance of SONGS staff.

The second meeting is one of several scheduled regularly every year by the Nuclear Regulatory Commission to talk about any regulatory problems at the plant with plant executives in a public forum.

The Nuclear Regulatory Commission staff will meet in San Juan Capistrano April 28 with representatives of Southern California Edison Co. to discuss the agency's 2010 assessment of safety performance at San Onofre, according to an NRC release.

The meeting will begin at 6 p.m. at the Capistrano Unified School District Board Room, 33122 Valle Rd., San Juan Capistrano.

Following the performance assessment, the NRC staff will be available to answer questions from the public concerning San Onofre, as well as the NRC's role in ensuring safe plant operation.

According to the NRC:

San Onofre operated safely in 2010. The licensee addressed longstanding concerns in the area of problem identification and resolution but has not been fully successful in addressing several longstanding human performance issues. The NRC will conduct additional focused inspections in the human performance area and also in the safety-conscious work environment area to verify that corrective actions are effective and sustainable.

The following is a series of links to regulatory documents the NRC included in its release about the meeting:

A letter sent from the NRC Region IV office to plant officials addresses the performance of the plant during 2010 and will serve as the basis for the meeting discussion. It is available on the NRC website at [nrc.gov/NRR/OVERSIGHT/ASSESS/LETTERS/sano\\_2010q4.pdf](http://nrc.gov/NRR/OVERSIGHT/ASSESS/LETTERS/sano_2010q4.pdf).

Current performance information for San Onofre Unit Two is available on the NRC web site at [nrc.gov/NRR/OVERSIGHT/ASSESS/SANO2/sano2\\_chart.html](http://nrc.gov/NRR/OVERSIGHT/ASSESS/SANO2/sano2_chart.html).

Current performance information for San Onofre Unit 3 is available at [nrc.gov/NRR/OVERSIGHT/ASSESS/SANO3/sano3\\_chart.html](http://nrc.gov/NRR/OVERSIGHT/ASSESS/SANO3/sano3_chart.html).

San Clemente Mayor Lori Donchak has led an effort by the City Council to examine the San Onofre plant's safety and its impact on the community. During this week's City Council meeting, Donchak went through a list of concerns and issues she wanted to learn about the plant and information she wanted available to residents.

The council voted unanimously to hold a public meeting Sept. 27 to address issues involving the plant.

Donchak said at the meeting this week that one of her main goals was to get a spot at the table when decisions about the plant were made; so many state and federal agencies have jurisdiction over the plant that it can be difficult to get anything done.

She charged the city's General Plan Advisory Committee, the group of appointees who are hashing out a new citywide set of zoning ordinances, to take a hard look at the plan's "nuclear element."

At a meeting in March, she asked San Onofre chief Pete Dietrich for a full assessment of safety at the plant in light of lessons learned from the Fukushima disaster that is still ongoing after the earthquake and tsunami in Japan.

## **Town Meeting About San Onofre Nuclear Plant Set For September (OCR)**

By Fred Swegles

[Orange County Register](#), April 8, 2011

You can mark your calendar for Sept. 27 if you'd like to attend a town meeting in San Clemente about lessons the San Onofre Nuclear Generating Station has learned from the earthquake/tsunami disaster at the Fukushima Daiichi nuclear plant in Japan.

The San Clemente City Council this week set the date well in advance with the idea that it gives San Onofre owner Southern California Edison and staff of the US Nuclear Regulatory Commission time to develop information to present to the city and the public.

## **SONGS: Evacuation Plan Needs Much Work (SCP)**

By Tom Barnes

[San Clemente Patch](#), April 8, 2011

Taking a break from North Beach in this week's Barnes-Eye view, I have been asked by readers for my take on the San Onofre Nuclear Generating Station (SONGS) issue. This is a hot local topic with national repercussions.

The question is, what, if anything, should be done about SONGS in the aftermath of the Fukushima earthquake, tsunami, and the damage to the nuclear reactors in Japan?

The scientific and engineering facts regarding nuclear facilities and their safety go far beyond my pay grade. Attempting to understand these arguments on both sides of the issue boggles my mind.

Maybe these plants are as safe as the nuclear lobby says they are, and maybe not. I have no way of discerning whether SONGS can withstand an earthquake of up to 7.0 on the Richter scale as their latest study said it could.

What I can comment on is the evacuation plan for San Clemente in case there is an accident at SONGS. The city, and presumably SONGS' plan is to use the I-5 North and Pacific Coast Highway (PCH) west as the evacuation routes to relocate San Clementians to the Orange County Fairgrounds. If this were not such a serious issue, this plan, or lack thereof, would be almost laughable.

Try going north on the I-5 on a Friday afternoon without a nuclear accident, the traffic can be unbearable and if there is a normal "fender-bender," everything can come to a halt. Imagine adding most of the cars in San Clemente, or imagine if there is even slight damage to the freeway from a disaster, the I-5 will become a parking lot with abandoned vehicles everywhere.

To expect the freeway to provide an adequate evacuation route defies credulity.

How can city officials consider this an adequate evacuation plan for its 68,000 residents? It reminds me of the evacuation plan administrators had for students at Laguna Hills High School when I taught there. Earthquake evacuation was to be between two cement block buildings out to the playing fields. The problem was that route would undoubtedly have been blocked by the cement buildings tumbling down. So much for a safe evacuation between felled buildings.

SONGS' evacuation plan is inherently flawed.

The only evacuation route that would have any chance of success in the wake of a earthquake effecting SONGS would be the area to the northeast of San Clemente, the area between the ranches (Forster, Rancho San Clemente, & Talega) and San Juan Capistrano and beyond.

Where are the maps for the emergency trails in this area? If they do exist they have not been widely distributed.

Many cars will not be able to traverse this rugged terrain but many will be able to, especially ones with 4-wheel drive or a high undercarriage including most trucks.

If enough vehicles can be diverted to these routes it may relieve some of the pressure on I-5 and PCH and make evacuation workable.

Both the city of San Clemente and SONGS lose credibility by their failure to seriously address the issue of evacuating San Clemente in the event of a disaster emergency.

If Southern California Edison cannot be believed because of their lack of a logical, detailed evacuation plan, can they be believed about other, often more complex, issues regarding safety at a nuclear plant?

When I moved into Rancho San Clemente a quarter of a century ago it was with the assurance that the La Pata extension would be cut through to the Ortega Hwy. and what is now San Antonio Parkway.

This is one ideal alternate route out of San Clemente but has been stalled all these years, in part, because of the opposition from the Toll Road who touted their 241 pay road as the alternative way out of San Clemente. A quarter of a century to build a road that is still not finished, compare this to the US Seabees who built entire airfields in two days during WWII.

It is time for this opposition to stop and for the La Pata extension to be finished. Completing this alternative way out of San Clemente is one small step that could be taken to give the public more assurance that government and business is serious about disaster preparedness.

A deeper and more serious issue is why a nuclear generating plant was built in an earthquake zone in the first place. If nuclear facilities have to be built why choose a location that is prone to seismic activity?

Most of the United States is not in the earthquake belt and would be a much better location for a nuclear generating plant than the California coast.

No matter how safe you try to make it, the plant has 3,000 employees, millions of parts and is subject to Murphy's law. As Robert Burns has told us, "the best laid plans of mice and men can quickly go awry."

One recent bumper sticker says it best. "No Nukes in Quake Zone."

## **Special Inspections Under Way At Braidwood, Byron (MORRISDH)**

By Jo Ann Hustis

Morris (IL) Daily Herald, April 8, 2011

Two equipment issues are under review by the Nuclear Regulatory Commission at Braidwood and Byron Generating Stations.

One issue involves the operability of the backup system to remove heat from the reactors in case of a trip or accident. The other is the loss of control room equipment alarms in February of this year and late-August 2010.

The NRC's special inspection report will be available to the public within 45 days after the investigation is finished.

In the meantime, there is no immediate threat to public health or safety, and the two equipment issues have been resolved, both Viktoria Mitlyng of the NRC's Region 3 in Lisle and Neal Miller of Braidwood Station at Braceville, said today.

The first issue is related to a dry pipe design between two (in series) essential service water supply valves on the auxiliary feedwater system at both stations. A part of the original designs at Braidwood and Byron, the valves supply a backup water source to the system.

However, if the auxiliary feedwater system does become unavailable in case of emergency, operators are trained in procedures to cool the plant, Miller said.

The NRC's special inspection team began reviewing the issues at both plants — which are very similar in design — on April 4. The inspections involve concerns that arose at Byron after an auxiliary feedwater pump inspection in February.

"The questions we are asking have to do with going back to the original design, and whether there were operability issues back to then," Mitlyng said of the special inspection team.

She said an evaluation by Exelon Nuclear, owner of both Braidwood and Byron stations, showed the pumps would work as designed.

"We asked the company to provide us with more than calculations saying the pumps were operable — something more specific that would give us confidence they were operable. Exelon did an evaluation, and showed the pumps would not be operable," Mitlyng said.

"Then there was a second issue two weeks ago when the maintenance alarms were checked (at Braidwood,) and a certain number of alarms would not be available ... so this triggered the threshold of an unusual event."

When issues like these occur, the company has to go into their records on previous maintenance work.

Their check showed an identical maintenance issue in 2010, but was not identified at the time.

Operators did identify the problem in February of this year, Mitlyng said.

"We want to find out why they didn't identify the problem in 2010, if it happened other times in the past, and if there were similar issues at Byron. In addition, the NRC will evaluate Exelon's actions to address both the issues, and whether there is possible concern with the way Exelon assessed these equipment issues," Mitlyng said.

"It's something we feel we need to look at and understand better, and review in context of the company's handling of these kinds of issues. The initial information provided to the NRC said the pumps

## **Nuclear Commission To Inspect Exelon Plant In Byron (ROCKREGS)**

Rockford (IL) Register-Star, April 8, 2011

The US Nuclear Regulatory Commission is reviewing the handling of two equipment issues at Exelon Generation Co.'s Byron and Braidwood nuclear power plants, the agency announced Wednesday.

The Byron plant is one of Ogle County's largest employers with about 850 workers. The Braidwood plant is about 20 miles southwest of Joliet.

The NRC is reviewing backup systems that would be used to remove heat from the reactor in case of an accident and the loss of control room equipment alarms during maintenance activities.

Read more on Alex Gary's blog

## **Nuclear Commission Conducting Special Inspection At Byron Nuclear (RRS)**

By Alex Gary

Rockford Register-Star, April 8, 2011

The US Nuclear Regulatory Commission is reviewing the handling of two equipment issues at Exelon Generation Company's Byron and Braidwood nuclear power plants, the agency announced Wednesday.

The Byron plant is one of Ogle County's largest employers with about 850 workers. The Braidwood plant is about 20 miles southwest of Joliet.

The NRC is reviewing backup systems that would be used to remove heat from the reactor in case of an accident and the loss of control room equipment alarms during maintenance activities.

The NRC said both issues have been resolved and did not pose an immediate public threat.

The first issue was discovered in February when inspectors became concerned with the design of the auxiliary feedwater pumps (AFW) at Byron. Exelon's initial evaluation was that the pumps would be able to perform their safety function. Further calculations though showed the pumps would not be operable in an accident or reactor trip at either Byron or Braidwood, since both systems are similar in design.

The second issue was discovered in March when control room equipment alarms became unavailable during maintenance activities. Further review showed the alarms were unavailable during maintenance work in August 2010.

The inspection report will be available to the public 45 days after the inspection is completed. The last time the NRC did a special inspection in Byron was October 2007 to fix a cooling pipe leak.

Nuclear plant safety has been a major topic lately after a tsunami in Japan in March damaged reactors at a Tokyo plant, knocking out the cooling systems, leaving the temperature of the nuclear cores to rise and setting off a worldwide effort to prevent a meltdown.

## **Inspectors Say Byron Nuclear Power Plant's Back-Up Pumps Are Inoperable (STATELINE)**

By Marty Kasper

MyStateline.com, April 8, 2011

The Byron Nuclear Power Plant is being investigated following reports that back-up cooling pumps might not work in the event of a system failure.

Safety is a number one concern at the Byron Nuclear Power Plant, especially after the recent disaster in Japan.

"We have changed a few things as well, gone further and checked our safety systems and our processes to make sure their okay," said communication manager for the Byron station Paul Dempsey.

But when the US Nuclear Regulatory Commission learned that some of the Exelon Company's back-up water pumps would not work as planned, the NRC launched an investigation.

"It became apparent that the system would not be operable," said NRC spokesperson Viktoria Mityng.

Mityng said safety inspectors found an air pocket inside a pipe that pumps water into the reactor and asked the company to make some changes.

"If that air got pushed into the pump, which is the system that would pump coolant into the reactor, that pump could be damaged," said Mityng.

But Dempsey says the Byron facility has operated that way since it was built, and quickly responded to the NRC's request.

"This is the way it was configured from the very start, the NRC took a look at it and said they didn't like the way it was configured, we have since reconfigured that situation and now it is the configuration the NRC wants it in," said Dempsey.

The NRC says the issues never posed any immediate safety concerns for the public, and that their inspection report will be available 45 days after they have completed their analysis.

## **Nuclear Regulatory Commission Reviewing Two Illinois Plants (MYSTATE)**

MyStateline, April 8, 2011

Special inspections are taking place at two Illinois nuclear power plants operated by Exelon Corporation.

The Nuclear Regulatory Commission says issues were found with backup pumps that are used to remove heat from the reactors in case of an accident.

There was a separate problem with alarms in the plants' control rooms.

Engineers at the Braidwood and Byron power plants have corrected the problems and neither caused an immediate threat to public health.

The NRC will review Exelon's issues and actions within the next 45 days.

Backup systems at nuclear power plants have come under scrutiny since the one's at Japan's Fukushima facility failed during the earthquake and tsunami on March 11th.

## **Nuclear Plant In 'Right Direction' (OMAHA)**

By Nancy Gaarder

Omaha World-Herald, April 8, 2011

The nuclear power plant north of Omaha appears to be solving the problems that placed it among the handful nationwide that have required the most oversight, federal regulators said Wednesday.

"Our early insights are that you are heading in the right direction," Troy Pruett, a regional deputy director for the Nuclear Regulatory Commission, told officials with the Omaha Public Power District.

The utility owns the Fort Calhoun Nuclear Station, which is about 20 miles north of Omaha.

Federal regulators gave OPPD somewhat poor marks last year after concluding that the utility's plans to protect against catastrophic, 1-in-1,000-year flooding were vulnerable to failure.

The utility received what was basically a C — if an A indicates that no extra oversight is necessary while an F means that the plant should be shut down.

The difference between a B, C and D centers on how much additional oversight and inspections are required.

Gerond George, reactor inspector for the NRC, said one of the problems was the way Fort Calhoun had planned to stack sandbags atop flood gates.

The floodgates were only one-half inch wide, but the utility was planning to place a 6-foot-high stack of sandbags atop the gates.

Even though the bags would have been stacked against a door, a stack of that nature — a single bag wide — perched in that manner, could have washed away during flooding, George said.

Dave Bannister, chief nuclear officer at Fort Calhoun, told federal regulators that OPPD realizes its flood procedures “were not what they needed to be.”

OPPD has remedied that problem by turning to a new method of flood protection, Bannister said.

Bill Pook, regional emergency manager for the counties that encompass the nuclear plant, defended OPPD to the regulators.

Fort Calhoun has been a good partner in the community, he said, and the NRC sensationalized Fort Calhoun's troubles in testimony before a congressional committee.

Pook said the NRC, too, deserves a poor grade for not catching the sandbagging problems at any time during the past 30-plus years and for calling attention to Fort Calhoun's low ranking — even though OPPD had addressed the problems.

Wednesday's meeting drew about nine members of the public. Questions from the public centered on the spent fuel pool, evacuation plans, releases of radioactivity and potential damage from a dam breach upstream on the Missouri River.

Officials said the plant drills for a variety of complex failures and that extra analysis is under way as a result of the nuclear plant crisis in Japan.

## **Vt. Ready For Legal Action By Yankee (BR)**

By Bob Audette

Brattleboro Reformer, April 8, 2011

BRATTLEBORO – If Entergy continues to operate Vermont Yankee nuclear power plant past March 21, 2012, the state will be ready to enforce its laws.

"We are not going to sit on our hands and let Vermont law be ignored," said Vermont Attorney General William Sorrell in a telephone interview with the Reformer.

Sorrell said he and his staff have already met a number of times to prepare for whatever legal action might be necessary if Entergy, which owns and operates the plant, ignores the state's refusal to issue a certificate of public good for continued operation of Yankee.

"We are prepared for any eventuality," he said.

The Nuclear Regulatory Commission recently issued a new 20-year license that allows the plant to continue to operate until 2032.

However, when Entergy bought Yankee in 2002, it agreed it would abide by the Vermont Public Service Board's decision on whether it would issue a certificate of public good, which is required to operate a utility in the state.

In 2006, the Legislature passed Act 160, which gave itself the power to forbid the PSB from issuing the certificate.

In January 2010, the Senate voted 26 to 4 against its issuance. The House of Representatives didn't take up the issue and doesn't appear likely to do so during this legislative session.

Entergy could file in federal court for a declaratory ruling prior to March 2012, or prior to the October refueling of the reactor, contesting Vermont is trying to pre-empt the NRC's decision. Or Entergy could continue to operate Yankee and wait for the state to sue it to shut the plant down.

What Entergy might or might not do is not known.

"We have no comment on possible litigation," said Larry Smith, spokesman for Yankee.

"We've been of the view that Entergy was going to be suing us and we would be defending the law, but it's seeming more likely that they might not be filing a suit against us," said Sorrell.

He added that Entergy's intentions might become clearer when the refueling begins — or doesn't begin — in October.

"Refueling could be taken as another indicator that they are expecting to be here for the long haul," said Sorrell.

Filing suit or defending Act 160 in court could be quite expensive for the state, but Gov. Peter Shumlin said Vermont will take whatever actions are necessary to enforce its laws.

"As governor, my job is to enforce the law," he said, adding the state will find the money necessary to defend its laws in court. "We will always make the resources available to insure that corporations are held to the same standard as our citizens are and obey our laws."

Shumlin, who was Senate President Pro Tem at the time the Senate voted against the plant's continued operation, voted in the majority and has not changed his position since becoming governor.

Shumlin also questioned whether Entergy, a publicly traded company, would actually flout the state's laws.

"They are a very profitable company that does business in lots of other states," he said. "It's hard for me to believe that a publicly traded company can break the laws and still be trusted in other states or by Wall Street. "If Entergy wants to join Bear Stearns, Lehman Brothers and others in breaking laws, they do so at their own peril."

Shumlin said that Entergy not only signed off in 2002 on the memorandum of understanding stating it would abide by the PSB's decision, it also publicly supported Act 160 while it was being discussed.

"They would have to go before a judge and say 'We didn't tell the truth, again, when we agreed to comply with Vermont law.' That's a pretty tough sell to a judge."

Pat Parenteau, professor of law and senior counsel at the Natural Resources Law Clinic at Vermont Law School told the Reformer

the state may not have to sue Entergy to force it to shut Yankee down.

Instead, the PSB might be able to order Vermont Electric Company, which transmits Yankee's electricity to Vermont and the New England grid, to not accept power from the plant.

Because Velco's switchyard is in Vermont, it also requires a certificate of public good to operate and the PSB might have the power to modify the certificate to keep Velco from transmitting Yankee's power.

A spokesman for Velco said he could not comment on what the PSB or Velco might do if Entergy keeps the plant online past March 21, 2012.

A spokeswoman from ISO-New England, which distributes power throughout the region, also could not comment on actions not yet taken.

A spokesman from the Federal Energy Regulatory Commission said it could not determine what power FERC might have in this situation unless it had a filing that it could review.

## **Shumlin Stresses Jobs, Health Care, And No New Taxes (ADDIND)**

By John Flowers

Addison (VT) Independent, April 8, 2011

Gov. Peter Shumlin on Monday praised lawmakers for supporting a 2011 legislative agenda he predicted will lift the state to economy to heights unseen since the tech boom of the 1990s.

"I am really proud of the work that the Legislature has done," Shumlin said at the weekly Legislative Breakfast held at the Middlebury American Legion. "We are united in what the challenge has been."

That challenge, Shumlin said, has included overcoming a projected state budget deficit of more than \$170 million, creating more jobs, crafting a health care reform plan, plotting a new energy course (that he said should not include Vermont Yankee), and extending broadband Internet and cell phone coverage throughout the state within the next two years.

"Vermonters are making around the same amount of money they were 10 years ago," Shumlin said. "We are making progress for the unemployed, but we are not making as quick progress as we would like on raising the incomes of those who have jobs."

Shumlin acknowledged a tough fiscal year 2012 budget process, one that saw him propose some substantial cuts that drew protests from human service providers. The House ultimately restored a portion of the cuts he had recommended.

"I think when we're done, we'll have a budget that meets the needs of Vermonters and balances our appetite for spending with the ability of Vermonters to pay the bill, so we won't be back here next year with a \$150 million deficit, or \$160 million, like we have for four years in a row," Shumlin said.

Looking forward, Shumlin said he sees blue economic skies on the horizon. His optimism is fueled by what he said are new business opportunities that will be made possible by enhanced broadband and cell phone coverage and by an emerging renewable energy industry.

"I am convinced this will be true if we make the right decisions," Shumlin said. "As we move off of the oil-based economy to other ways of powering the world, there is going to be a huge ton of money to be made.

"I think it's going to make the industrial revolution and the tech boom look small."

Shumlin said he believes that oil prices will never again be as low as \$70 per barrel. He said prices will only get higher as developing nations become more affluent and become bigger consumers of a fossil fuel that is getting increasingly scarce.

"The price is going up, and we've got to get off it for financial reasons," Shumlin said. "If we don't, the Saudis are going to own us. We are going to be fighting wars all the time and we can't even keep up with the wars we're fighting now."

The governor said he can envision a time in the near future when Addison County farmland will be used to raise crops for local food and renewable energy.

Shumlin added that enhancing the state's telecommunications system will open the door for a lot of new companies that would suddenly be able to give their employees the quality of life of the Green Mountain State while staying electronically connected to the major business hubs.

"We've got to do it," Shumlin said of extending good broadband and cell phone coverage to the last rural mile.

#### HEALTH CARE REFORM

Vermont's business climate would also benefit from having a single-payer health care system, according to Shumlin. He noted the state currently spends \$5 billion annually on health care. Nine percent of that figure is related to administration of the system, he said. The governor envisions a time when each Vermonter will be issued a Green Mountain Care policy card that will not only expedite billing and administration, but also instantly link physicians to the patient's health care records.

He said the current health care system is not financially sustainable.

"We've got 20-percent increases, 30-percent increases, on an annual basis, in our health insurance premiums," Shumlin said. "We are paying more and more insurance for less and less coverage."

He said the state can't afford to not implement health care reform.

"We are not doing this health care thing because it's popular; we're not doing it because it's easy," Shumlin said. "We're doing it because we have to."

Shumlin applauded the House for doing a "tremendous job" on H.202, a bill that lays the foundation for a single-payer health care system in Vermont called "Green Mountain Care." H.202, among other things, calls for the creation of a Green Mountain Care Board to help the state contain health care costs. The legislation would also set up a "Vermont Health Benefit Exchange" to begin enrolling individuals and small business for coverage beginning Jan. 1, 2014.

Addison County legislators said at Monday's breakfast that many aspects of Green Mountain Care still need to be sorted out — not the least of which is how it will be financed. They added future Legislatures could decide to pull the plug on the program if it appears untenable.

A single-payer system, Shumlin argued, would relieve businesses from the responsibility of covering workers and therefore give Vermont an advantage over the other 49 states in attracting economic development.

Shumlin predicted that the state's smaller hospitals — like Middlebury's Porter Medical Center — will not last much longer in a current health care system in which providers are reimbursed (by Medicaid and other programs) at around 40 cents for each dollar of service they provide.

"You can't run a business that way," said Shumlin, who added the state needs better training programs in schools to prepare students for job openings.

"If we can be the state training more kids for science, math, technology and engineering, we get the jobs, we get the bright economic future," Shumlin said.

The governor acknowledged his agenda has drawn some criticism from some who argue that Vermont should not proceed unilaterally on health care and other major initiatives, as federal action could force the state to reverse course.

"I say not much is going to happen in Congress," Shumlin said. "We've got the (US) House over there and they want to slash everything ... It's a mess. We've got a time here where in Washington, we can't count on them for much change."

#### GOVERNOR CHALLENGED

Shumlin's message drew polite applause from the approximately 50 residents and lawmakers at Monday's breakfast. But the governor did not go unchallenged on his priorities — particularly those related to health care and taxes.

Three county residents questioned Shumlin's refusal to consider an increase in broad-based taxes — in particular the state income tax — to generate more revenue to sustain some of the human services programs currently on the chopping block.

Bridport resident George Klohck said he recently learned from his accountant that his household will, for the first time, be receiving a state income tax refund.

"This doesn't seem right to me, given that I am not suffering and that there are people in need in many ways in Vermont that we need to support," Klohck said.

He alluded to a March 22 letter signed by 50 of the state's most prosperous Vermonters urging Shumlin to support bill H.401, which would slightly raise the state income tax rate for the highest two income brackets.

"As you know, H.401 would raise a relatively small amount of money (\$17 million) given our state deficit and the fact that the wealthiest Vermonters (top 5 percent) will receive a \$180 million tax cut this year thanks to extension of the Bush tax cuts," reads the letter, which includes several Addison County signers. "But that money will go a long way in helping vulnerable Vermonters through these hard times."

Shumlin invited the letter writers to "send it to the state; we'd love to have the money." But he reiterated his opposition to an increase in Vermont's income tax, which he said was already one of the highest in the nation.

"I think the fact that the Obama administration was unable to return us to the Clinton tax rates is a real tragedy for America, and I hope they will see the light," Shumlin said. "And I agree with you that wealthier people are getting a better deal from taxes than they ever have in the history of America, and they should pay more."

Burt Shumlin argued that Vermont already has the most progressive state income taxes in the country, and that an increase in that assessment would result in more affluent people leaving the state — thereby eroding the tax base and discouraging job creation.

"The dumbest thing we could do is raise our already progressive income tax even higher," said Shumlin, who last year declared a net worth of \$10.67 million.

"There are 162 Vermonters who made \$500,000 or more, more than once, in the last nine years," Shumlin said. "What we know is that they pay the lion's share of income taxes to the state of Vermont — roughly 32 percent. We know that when you get roughly 10 percent of your check going to the state of Vermont, people start to say, 'Wow, I'm sending a lot of change to the state of Vermont.' And there is a point where you lose more than you gain."

Shumlin said his job is to keep the 162 top wage earners in Vermont and "grow the base. What if we doubled it in the next two years? We would have all sorts of revenue that we don't have now."

#### NUCLEAR POWER PLANT

The governor was also asked about the future of the Vermont Yankee (VY) nuclear power plant in Vernon. Shumlin reiterated his desire to see the plant closed when its current license expires next year — in spite of the fact that the federal Nuclear Regulatory Commission has issued VY a renewal.

Ultimately, VY's future might have to be decided in court, even if the Vermont Legislature demands that the facility be closed, according to Shumlin. He said the plant's owners, Entergy, might argue that the Vermont Legislature doesn't have the right to decide the facility's fate; or Entergy might try to continue operation past 2012 with its NRC permit in hand, forcing the state to take court action.

"We're in for a tough, long battle," Shumlin said.

## **My Turn: A Brighter Future Without Vermont Yankee (BURFP)**

By Sandra Levine

Burlington (VT) Free Press, April 8, 2011

A cleaner, more prosperous energy future is available without Vermont Yankee. Let's set aside the boogey men and scare tactics and look at the facts.

**Power Supply:** The excess supply, regional grid and development of newer, cleaner resources for meeting our electricity needs guarantee that the retirement of Vermont Yankee will have at most a small impact on Vermont's electricity supply.

- 5,000 MW of extra power capacity was recently offered at auction for delivery in 2013. This is four times Vermont's needed supply and one-fifth of the overall regional needs in the region.

- 1,500 MW of new supply was offered. This includes New Generation (144 MW), Imports (830 MW) and Demand Resources (515 MW).

- There is enough energy available to replace Vermont Yankee.

**Grid Function and Reliability:** Studies are ongoing, but preliminary results suggest some limited transmission grid improvements will be needed by 2020 with or without Vermont Yankee.

- The effect of Vermont Yankee's retirement or continued operation has little impact on the overall reliability of the electrical grid.

- Problems will arise even with Vermont Yankee in operation.

- The effect of Vermont Yankee retirement is like a school moving across town and a new travel lane and traffic light being added to accommodate the change in traffic.

**Cost:** Claims that power prices will increase without Vermont Yankee are specious. Without a favorable power contract, Vermont would simply pay market prices for any power from Vermont Yankee. It is disingenuous to call Vermont Yankee low cost

when it would simply sell power to Vermont at the going market price. It is no cheaper for Vermonters than other available resources.

Legal Validity: The legal validity of closing Vermont Yankee when its current license expires in 2012 is supported by contract obligations, constitutional principles, Public Service Board orders and US Supreme Court precedent – as well as simple fairness.

- Vermont Yankee's owners signed a contract that precludes them from operating the plant past March of 2012 without approval from the Vermont Public Service Board.

- Vermont law requires legislative approval for a state license.

- Federal law governing nuclear power facilities covers matters of radiological health and safety. States maintain their traditional authority to oversee the need for and type of facility to be licensed as well as authority over land use, ratemaking and environmental impacts.

- The previous sale of Vermont Yankee and the storage of waste at the site were allowed based on Vermont's continued oversight and authority. Vermonters and courts don't tolerate corporate double dealing. A late, legal challenge at the end of Vermont Yankee's current license would be stopped.

## **Officials Conduct Drills At Nuclear Power Plant (WTEN)**

WTEN-TV Albany (NY), April 8, 2011

Emergency officials in Vermont conducted drills near the Vermont Yankee Nuclear Power Plant on Thursday.

Authorities have been working at the plant all week and are looking into what to do if there was a leak at the plant.

State officials said they planned the drill months before the disaster in Japan.

"We do a federally evaluated exercise every two years, with every six years doing the ingestion pathway," said Richard Cogliano, of Vermont Emergency Management.

The drill was announced ahead of time so people who live nearby would not panic.

Crews are taking samples of soil, vegetation, milk, and other materials to determine any contamination.

## **Vt. House Agrees To Skip New Power Bill Charge (BSWK)**

BusinessWeek, April 8, 2011

The Vermont House has agreed to pull a new 55-cent charge on electric bills from a bill designed to promote renewable energy.

Gov. Peter Shumlin says he's working on an alternative to the new tax to fund the Clean Energy Development Fund, but he won't say what his plan is.

Shumlin's intervention came just before the House gave the bill final approval, and some lawmakers were angry with the governor for backing away from a plan his administration had supported.

At issue is how to replace money in the fund that had been coming from the Vermont Yankee nuclear plant. The Vernon reactor is scheduled to close next year.

Despite the misgivings, the energy bill passed easily and now heads to the Senate.

## **Japan Offers Lessons To N.J. (GCT)**

By Jeff Tittel, Special to the Times

Gloucester County Times (NJ), April 8, 2011

Once again the Nuclear Regulatory Commission (NRC) shows it cares more about protecting industry interests than the public in a brief the agency filed with the Third Circuit Court of Appeals, which is hearing an appeal of the relicensing of the Oyster Creek power plant.

NRC must stand for 'no regulatory commission.' The agency is a cheerleader for industry and looks the other way it comes to relicensing, especially around issues of public safety.

On March 21, the court had asked the NRC and the plant's owner Exelon to determine what impact the tragedy at Japan's Fukushima Daiichi Nuclear Power Station would have on the relicensing of the Oyster Creek facility, which is the same design as the plant in Japan. The NRC brief favored industry interests saying the situation in Japan should have no bearing on the relicensing of Oyster Creek.

By raising the issue of Japan to the NRC, the judges demonstrate the court has serious questions on safety of the Oyster Creek facility. NRC has not learned anything from the tragedy in Japan and is blind to the safety issues that face nuclear power plants.

The NRC argued that the matter before the court of appeals is limited to aging management issues, not lessons learned from Japan. Environmental groups challenging NRC's relicensing of the facility are concerned because Oyster Creek is an aging plant vulnerable to management issues such as tritium leaks from old piping and corroding drywall liner, but also management issues stemming from an emergency situation or natural disaster. The facility is located in an area prone to hurricanes where moderate earthquakes have occurred.

The NRC brief goes on to say the record on this case is closed and no new facts, such as two reactors in Japan of the same design as Oyster Creek are spewing radioactive waste into the atmosphere or are having issues with above ground spent fuel rod storage containers leaking radioactive waste, should be considered.

The NRC should be saying license renewals across the country should be on hold while we reevaluate the safety of these facilities. This brief shows the NRC will not learn any lessons from Japan, just as they did not learn any lessons from Three Mile Island or Chernobyl.

The situation in Japan continues to worsen. The plant is becoming more like Chernobyl every day. Four of the reactors will become permanently disabled after leaking plutonium into the surrounding soils, aquifer, and into the ocean. Almost 5,000 times the legal limit of radioactive iodine has been recorded in the ocean surrounding the plant in Japan. What would a leak like this do to Barnegat Bay? With these risks, it is not worth keeping Oyster Creek running over the next ten years.

Given what we are learning about Japan, it does not make any sense — and could be outright dangerous — to keep Oyster Creek open. The lesson is that these older plants with above ground waste storage need to be closed, and they need to be closed now.

Gov. Christie must abandon his deal with Oyster Creek's owner Exelon to allow the plant to operate for 10 more years. Instead, New Jersey should be joining environmental groups in a lawsuit opposing the re-licensing of Oyster Creek by the Nuclear Regulatory Commission and demand the plant be shut down as soon as possible. Gov. Cuomo is calling for the closure of the Indian Point Nuclear Plant in New York, and that facility's license does not expire until September 2013.

If Christie really cares about nuclear safety in Barnegat Bay, he should file a motion to oppose the relicensing of Oyster Creek.

Even a moderate earthquake at Oyster Creek could impact the dry well or the spent fuel rod storage system.

The Japanese reactor had a cement dome over the containment vessel and Oyster Creek does not, possibly making it more at risk if a build up of hydrogen occurs. Just as at the Japanese facility, spent fuel is stored above ground.

The Sierra Club is concerned with excavation procedures and routes during an emergency at Oyster Creek. Ocean County's population doubles on a summer weekend.

There is close to 1 million people in a 12-13 mile radius of the power plant. It is hard enough to get home from a day at the beach, let alone when you have to evacuate people during an emergency.

The design of Oyster Creek is the same as the Fukushima Daiichi Unit 1 and 3, a GE Mark I BWR. We know the Fukushima plant was designed to withstand a magnitude 7.2 earthquake. Oyster Creek was designed to withstand a moderate earthquake but given the age of the plant and metal fatigue, it is questionable if it would meet those standards today.

According to the US Geological Survey, Toms River has experienced earthquakes of a magnitude 5.0 or greater in the last 150 years.

The highest intensity earthquake ever observed in New Jersey occurred on June 1, 1927, in the Asbury Park area, less than 35 miles away from Oyster Creek. Three shocks were felt along the coast from Sandy Hook to Toms River. Several chimneys fell, plaster cracked, and articles were thrown from shelves. The felt area extended over approximately 7,800 square kilometers.

All of New Jersey's nuclear power facilities are located in areas prone to damages from hurricanes.

Category five hurricanes have hit the Jersey shore in the past, and we are long overdue for the next one. Such a storm could have very similar impacts on Oyster Creek as a tsunami. The task force must review the impacts of hurricanes on these plants.

Given the NRC record, they would probably relicense the Fukushima Daiichi Nuclear Power Station and Chernobyl, too.

Jeff Tittel is director of the N.J. Sierra Club.

## **Getting Tuned In To Oyster Creek (PHIBURBS)**

[PhillyBurbs.com](http://PhillyBurbs.com), April 8, 2011

Inside the Vincentown Diner on Route 206 in Southampton, the lunch crowd shuffles in.

Clattering dishes, mouth-watering aromas, and the hum of the customers crowd the place. A radio in the kitchen is playing oldies. Among them are such 1969 hits as "I Can't Get Next to You" by the Temptations and "Bad Moon Rising" by Creedence Clearwater Revival.

Thirty miles away, in neighboring Lacey Township in Ocean County, and only 12 miles from Burlington County, another oldie born that year also is still alive: the Oyster Creek Nuclear Generating Station.

Located in the Forked River neighborhood, it's the oldest operating nuclear plant in the country. In light of the disaster at the Fukushima Dai-ichi nuclear plant in Japan after last month's earthquake and tsunami, and knowing Oyster Creek's nuclear reactor design and age are virtually identical to that of Fukushima's, some residents are casting a wary eye toward the Jersey shore.

"I usually don't think too much about what can happen if something goes wrong at that (Oyster Creek) plant," said Perry Belnich of Shamong in the diner parking lot before going inside for lunch. "I know the plant is close. But if something bad happens there, it's like we're living next door, you know?"

"I know the tsunami caused the problem in Japan; we're not likely to get one here. But you worry about it because it's so old."

Like those songs on the radio, the Oyster Creek plant is old. Belnich worries that the facility is like an old man still showing spring in his step.

"One minute he looks fine, but the next he's having a heart attack and checking out," he said. "When things get that old, you never know."

Oyster Creek will close in 2019, 10 years earlier than originally scheduled. By agreeing to shutter the facility, plant owner and operator Exelon Corp. won't be required to build cooling towers that would cost an estimated \$800 million.

So for the next eight years, without those cooling towers, the plant will continue using 1.4 billion gallons of water daily from Barnegat Bay to cool its reactor, a process that the New Jersey Department of Environmental Protection reports kills billions of shrimp and tens of thousands of fish, crabs and clams each year. For the state to allow this blatant ruination of the environment is unconscionable.

As Mary Beth Markley of Pemberton Township stood outside a Wawa near the diner, the reality of the Oyster Creek plant's negative effect on nature was, unlike the coffee in her hand, hard to swallow.

"It's not the possibility of a major problem that scares me," Markley said. "It's the stuff like last year, when their radioactive water got into the aquifer that supplies drinking water. How long was that going on before people were alerted? And what about all the sea animals killed every day from their radioactive water?"

"But if something that old does have a big problem, it'll be too late for those of us who live so close."

And so the beat goes on. The nuclear plant in Japan will continue to be repaired. The nuclear plant in the shadow of Burlington County will live eight more years. And the delicious oldies music in the diner will continue to play.

Perhaps in 2019, when the then-50-year-old Oyster Creek plant closes for good, a gathering could be held at the diner. Maybe an oldie will play in its memory. Maybe another hit from 1969:

"Na Na Hey Hey Kiss Him Goodbye."

Phil Gianficaro's column appears weekly.

## **Western Pa. Nuke Plant Once Had Submerged Cables (AP)**

Associated Press, April 8, 2011

A nuclear power plant in western Pennsylvania has been cited in the past for having electrical power cables to safety systems that could be submerged in water, but the company that runs the plant says that 2009 problem has since been corrected.

A FirstEnergy Corp. spokesman tells the Beaver County Times that the Nuclear Regulatory Commission approved the corrections during a recent license renewal process at the Beaver Valley Nuclear Power Station in Shippingport.

An NRC report in December says the plant was one of nine found since 2007 to have cables improperly submerged in water. NRC officials were concerned the cables could fail disabling emergency safety systems in the event of an accident or natural disaster.

FirstEnergy says the company has made changes to keep the cables dry, even though they're suitable for underwater use.

## **'Unusual Event' Declared At Hanford Nuclear Plant (AP)**

A small amount of hydrogen gas trapped in a pipe at a Washington nuclear power plant ignited in a brief, six-inch flame Thursday when workers cut into the pipe, a utility spokesman said.

Associated Press, April 8, 2011

RICHLAND, Wash. —

A small amount of hydrogen gas trapped in a pipe at a Washington nuclear power plant ignited in a brief, six-inch flame Thursday when workers cut into the pipe, a utility spokesman said.

No one was injured and no equipment was damaged in the "puff," which Energy Northwest spokesman Mike Paoli said lasted less than a second. Still, the Columbia Generating Station declared an "unusual event" and temporarily evacuated the immediate area.

Officials notified the Nuclear Regulatory Commission.

The pipe is located in the plant's main turbine building, which is a non-nuclear area, Paoli said.

"There's no association whatsoever with the reactor building or radiation," he said.

An "unusual event" describes a condition at a commercial nuclear power plant or its surroundings that could potentially compromise normal safety levels. It's the least serious of four NRC emergency classifications.

The plant is located on the Hanford nuclear reservation in southcentral Washington.

The Columbia Generating Station began a scheduled refueling outage on Wednesday that will keep the plant off line until mid-June.

The gas ignited during work that is part of the refueling outage.

During normal operations, the pipe is filled with water and some hydrogen, which is used to cool the generator, the spokesman said.

Paoli said the pipe had been closed and purged of gas - "or so they thought" - when a small amount of residual trapped gas escaped when workers cut the pipe.

He said he wasn't sure how many people were evacuated.

After a safety inspection by Columbia officials, "work resumed in the general area after an hour and a half or so," he said.

Energy Northwest is a joint operating agency including 28 public power member utilities. It operates a mix of hydroelectric, solar and wind energy projects as well as the nuclear plant.

## **RICHLAND: Nuclear Plant Releases Hydrogen Gas 'Puff' (TRICITYH)**

Tri-City Herald (WA), April 7, 2011

Richland – Columbia Generating Station in Richland declared an "unusual event" at 4:07 p.m. Thursday after the release of a small amount of residual gas that briefly suspended some plant activity.

During work for the plant's ongoing refueling outage, a small amount of hydrogen gas was released from a pipe and ignited – a less-than-one-second "puff," said a news release.

The work was in the nuclear plant's main turbine building, which is a non-nuclear area of the plant. No one was hurt and no equipment was damaged.

During normal operations, the pipe is filled with water and some hydrogen, which is used to cool the generator, said the release.

Workers were cutting the pipe, which had been closed and purged, when a small amount of residual, trapped gas escaped the pipe. The immediate area was evacuated and an unusual event declared, said the release.

An unusual event is a classification describing a condition at a commercial nuclear power plant or its surroundings that could potentially compromise the normal level of plant safety, or that warrants increased awareness by plant staff.

The Nuclear Regulatory Commission was notified shortly after the incident.

Outage work resumed in the area following a safety inspection by plant officials, said the release.

The plant powered down April 2 leading up to its biennial refueling outage, which started April 6, and is scheduled to be completed by mid-June.

## **Refueling Outage Begins At Energy Northwest (TRICITYH)**

Tri-City Herald (WA), April 8, 2011

The longest refueling outage in the history of the Energy Northwest nuclear power plant began Wednesday.

The Columbia Generating Station near Richland powered down a couple days early on Saturday, but Energy Northwest decided to keep its planned outage schedule starting Wednesday.

The Bonneville Power Administration requested the early stop to operations because high water flows through the federal hydroelectric dam system would allow ample power production.

More than 1,800 workers have been hired to help with the planned 78-day refueling outage. They are in addition to 1,100 permanent employees at the plant.

Crews plan to replace 244 of the 764 fuel assemblies in the reactor core and perform maintenance.

The largest project – accounting for the extended outage – will be the replacement of the condenser, which turns steam from the turbines back into water for reuse. The work will cost \$113 million.

The new condenser will provide up to 12 megawatts of additional power generation, paying for itself over time.

Read more: <http://www.tri-cityherald.com/2011/04/07/1440847/refueling-outage-begins-at-energy.html#ixzz1lvM1lx00>

## **'Clearwater Power Sail' Seeks Alternatives To Nuclear (WESTJN)**

By Greg Clary

Westchester Journal News, April 8, 2011

The Sloop Clearwater took its first sail of the season Wednesday morning, tacking back and forth across the Hudson River near Indian Point, while passengers talked about a future without the nuclear plant.

"We cannot afford the nuclear option," said Jeff Rumpf, executive director of the Hudson River environmental group, Clearwater, whose icon is the 106-foot wooden sloop. "We are finally at a tipping point in the history of nuclear power and must move forward in advancing a renewable energy agenda."

The three-hour sail, which left from Verplanck and never strayed out of view of the plant, was called "Power Sail: A Summit for Solutions," and was largely populated by longtime opponents of Indian Point.

There were two main discussions, run simultaneously, after many of the participants had helped hoist the ship's 3,000-pound mainsail and boom.

One group of a couple dozen people focused on risks to the region, including radiation exposure, earthquake potential, what would happen under evacuation plans, long-term storage of nuclear waste and the possibility of terrorism.

Former Democratic Rep. John Hall summarized their discussion, saying he saw parallels between United States citizens and Japanese people enduring the Fukushima tragedy.

The Japanese "have been quoted saying that they now know the government wasn't telling them the truth along," said Hall, who lost his re-election bid in November. "I'm sorry to say it's no different in this country or anywhere else there are nuclear plants and nuclear accidents."

Another group of equal size talked about changing the way power is generated and used to more sustainable methods that can create jobs and reduce the impact on the environment.

Jeff Jones, who works for a coalition of labor, business and environmental groups known as the Apollo Alliance, said the discussion he led focused on the opportunities for "good green jobs."

"We started by wanting to know what the real story is on just how much electricity really is being produced at any one time," Jones said. "We need to quantify that so we can have an accurate assessment of how we're doing in terms of generating alternative sources of power and the gains we are making in conservation."

(Page 2 of 2)

Marilyn Elie, co-founder of Westchester Citizens Awareness Network, told both discussion groups that Indian Point supplies only 560 megawatts of electricity to the grid, not the 2,147 megawatts that the Nuclear Regulatory Commission says.

She said that is about 5 percent of the electricity used in Westchester County and New York City on a typical day.

Elie's numbers are disputed by Con Edison, the New York Independent System Operator that oversees the grid; James Van Nostrand, executive director of the Pace Energy and Climate Center; and Indian Point.

"Indian Point produces on average 25 percent of the electricity used in NYC and Westchester," spokesman Jerry Nappi said Wednesday via email. "Electrons flow to where they are most needed and in the case of Indian Point, they are needed in NYC and Westchester."

Similar figures are offered by Van Nostrand and Con Ed.

New York Independent System Operator officials said Indian Point produced 12 percent of the state's electricity in 2009. Last year's production numbers are not yet available from the state group.

Clearwater officials said they hope to bring out as many facts on Indian Point as possible at a more technical meeting they're putting together for April 25. The meeting will be held near the plant.

## **Clearwater Conducts "Power Sail" To Discuss Indian Point (MIDHUD)**

Mid-Hudson News, April 8, 2011

Hudson River Sloop Clearwater, the organization, assembled environmentalists, scientists, public officials and students to take to the Hudson River aboard their famed schooner Clearwater and discuss the Indian Point nuclear power plant and alternative forms of energy production.

The sail was full of visual imagery as the boat passed in front of the nuclear plant as song and discussion continued.

Clearwater Executive Director Jeff Rumpf noted the nuclear plant disaster in Japan is what brought the Indian Point safety issue to the surface.

"There is a tragedy unfolding in Japan and we feel and we respect the horrors that are going on over there," he said. "Coming here today is related to that. There are real risks associated with Indian Point. Many of these risks are not even being considered by the NRC."

Speakers including representatives from the Lamont-Doherty-Earth Institute, environmental groups, and former Congressman John Hall.

Among the concerns expressed were the possibility of earthquake and the 10 mile radius evacuation zone around Indian Point.

## **No Raised Radiation Found In NJ Air, Milk Samples (AP)**

Associated Press, April 8, 2011

Samples of milk, air and rainwater in New Jersey show no sign of elevated radiation from the Japan nuclear disaster, the state's top environmental official said Wednesday.

Environmental Protection Commissioner Bob Martin said milk samples taken last week show no signs of elevated radiation. He said preliminary air samples show trace amounts of radioactivity, but at levels far below those considered hazardous to human health. Samples of precipitation show trace amounts of Iodine-131, but not enough to cause concern, he said.

"We're seeing virtually nothing right now - we've tested the water, we've tested the milk, and we're testing rainwater," Martin said. "In rainwater, we're seeing mere traces."

He said he does not expect the situation to worsen.

Martin was among five environment and security experts to testify at a briefing on nuclear power plant safety and emergency preparedness at the Statehouse on Wednesday.

The most densely populated state has four nuclear reactors, including Oyster Creek, the nation's oldest. Two of the reactors, Oyster Creek in Ocean County and Hope Creek in Salem County, are a similar design to two of the damaged Japanese reactors.

[Read All Comments](#)

Martin and Charles McKenna, director of the state Homeland Security office, said it would be nearly impossible for a nuclear accident similar to the one unfolding in Japan to happen in New Jersey. That's because New Jersey doesn't experience earthquakes nearly as powerful as the quake that hit Japan; the state does not experience tsunamis; and its four nuclear power plants are built with sturdier backups than the reactors of similar design in Japan, the officials said.

New Jersey gets about half its electricity from nuclear power.

The biggest threat to New Jersey's nuclear generating plants is hurricanes, the officials said.

Still, the officials said there are lessons to be learned from the Japan disaster.

Gov. Chris Christie has convened a task force to review safety and emergency response plans.

Federal nuclear regulators are considering expanding planning requirements for evacuation from the current 10-mile radius to 25 or even 50 miles in wake of the Japan crisis, McKenna said.

Those proposals are in the preliminary stages, however, and may not be deemed necessary, Martin said.

Assemblyman John McKeon, a South Orange Democrat who chairs the Assembly environmental committee, wondered how it would be possible to evacuate large numbers of summer tourists from Long Beach Island in the event of a nuclear accident.

McKenna said it's often better to advise residents to stay indoors until a radiation cloud passes, so a large-scale evacuation wouldn't be necessary.

New Jersey officials also said it's time to renew cooperation with neighboring states operating nuclear facilities near the New Jersey border. New York's Indian Point nuclear plant is 15 miles from New Jersey and Pennsylvania's Limerick Nuclear Power Plant is 25 miles from the New Jersey state line.

## **Group Wants To Slow Down Nuclear (WUNC)**

By Dave DeWitt

WUNC-Radio, April 8, 2011

Environmental groups are urging the Nuclear Regulatory Commission to reconsider approval of a new design for nuclear power plants in North and South Carolina. The AP-1000 Oversight Group filed a petition with the NRC. The group argues that the AP-1000 reactor design is flawed and should not be used at Shearon-Harris and other sites. John Runkle is the attorney for the group.

John Runkle: What's troublesome to us is the NRC seems poised on approving reactor designs that have not been fully reviewed nor fully resolved. And importantly do not reflect what we know and what we will learn about the Fukushima accident.

The AP-1000 is designed by Westinghouse and uses a different process for cooling and backup power than the reactors in Japan. The NRC is reviewing the new design and may decide on its use by the end of the year.

## **Tiny Bit Of Radiation From Japan's Nuclear Plant Reaches Kansas; Officials Say Residents' Health Not At Risk / LJWorld.com (LJW)**

By Scott Rothschild

Lawrence Journal World, April 8, 2011

State officials said Thursday that "minuscule" levels of radiation from the damaged nuclear power plant in Japan have been detected in Kansas but posed no health threat.

"We understand the concern Kansans may have," said Lt. Gov. Jeff Colyer, who is also a surgeon. "What we are seeing is a minuscule blip on the meter. The consensus remains from international, national and state health experts that this does not pose a health risk to Kansans," said Colyer.

The magnitude-9.0 earthquake and ensuing tsunami that struck Japan on March 11 started a nuclear crisis at the Fukushima Dai-ichi facility. Explosions rocked two reactor buildings resulting in the release of dangerous nuclear radiation.

The Environmental Protection Agency, Nuclear Regulatory Commission, and other federal agencies in the United States have been monitoring the situation.

The Kansas Department of Health and Environment conducts a wide variety of soil, air, water, vegetation and animal life samplings on a weekly and quarterly basis.

KDHE Secretary Robert Moser, who also is a physician, said the elevated levels of radiation in the United States, including Kansas, were expected.

"While these levels are well below any need for public concern, we are working with county health departments in case Kansans have any questions," said Moser. "We will also continue to monitor our state's environment and report future spikes in these levels if they were to occur," he said.

Kansas Agriculture Secretary Dale Rodman said the Kansas food supply is safe and secure.

The Food and Drug Administration and US Department of Agriculture has been working on the situation with the Japanese government to ensure imported food is safe to eat, officials said.

Officials advised Kansans against taking potassium iodide, which can block radioactive iodine. Potassium iodide is only appropriate when one is close to an incident at a nuclear facility, they said.

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## **Kansas Officials Say Radiation From Damaged Japanese Nuclear Reactors Is 'Minuscule' In State (AP)**

Associated Press, April 8, 2011

Kansas officials say environmental testing has detected minimal levels of radiation from Japanese nuclear reactors damaged by last month's earthquake and tsunami.

But they stressed Thursday that the radiation doesn't represent a health hazard.

Lt. Gov. Jeff Colyer, who's a surgeon, said while Kansans may be concerned, tests show only what he called a minuscule blip in readings for radioactive iodine.

The Kansas Department of Health and Environment has been regularly testing soil, air, water, plants and animals. Federal agencies, including the Environmental Protection Agency and the Nuclear Regulatory Commission, also have been monitoring radiation levels.

Kansas Agriculture Secretary Dale Rodman said the state's food supply is safe.

## **Small Amounts Of Japan Radiation Reaches Kansas (KAKE)**

KAKE-TV Wichita (KS), April 8, 2011

Recent state environmental samplings have detected miniscule levels of iodine-131 in Kansas from the Japanese nuclear reactors in Fukushima Dai-ichi. According to the Environmental Protection Agency (EPA), the Nuclear Regulatory Commission (NRC) and other federal agencies, these types of findings are being found all across the country and are far below levels of human health concern, including for infants and children.

Lt. Governor Jeff Colyer, M.D. stressed there is no anticipated health threat to the US or Kansas.

"We understand the concern Kansans may have. What we are seeing is a miniscule blip on the meter. The consensus remains from international, national and state health experts that this does not pose a health risk to Kansans," said Lt. Gov. Colyer. "Along with the EPA, NRC and other federal agencies, we have been monitoring the situation from the beginning and expected to eventually see some evidence of slightly increased radiation levels in the United States. We will continue to monitor the situation and keep Kansans informed."

The Kansas Department of Health and Environment (KDHE) conducts a wide variety of environmental samplings on a weekly and quarterly basis. They include soil, air, water, vegetation and animal life.

"In Kansas, we remain at no risk for any adverse affects from the current situation," said Dr. Robert Moser, secretary of KDHE. "The miniscule traces of radiation found are equal to what the health and environment regulators in surrounding states are seeing."

According to radiation experts with KDHE and EPA, all of us are exposed to natural radiation on a daily basis. Elevated levels of radioactive material in the US have been expected as a result of the nuclear incident in Japan since radiation is known to travel in the atmosphere.

"While these levels are well below any need for public concern, we are working with county health departments in case Kansans have any questions," said Moser. "We will also continue to monitor our state's environment and report future spikes in these levels if they were to occur."

Kansans are still advised against taking potassium iodide (also called KI) pills in response to the nuclear incident in Japan. Generally, KI is only issued to emergency responders and nuclear power plant workers who must work in close proximity to a radiological release or are likely to receive a higher than normal exposure to radioactive iodine. Consumption of KI can lead to harmful side effects if not taken properly.

KDHE will continue monitoring the environment and will notify the public as pertinent information becomes available.

"The Kansas food supply is safe and secure," said Kansas Secretary of Agriculture Dale Rodman. "We continue to work with our state and federal partners to monitor the safety of our food supply."

Maj. Gen. (KS) Lee Tafanelli, the adjutant general and director of the Kansas Division of Emergency Management, said that KDEM will continue to monitor the situation and coordinate all information with its partner state agencies.

"Our mission is to ensure the safety of Kansans," said Tafanelli. "In this situation, the best way for us to do that is provide the public with accurate information. At this time, there is no cause for concern and that is not expected to change. We are diligently monitoring the situation and will provide updates should anything new develop."

The state of Kansas prepares and conducts exercises for disaster response routinely and recently updated its Kansas Response Plan. It details how state agencies respond to emergencies in the state to assist local governments and coordinate with federal agencies, should federal assistance be needed. The document is available for the public at [http://kansastag.ks.gov/AdvHTML\\_doc\\_upload/2011%20Final%20Plan.pdf](http://kansastag.ks.gov/AdvHTML_doc_upload/2011%20Final%20Plan.pdf)

There is one nuclear plant in Kansas, Wolf Creek Nuclear Generating Station near Burlington in Coffey County. A plant in Nebraska, Cooper Nuclear, is within 50 miles of the Kansas-Nebraska border. The state of Kansas works closely with Wolf Creek and Cooper to ensure that all possible precautions are taken to protect the health and safety of the public.

Wolf Creek was designed to withstand the effects of earthquakes, tornadoes and other disasters. The plant was also designed with multiple safety systems to ensure it can be shut down safely. The state conducts several exercises with Wolf Creek and Coffey County each year to test emergency plans regarding the plant under different disaster scenarios.

Any updates to the FAQs will be posted on the [www.KsReady.gov](http://www.KsReady.gov) Website.

Additional information may be found at the Environmental Protection Agency Website <http://www.epa.gov> and the Food and Drug Administration Website.

## **NRC Says NFS safe And Secure, But More Work To Do (JOHNSCP)**

By Brad Hicks

Johnson City (TN) Press, April 8, 2011

ERWIN — Although officials with the Nuclear Regulatory Commission said there are still areas in need of improvement, the NRC has found operations at Nuclear Fuel Services were conducted in a “safe and secure” manner during 2010.

NFS and NRC officials met Thursday evening at the Unicoi County Courthouse to discuss the findings of the NRC’s Licensee Performance Review. This review covered a period from Jan. 7-Dec. 31, 2010, and looked at several items, including safety operations, safeguards and radiological controls at NFS. Anthony Gody with the NRC said the LPRs are compiled using data from public reports and are used to develop items to be addressed by the NRC and its licensees.

“NFS is currently operating in a safe and secure manner,” the NRC’s Leonard Wert said of the LPR’s conclusions. “However, continued improvement is needed in the areas of safety operations and facility support.”

Gody said while NFS has demonstrated improvement in the area of safety operations, he said two items mentioned in a confirmatory action letter issued by the NRC to NFS on Jan. 7, 2010, which outlined measures to be implemented by NFS prior to the restarting of several process lines voluntarily halted in December 2009, have not adequately been addressed and that the area of safety operations as a whole requires continued focus from the NRC and NFS.

As an example of an NRC finding in this area, Gody said NFS had failed to conduct a complete “root cause analysis” on a bowl-cleaning incident that occurred in the fall of 2009. This incident resulted in an unexpected increase in the rate of a chemical reaction and led to some piping damage at NFS. No one was injured in the incident.

“We will not make a decision that this area no longer needs improvement until the licensee demonstrates that they are able to sustain high-quality performance for a period of time,” Gody said. “In other words, they have to demonstrate sustainability of their corrective actions.”

In the area of Facility Support, which includes the evaluation of the safety culture at NFS, Gody again said the NRC has seen improvements. He said many of the improvements have not had the time to be considered sustainable.

“Until we see results for an extended duration, this area will continue to be an area needing improvement,” he said.

Gody said other areas evaluated in the LPR — safeguards, radiological control and special topics — were in need of no improvements.

The NRC plans to take several actions in 2011, including inspection of items that remain open from the CAL, and will follow up on a confirmatory order issued last fall regarding inaccurate information provided to the NRC by a former NFS employee that dealt with fire damper inspections at NFS.

Recently named NFS President Joe Henry said a number of programs and measures have been implemented at the plant to continue safety improvements, and he said NFS officials and staff will continue to work toward further enhancing safety at the facility.

“In my short time at NFS, I am convinced that what we have is good people at NFS doing vital work for the nation with a strong commitment to do it safely and securely,” he said.

Though most of the previously halted process lines have received NRC approval to resume operations, the uranium hexafluoride line has not. Henry said there have been a number of modifications to this line and NFS, along with an independent review team, is currently conducting a readiness restart assessment on the line. Once satisfied with the line, Henry said NFS will ask the NRC to conduct its own readiness restart assessment on the line.

Though the NRC stated in a letter to NFS officials that NFS operated safely and protected public health and the environment during the LPR period, some used the public comments portion of Thursday’s meeting to question safety improvements made by NFS.

Greene County resident Park Overall said there were nine violations during the LPR period, including issues dealing with fire control, management and personnel.

“I shudder to think about the highly enriched uranium on my property,” she said to NRC officials. “... I’ve been coming to these meetings for four years and everybody’s doing better. ... It doesn’t help my property and it doesn’t help the sick people. When do you really intend to bring this place into compliance?”

Barbara O’Neal said the community has been exposed to hazardous effluence coming from stacks at NFS for more than 50 years.

NFS has contended that the facility operates well within regulatory limits.

## **Meeting Becomes A Public Evaluation Of NRC Supervision (TRICIT)**

By George Jackson

[TriCities.com](http://TriCities.com), April 7, 2011

ERWIN, Tenn. – The Nuclear Regulatory Commission held a public meeting on Thursday night to review safety inspections at Nuclear Fuel Services.

The Erwin plant shut down in October of 2009 to address safety concerns. Several processing lines reopened last summer and the plant is under new management.

The NRC said NFS improved performance in 2010 but needs to address operational and safety concerns. They also criticized NFS management.

Retired Rear Admiral Joseph Henry was appointed president by the NFS Board of Directors in January. He said NFS now has a 200-man security team and more on-floor supervision.

"One system process we have not started back up yet is the uranium hexafluoride processing line," Henry said. "Once we're satisfied that we are on the right path, we'll ask the NRC to come in, inspect us, and give approval to start that line back up."

Speakers from Erwin and other cities in East Tennessee were not impressed with Henry or the NRC. They think the 2009 shutdown was a slap on the wrist.

## **Nuclear Regulatory Commission Hosting Public Meeting Tonight (WCYB)**

WCYB-TV Bristol, VA, April 7, 2011

Nuclear Regulatory Commission representatives will be in Erwin tonight to talk about performance and safety of Nuclear Fuel Services.

They're hosting a public meeting at 6:30 p.m. On the second floor of the Unicoi County Courthouse.

The NRC assessed NFS all of last year for a licensee performance review.

They'll be on hand to present that information and to answer any questions you have.

## **TVA Board To Discuss Nuclear Safety At Meeting In Chattanooga On Thursday (CHATNOOG)**

The Chattanooga (TN), April 7, 2011

The TVA board will discuss the topic of nuclear safety at a meeting in Chattanooga next Thursday.

Items on the agenda include a nuclear safety review and a report of the nuclear oversight committee.

The panel will also discuss the future of the Bellefonte Nuclear Plant, which has long been moth-balled.

The meeting begins at 8:30 a.m. at TVA's Chattanooga Office Complex, 1101 Market St.

Members of the public wanting to address the board must pre-register at TVA's website online or sign in prior to the start of the meeting.

The agenda includes:

Chairman's Report

A. Welcome

B. Nuclear Safety Review

Old Business

Approval of minutes of Feb. 18, 2011, board meeting

New Business

1. President's Report

2. Selection of Chairman

3. Integrated Resource Plan

4. TVA Environmental Future and Implementing Agreements

5. Report of the Nuclear Oversight Committee

6. Report of the Audit, Risk, and Regulation Committee

A. Board's Role as Regulator

7. Report of the Customer and External Relations Committee

8. Report of the People and Performance Committee

9. Report of the Finance, Rates, and Portfolio Committee

A. Valley Investment Initiative - Eligibility Pilot Program

B. Power Contracts

C. Transformer Contracts

D. Bellefonte Nuclear Plant - Extension of Decision and Budget

E. Coal Combustion Product Process Conversions

## **TVA Delays Decision On Bellefonte Due To Japan (AP)**

Associated Press, April 8, 2011

SCOTTSBORO, Ala. (AP) – The Tennessee Valley Authority has delayed giving the go-ahead on a reactor at its Bellefonte Nuclear Plant in northeast Alabama, due to the emergency situation at a plant in Japan.

TVA President and CEO Tom Kilgore told The Daily Sentinel in Scottsboro that the utility's board will not be asked at its April 14 meeting to approve completing the reactor.

Kilgore said Wednesday the "good news is we're not stopping" on Bellefonte.

The indefinite delay will not affect about 500 workers who are at the site doing engineering work.

Kilgore said the tentative startup date for the facility is still in the 2018-2019 timeframe.

Kilgore said TVA will learn from Japan's ongoing situation with leaking reactors since an earthquake and tsunami.

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## **TVA Studying Use Of Mixed-oxide Nuclear Fuel (REU)**

By Eileen O'Grady

Reuters, April 8, 2011

Full-text stories from Reuters currently cannot be included in this document. You may, however, click the link above to access the story.

## **Unit 2 In Louisa County Scrams Have Reactor In Regulatory Response Category (CENTVA)**

By Irene Luck

Central Virginian, April 8, 2011

The North Anna Nuclear Power Station received an overall positive assessment from the Nuclear Regulatory Commission for 2010 with Unit 2 receiving a "white" indicator in one area.

During the past year, Unit 2 experienced four unplanned "scrams" or unanticipated shutdowns of the reactor, a higher than acceptable level, according to James Reece, NRC Senior Resident Inspector at North Anna. Two of the automatic shutdowns were the result of lightning strikes, however, the power plant is designed to be able to continue operating despite those incidents and the failure to maintain operations was an unpredicted event. The other two shutdowns were the results of non-nuclear system failures during what was anticipated to be routine testing of the equipment, Reece summarized.

"These individual incidents were investigated by plant staff as well as the NRC and have been corrected," Reece said. "Both units are now operating in the licensee response matrix [lowest regulatory action] as of January."

Of the 104 reactors nationwide, nine fell into the "regulatory response" category based on unexplained occurrences. Of those, only two remained in the category as of the annual briefing Monday, Apr. 4, including North Anna's Unit 2. It was the only Dominion-owned operating unit to fall into that classification.

While the focus of the meeting was the annual NRC assessment of the power station, the approximately 25 citizens in attendance had many questions related to nuclear energy in general given the situation in Japan. Several representatives of the NRC were in attendance at the meeting in anticipation of the concerns and questions and provided as many answers in as much depth as they were able.

"In response to what has happened in Japan, we will be re-evaluating each of our power stations this year to make sure they all meet the commitments we have..."

To read the entire story, see this week's The Central Virginian now available on newsstands.

## **Surry County Residents Assured Of Safety Of Nuclear Plant (NWPRTNWZ)**

Newport News (VA) Daily Press, April 8, 2011

SURRY —

Safety was the hot topic during a public meeting Wednesday in Surry about nuclear safety.

Residents who live near the Surry Power Station expressed concerns about safety at the public meeting.

Officials from the US Nuclear Regulatory Commission tried to dispel safety concerns residents had due to the recent earthquake, tsunami and nuclear disaster in northeast Japan.

"It was a perfect storm" of events, said Roger Hannah with the commission. "Lessons can be learned from Japan."

"All nuclear plants (built in the US) are designed to withstand natural phenomena," he said.

Many of the near 20 people who attended asked about safety and evacuation route concerns.

"Nuclear is not perfect ... but in relative terms, most people here are fairly comfortable with the nuclear plant here," said resident Betsy Shepard.

According to Dominion's website, the Surry Power Station, which was the company's first nuclear station, generates 1,598 megawatts of electric power from its two nuclear reactors — enough electricity to power 400,000 homes.

Unit 1 began commercial operation in December 1972 and Unit 2 began operating in May 1973.

Both reactors have a potential life expectancy of 60 years. The plant recently had its license extended through 2012.

A recently completed inspection by the NRC found that both units "operated in a manner that preserved public health and safety and met all cornerstone objectives," said Gerald McCoy with the commission in a recent letter to plant officials.

NOTE: Comments area is for meaningful discussion. Readers are reminded to post comments that are germane to the article and write in a common language that steers clear of personal attacks and/or vulgarities. Readers may report comments by clicking report abuse. Once a comment has been flagged, a Daily Press staffer will investigate.

## **Patrick, Murray, DeLeo Want To Delay Pilgrim Re-Licensing (WBUR)**

By Fred Thys

WBUR-FM Boston, April 8, 2011

BOSTON — Gov. Deval Patrick, Senate President Therese Murray and House Speaker Robert DeLeo are asking the US Nuclear Regulatory Commission to delay re-licensing of the Pilgrim Nuclear Power Plant in Plymouth. The three say they want to wait until "we can all be sure that we have learned what we need to from the experience in Japan."

Officials from Entergy, the company that runs Pilgrim, defended the safety of their plant at a hearing at the State House Wednesday.

The Pilgrim plant is in Murray's district. She pointed out that it sits atop a bluff.

This is the first time since the tsunami in Japan that officials from Entergy have come out in public to defend the Pilgrim plant.

"But will it sustain, can it sustain a storm surge?" Murray asked. "It has in the past. Can it happen in the future as it ages?"

Murray said five years ago, the town's Nuclear Matters Committee asked where the wind would go if there is a release of radiation.

"They said: 'We check with the Weather Channel,'" Murray said. "That doesn't make me feel very good. I would like to see some ongoing monitoring in the direction of the wind. Prevailing winds change. If there is a release, is it going to Duxbury, or is going to go up towards the Boston area? Or is it going to go down to the Cape? We should know things like that. The biggest issue: the on-site storage of spent fuels."

Questions about a storm surge and where the wind might blow if there is ever a release of radioactivity from the plant went unanswered. But officials from Entergy did point out many ways in which they say an accident like the one in Japan couldn't happen here.

This is the first time since the tsunami in Japan that officials from Entergy have come out in public to defend the Pilgrim plant. They listed the differences: In Japan, the cooling systems stopped working when the power went out. Bob Smith, Entergy's vice president in charge of Pilgrim, said that could not happen in Plymouth because there is a backup system to the backup systems.

"We've installed a third diesel generator," Smith said, "separate and remote from the existing emergency diesel generators."

At the Fukushima plant in Japan, the fuel tanks for the backup diesel generators were destroyed by the tsunami. Smith said that couldn't happen at Pilgrim.

"Our fuel tanks are secured and below ground," Smith said.

Smith said Pilgrim's outer containment vessel couldn't blow up the way it did at Fukushima. At Pilgrim, any radioactive steam that built up would be released right through the smokestack and into the atmosphere.

"We installed hardened systems at our facility to allow bypassing of the secondary containment and go right to the stack," Smith said.

Smith did answer that biggest question asked by Murray, the one about storage of spent fuels at Plymouth. Entergy is building dry storage for the spent fuel at the site so that starting in 2014, they can begin taking fuel rods out of the pools they are in now.

The plant's current license expires in 2012. Company officials say they've spent the last five years working on renewing the license. It's not clear if a letter from the state's three top elected officials asking for a delay will make any difference.

## **State Officials Caught Off Guard By Pilgrim's Storage Plans (QPL)**

By Nancy Reardon Stewart

Quincy (MA) Patriot Ledger, April 8, 2011

State officials pushing for safer nuclear-waste storage at the Pilgrim plant got surprise news from corporate executives in charge of the facility.

Two weeks after state officials began pressing for changes and writing to federal officials to ask that they step in, Entergy Corp. executives revealed that they already plan to start transferring waste to dry storage by 2014.

The news caught lawmakers off guard during a nearly five-hour oversight hearing on the safety of nuclear plants in and near Massachusetts. Plant officials spoke last, after members of watchdog groups, nuclear experts and state officials working in health, public safety and environmental issues.

Entergy officials delivered their news after several people testified that a dry-storage system should be made a priority.

"They've never said anything about it," said Dave Falcone, spokesman for Senate President Therese Murray, whose district includes the Pilgrim plant.

Murray, who was not present when Entergy officials spoke, briefly attended the hearing earlier to speak about the urgency of requiring dry-cask storage at the plant, which has stored its spent fuel assemblies in pools of water since it opened in 1972.

This "wet" storage system has come under scrutiny for the problems it has caused Japanese officials trying to bring the Fukushima Dai-ichi plant under control in the aftermath of the March 11 earthquake and tsunami in Japan.

Asked if Murray had any idea that a plan for dry storage was already in place, Falcone, her spokesman, said, "If they have a plan, we'd like to hear about it."

Murray and Attorney General Martha Coakley have been vocal in recent weeks on the need for dry-cask storage at Pilgrim; they say it is much safer for the public and the environment than wet storage. They wrote to federal officials and the chairman of the Nuclear Regulatory Commission last week, strongly urging them to make dry storage a condition for the plant to be licensed for another 20 years. Its current operating license expires next year.

State Sen. Marc Pacheco, D-Taunton, chaired the oversight hearing. Afterward, he said Entergy's dry-storage plan "was news to me, ...and I don't think anyone else on the panel was aware of it."

The oversight panel included four legislative committees dealing with energy, the environment, health and public safety.

What wasn't clear Wednesday night is whether Entergy's plans for dry storage meet the safety requirements of the system Coakley, Murray and others have been calling for.

Coakley spokesman Corey Welford could not answer that question when reached Wednesday after the hearing, which lasted until nearly 7 p.m.

Michael Balduzzi, Entergy CEO for the company's Northeast region, said Entergy is investing \$65 million in the project to cover the capital costs and unload the first fuel rods.

Asked why the company is doing it now, he said it had no choice. It is running out of room in the current "wet" storage pools, he said.

"We're not going to have any more room in that pool, and we want to operate our plant for 20 more years," Balduzzi said.

The Vermont Yankee plant in Vernon, Vt., just over the Massachusetts border, is also owned by Entergy. It began moving its spent fuel rods into dry-cask storage in 2008.

Officials including Murray, Gov. Deval Patrick and House Speaker Robert DeLeo are still pushing for more information. While they have no authority over the power plant, which is under the jurisdiction of the federal Nuclear Regulatory Commission, they want safety concerns addressed before a 20-year license extension is granted to Pilgrim.

State Rep. James Cantwell, D-Marshfield, who attended the hearing, said the issue is important to him because the plant is 10 miles from his district.

Despite Wednesday's news, the state should push for a written agreement with Entergy about its long-term plans for dry storage as a condition of its re-licensing, Cantwell said.

## **Events Don't Sway Gibson On Nuclear Power (POSTSTAR)**

**Column**

By Will Doolittle

Post Star (Glens Fall, NY), April 8, 2011

Events in Japan of the last month would seem to cry out for a reassessment by Congressman Chris Gibson of his cheerleading for nuclear power.

But he has not wavered, despite nature's unfortunate timing.

He has shown the fortitude of consistency in the face of changing circumstances, standing his ground despite the recent tsunami of bad news.

Who could have predicted that, right after he launched a push to put a nuclear plant in his own district, one of the world's worst nuclear emergencies would begin?

Chris Gibson still stands tall for the possibilities of nuclear energy, never mind nay-saying earthquakes trying to knock him down.

While headlines around the world cry of the dangers of radiation poisoning the air and water in Japan, he has insisted on the necessity of alternative energy production, starting with nuclear.

Did you know the March 11 earthquake in Japan was about 1,000 times more powerful than the one that hit Kobe, Japan, in 1995 and ripped gaps in roads, brought down buildings and killed 6,000 people?

No one thought a quake as massive as the one on March 11 - the fourth-largest earthquake ever recorded - would occur where it did.

Two months ago, it would have been absurd to suggest the worst earthquake ever to hit Japan would strike offshore and send a tsunami at the Fukushima nuclear power plant that would sweep over its seawalls, incapacitate it and cripple its emergency systems.

Now, you might worry that, if a nuclear plant is built on the Hudson, spring rains could fall for a month straight and the river swell to 30 feet over flood stage and inundate the reactors.

But that would be absurd.

Chris Gibson doesn't deal in absurdities, nor allow crazy realities to obscure practical considerations.

He sticks to likelihoods, even when reality goes its own way by staging one-in-a-million events.

At Fukushima, the backup to the backup systems failed.

Perhaps our plant would have backups to the backups backing up the backups.

Chris Gibson believes we will be able to think of the eventualities that could blow up the plant, and plan for them. If you can't plan for them, they aren't worth thinking about - that's what Chris Gibson thinks.

Let others melt down in the face of bad timing and bad luck. Chris Gibson soldiers on.

Will Doolittle is projects editor of The Post-Star. He may be reached at [will@poststar.com](mailto:will@poststar.com) and followed on Twitter at [@trafficstatic](https://twitter.com/trafficstatic).

## **Radiation Protection Tablets Distributed In Del. (AP)**

Associated Press, April 8, 2011

MIDDLETOWN, Del. - April 7, 2011— Emergency management officials in Delaware say about 1,500 doses of potassium iodide have been distributed to residents who live within 10 miles of the Salem/Hope Creek nuclear power plant in New Jersey.

The pills were distributed Wednesday at the volunteer fire department in Middletown. They can protect the thyroid gland from radioactive iodine, which a plant may release in an emergency.

The tablets are distributed annually in the fall. But officials set up a second distribution after the earthquake and tsunami in Japan, which damaged one of Japan's nuclear power plants and resulted in radiation leaks.

More than 39,000 people in Delaware live or work within 10 miles of the plant.

The tablets are good for five to seven years.

## **Delawareans Stockpile Radiation Pills (NEWSJO)**

By Jeff Montgomery

News Journal (Wilmington, DE), April 7, 2011

MIDDLETOWN — Townsend-area newcomer Cheryl Falkowski was one of the first in line here Wednesday for the latest distribution of pills used to stock radiation emergency kits in homes and businesses near the Salem-Hope Creek nuclear complex.

"I went early to make sure that I didn't miss it," said Falkowski, who moved to the area from Bucks County, Pa., in January. "When we moved in, I knew that we were supposed to get potassium iodide, but I had no idea what else I was supposed to do."

Continuing news about the unfolding nuclear crisis in northern Japan added to the concern, Falkowski said after picking up enough potassium iodide tablets for her husband and three children. She got them at an event sponsored by the Delaware Emergency Management Agency and Division of Public Health.

At least four of six reactors at Japan's Fukushima complex were badly damaged and released large amounts of radiation to the air, soil and water after they were slammed by a monster earthquake and tsunami last month. Radiation from the still

uncontrolled plant disaster recently was measured in nearby seawater at 1 million times the accepted limit, while air samples as far away as Tennessee detected evidence of the release.

Agency spokeswoman Roseann Pack said state officials scheduled Wednesday's distribution partly as a result of elevated public interest in the issue and after noting a significant population inside Salem-Hope Creek's 10-mile evacuation planning zone.

The 2010 Census counted about 41,000 Delaware residents inside the 10-mile circle, twice the number recorded 10 years ago, Pack said. Some of those new residents may not yet have secured a supply of pills that can block the body's uptake of radioactive iodine, a common radiation hazard in the event of a reactor leak.

Others, she added, could benefit from public education and readiness materials available at the pill distribution, inside Middletown's Volunteer Hose Company station.

More than 700 people turned out, and more than 1,500 adult and child doses were handed out, the state said.

(Page 2 of 2)

Tara Dalik, who lives near Odessa, picked up tablets to replace a mail-order supply she received five years ago after moving to Delaware.

"We can see the power plant from our backyard," Dalik said as daughters Molly, 10, and Erin, 6, stood nearby. "They call it 'the cloud machine' because of the steam that comes out of the tower.

"We try to stay on top of it – I keep pills in each car just in case, in the glove box, and some at home. We moved in from out of state, and we read about it, but it didn't deter us from coming here."

DEMA held its daylong public information effort as debate continued around the country over the safety of nuclear power and the wisdom of adding new generations of reactors.

In a report released Wednesday, the Union of Concerned Scientists cited Nuclear Regulatory Commission documents that they believe show NRC analysts' concern about the reliability of a study of reactor accident consequences. During that study, some NRC analysts questioned the ability of some American reactors to avert severe damage under scenarios that involve problems seen in Japan.

The NRC study has focused in part on the Peach Bottom reactors in York County, Pa., a plant with a 50-mile planning zone that takes in 561,000 Delaware residents. Two reactors there, owned by Exelon, are boiling-water reactors similar to designs used in Japan.

Senior reactor analysts familiar with the battery backup and recovery systems at Peach Bottom, the UCS said, "apparently do not have faith in the effectiveness of the very ... measures that the NRC and nuclear industry officials are touting as a reason why the United States is better prepared to deal with a Fukushima-like event than Japan."

The Nuclear Energy Institute disputed the UCS claims, and said NRC officials already have said the unfinished report shows that reactor accidents are likely to be smaller and less sudden than previously forecast, releasing radiation more slowly.

In Middletown, William and Dolores Fachet were philosophical after picking up their tablets. The Fachets, who moved to Stonefield south of Odessa from Chicago eight years ago, said consistently bad weather prevented them from spotting Salem-Hope Creek on the horizon until they were driving home from settling on their new home.

"It's a little more real now. We've always been conscious of it since then, but now it seems like we need to do our part and prepare ourselves, at least," William Fachet said. "It's there, and now we have these [pills]. When we were coming out, Dolores said, 'It protects your thyroid, so at least that's one part of your body that's taken care of.'"

"The rest you can kiss goodbye," Dolores Fachet added.

## **The Santa Barbara Independent Political Fallout Hits Diablo Canyon (INDEPEND)**

By Nick Welsh

Santa Barbara (CA) Independent, April 8, 2011

Trace amounts of radioactive iodine, presumably fallout from the ongoing nuclear nightmare at Japan's Fukushima plants, have been found in milk produced by dairy cows owned by Cal Poly in San Luis Obispo, but in quantities 5,000 times less than federal safety standards. State officials have tested the milk for years based on the herd's proximity to the Diablo Canyon nuclear plant just outside Avila Beach, and, until the Fukushima catastrophe, no radioactive readings had registered. In the meantime, officials with PG&E, which owns the Diablo Canyon plant, announced that Reactor Number Two had been placed back in service after being shut down for a week because of electrical problems afflicting a feed water pump that serves a nonnuclear portion of the plant and which ultimately delivers water to the plant's steam generators.

Ongoing struggles to contain radioactivity spilling from the Japanese nuclear plants has reignited concern about the seismic vulnerability of Diablo Canyon, built just off the coast from two earthquake faults. Last week, Congressmember Lois Capps spoke on the phone with Nuclear Regulatory Commission (NRC) chair Greg Jaczko, urging him to suspend Diablo Canyon's relicensing

application pending the results from a high-energy 3-d seismic study on the new fault discovered in 2008, located 300-600 yards off the coast from Diablo Canyon. Capps has been joined in this demand by the San Luis Obispo County Board of Supervisors and State Senator Sam Blakeslee, a Republican who represents the district. Opposing her on this score is Congressmember Kevin McCarthy, a politically influential Republican who represents portions of San Luis Obispo County, and State Assemblymember Katcho Achadjian, a former member of the SLO Board of Supervisors.

To date, PG&E and the NRC have declined to put off relicensing efforts in deference to new seismic studies. Both groups have insisted that new seismic information is the subject of constant reevaluation, and falls outside the purview of the relicensing process. Although Diablo Canyon's twin reactors don't expire for another 13 years, PG&E officials insist they need to launch the relicensing process so that California energy regulators plan for the state's future energy needs with reliable information. The seismic studies would take three years to complete. A Capps spokesperson questioned PG&E's motivations, noting that owners of the San Onofre Nuclear Power Plant have yet to take steps to relicense its generators, even though its licenses expire sooner than Diablo Canyon's. Likewise, San Onofre has already pledged to launch new seismic studies.

## **Officials May Seek Diablo License Delay (SLOT)**

By David Sneed

San Luis Obispo (CA) Tribune, April 8, 2011

As promised, county supervisors Tuesday will vote whether to send a letter to PG&E asking it to suspend the relicensing of Diablo Canyon nuclear power plant until seismic studies have been completed and verified.

The letter was put on the agenda by Supervisor Adam Hill, whose district includes the power plant. Approval of the letter is considered all but certain given that a majority of the board has already expressed support for it.

Addressed to PG&E President Chris Johns, the letter says that staying license renewal would be a good way for the utility to restore the trust of the community. The letter cites an interview Johns gave The Tribune shortly after the earthquake and nuclear disaster in Japan in which he admitted that the company needs to "earn its customers' trust."

"We can think of no better way to do so in our county than to agree to our request," summarizes the letter. "In doing so, PG&E would help to allay many concerns, rebuild customer confidence and show that indeed safety is of the utmost importance."

PG&E and the federal Nuclear Regulatory Commission have insisted that license renewal and the seismic studies can proceed concurrently. If approved, license renewal would extend the operating lives of the plant's two reactors to 2044 and 2045.

PG&E will hold an open house from 4 to 7 p.m., Wednesday at the South County Regional Center in Arroyo Grande to answer the public's questions about seismic safety and other issues at Diablo Canyon.

## **California Earthquakes, Tsunamis Vary: California Earthquakes, Tsunamis Vary North And South (HARTC)**

**Column**

By Robert M. Thorson

Hartford (CT) Courant, April 8, 2011

Has the recent disaster in Japan made you jittery about large earthquakes and tsunamis? Are your family and friends waiting for the next "Big One" somewhere along the US Pacific Coast?

If you're concerned about earthquake magnitude and tsunami potential, then I suggest you focus your thoughts northward, away from central and southern California to the coasts of Washington, Oregon and northern California. In this region, coastal salt marshes contain compelling geological evidence of seven large tsunami-generating, mega-thrust earthquakes within the past 3,500 years — or one every 400 to 600 years.

The last one struck in 1700, and was so strong it was recorded in Japan. This was more than a century before the American discovery expedition of Lewis & Clark, which is why so few people are aware that megaquakes are a very real concern in this region. The next one is due at any moment.

If, however, your concern for the Big One involves the potential for death and destruction, then I suggest you keep your thoughts in central and southern California, where the earthquakes are smaller, but where the threat is higher. Here, the problem is mostly about human population and infrastructure investment, both of which are roughly an order of magnitude higher than in the north. Additionally, large cities are built in basins directly above faults rather than at distant removes, and a pair of nuclear reactors — Diablo Canyon and San Onofre — bracket Los Angeles.

Within the past few weeks, dozens of people have asked me about the Fukushima disaster in Japan and its implication for the United States. Few people appear to understand the pronounced contrast in tectonic style between the northern and

southern parts of the US Pacific Coast. Confusion between these two regions — especially with respect to Japan — is generating undue anxiety.

To the north, the oceanic plate is being stuffed eastward beneath the edge of the North American continental plate. This is a fairly regular and predictable process in which the offshore boundary becomes locked by friction and the plates flex while strain accumulates, until finally the bond breaks. This allows the oceanic plate to lurch downward, only to be locked once again.

Because the slip takes place over such a large area, the magnitudes are consistently very high and the vibrations are strong and long-lasting. Because fault slip takes place beneath the sea, a large tsunami is generated. Because the plate slides downward, it melts to produce the volcanic arc of the Cascades, the namesake for what geologists call this region, Cascadia.

To the south, in central and southern California, the oceanic plate slides sideways and northward with respect to North America along a great shear zone more than a hundred miles wide. Within it are slivers and blocks of continental crust that are being squeezed, rotated, folded and up-thrust in a complex array. Between each sliver and block is an onshore fault rising to or near the land surface.

Here, the main hazard is not a mega-magnitude, but the proximity of tens of millions of people to shallow faults capable of producing earthquakes between magnitudes 6 and 8. The tsunami threat is minimal.

In Cascadia and northern Japan, coherent crustal slabs slide against one another. There, the main unknowns involve the location and size of tearing events on a local rupture. In California, however, tearing events occur on different faults, all of which interact in complex ways. Though there has been tremendous progress in earthquake preparedness and forecasting in California, the chaotic properties of this system make short-term prediction an impossible dream.

What is your seismic psychology? Would you prefer to live with astonishing displays of power at infrequent intervals? Or would you rather take your chances with more frequent events of lower strength? But, then again, perhaps you are like me, preferring to stay out of trouble here in the land of steady tectonic habits. The geographic choice is yours.

Robert M. Thorson is a professor of geology at the University of Connecticut's College of Liberal Arts and Sciences and a member of The Courant's Place Board of Contributors. His column appears every other Thursday. He can be reached at [proffthorson@yahoo.com](mailto:proffthorson@yahoo.com).

## **Diablo Canyon For Dummies (SLATE)**

**Slate's online video magazine**

[Slate V](#), April 8, 2011

Wondering why the California nuclear power plant was built near two fault lines. The Diablo Canyon nuclear power plant in California was built near two fault lines. Illustrator Steve Brodner wonders just what were they thinking in this episode of "Smashing Crayons."

## **Japan Disaster Complicates Moves To Clean Energy (AP)**

[Associated Press](#), April 8, 2011

BANGKOK (AP) — Worldwide calls to curb nuclear power amid Japan's plant crisis could be bad news for the fight against global warming — unless nations finally go all-out to tap wind, solar and other clean, renewable energy, climate change negotiators and activists say.

If countries scrap nuclear plants, which emit no greenhouse gases blamed for global warming, they may turn to the fossil fuels that experts call the main culprit behind climate change. Environmental activists say the tragedy could provide an opportunity to strike a decisive blow against both.

"It's a false choice to give the public an alternative between a climate change disaster or a nuclear disaster. We need renewable energy," said Tove Maria Ryding of the environmental group Greenpeace. "Now, we can either have a kick back or a leap forward."

Christiana Figueres, the U.N.'s top climate change official, said that all countries are reviewing nuclear policies in the wake of Japan's crisis.

"It remains to be seen what they decide," she said at a 173-nation conference running through Friday in Bangkok. The gathering aims to build on a climate summit held last December in Cancun, Mexico.

Figueres and others are concerned that pledges made by governments to reduce greenhouse gas emissions so far equal only 60 percent of what scientists say is required by 2020 to keep temperatures from rising more than 2 degrees Celsius (3.8 F) above preindustrial levels.

A swing back to fossil fuels presumably would worsen the effects of climate change, which many scientists say causes a melting of polar ice caps and glaciers, a rise in sea levels and extreme weather.

Before a tsunami ravaged Japan's Fukushima Dai-ichi nuclear complex last month, the Paris-based International Energy Agency had estimated that nuclear plants would add 360 gigawatts of generating capacity to the global inventory by 2035.

After the accident, that projection has been cut in half, agency chief economist Fatih Birol said, citing the pressure to halt new nuclear plants and phase out older ones sooner than planned.

The gap is likely to be filled equally by renewable energy, coal and gas. The result will mean an additional 5 percent — or 500 million tons — of carbon dioxide emitted globally by 2035, Birol said in an interview.

"The doors are fast closing on the 2-degree target, and with a decrease in nuclear energy it makes it even more difficult," Birol said. "It's all bad news — cost of energy will increase, energy security and diversification decrease and carbon emission will go up."

Experts wonder whether countries really will slash nuclear power as much as their initial reactions to the Fukushima tragedy suggest, and if so, whether they will speed toward renewables or simply burn more coal.

Ryding said she is concerned that several governments, already backtracking on earlier pledges to reduce emissions, may use Fukushima as an argument to do even less.

Birol of the IEA, which advises governments on energy policy, says some world leaders may have been "too abrupt" in moving away from nuclear energy in wake of the Japanese disaster.

"When we have all the input from Fukushima, I am sure that policy makers will take another look, especially given the big economic stakes," he says.

The scene is hardly uniform around the globe, where there are currently 507 nuclear power plants in operation or under construction and where oil, coal and gas still provide the bulk of energy in most countries.

In Japan, climate negotiators expect a greater, short-term reliance on fossil fuels to fill the nuclear power gap and are concerned the country could reduce its pledge to cut emissions by 2020 — from 25 percent down to 20 percent.

But Prime Minister Naoto Kan said alternative new energy would become "a major pillar" after the Fukushima accident.

"Taking this as a lesson, we will lead the world in clean energy such as solar and biomass, as we take a step toward resurrection," he told lawmakers last week.

China, the world's no. 1 emitter of greenhouse gases, has ambitious plans to move away from coal plants that provide 70 percent of its energy and go toward clean alternatives. It may also scale back its nuclear program in light of the Japan emergency, Chinese climate envoy Xie Zhenhua said.

"I believe this accident will have some impact on the development of nuclear power not only in China, but also the rest of the world," he told reporters in Australia last week.

US President Barack Obama has defended nuclear energy, but also strongly supports development of solar cells, clean coal and biofuel technology.

The most dramatic developments are likely to occur in Western Europe. Germany had planned to phase out nuclear power over 25 years. But the Fukushima crisis — which Chancellor Angela Merkel called a "catastrophe of apocalyptic dimensions" — has accelerated those plans.

The government almost immediately took seven of its 17 reactors offline for three months of safety checks. Most of Germany's leaders now seem determined to swiftly abolish nuclear power, possibly by 2020, and are willing to pay for intensive development of renewable energy, already a major industry in Germany.

The country currently gets 23 percent of its energy from nuclear power — about as much as the US. Germany's Environment Ministry says that in 10 years, renewable energy will account for 40 percent.

That kind of plan would not work for countries such as France, which relies on nuclear for 70 percent of its power and has no intention of shifting, but could provide a map for other countries, activists say.

Sven Teske, Greenpeace's renewable energy director, said Germany was able to fill its energy gap left by idled nuclear plants with wind and solar power, though it has had to import some energy from nuclear-reliant neighbors.

"Switching to renewable is a matter of years, not decades," Teske said.

The International Panel on Climate Change, a scientific body set up by the UN and winner of a Nobel Peace Prize, says a global phase-out of nuclear power plants is feasible at moderate costs and without taking away from climate change efforts.

Artur Runge-Metzger, a European Union climate change official in Bangkok, said the issue is often seen in terms of "two kinds of evils."

"On the one hand you say we can't use nuclear energy because we might have nuclear disasters, but everybody at the table is also saying if we have climate change it is also going to lead to disaster," he said. "So we have to find a way forward."

Associated Press reporters Mari Yamaguchi in Tokyo and Juergen Baetz in Berlin contributed to this report.

## **Why Japan's Nuke Disaster Could Upset US Energy Policy Assumptions (WSJ)**

By Russell Garland

Wall Street Journal, April 8, 2011

Full-text stories from the Wall Street Journal are available to Journal subscribers by clicking the link.

## **Japan Shows Need For Spent Fuel Storage (LVSJRJ)**

By TYRUS W. COBB

Las Vegas Review-Journal, April 8, 2011

Full-text stories from this source currently cannot be included in this document. You may, however, click the link above to access the story.

## **What Nuclear Power Really Costs (CAPECOD)**

By Lawrence Brown

Cape Code Times, April 8, 2011

In the last year, we've seen 5 million barrels of oil gush into the Gulf of Mexico for 86 straight days. We've seen coal miners die and others saved. Over and over we've been reminded that accidents happen, but only nuclear power has the capability to punish whole generations of Americans for a single mistake.

In many respects, we're in worse shape than Japan was prior to the quake. One-tenth of our population lives within 10 miles of a nuclear plant. There are 23 General Electric Mark 1 plants operating here identical to the ones currently failing in Japan.

First, since we have no national facility to store spent fuel rods, they're stored at the 104 nuclear plants across the country. American plants store far more rods than do their counterparts in Japan. Our nearby Pilgrim plant in Plymouth has some 3,000 spent fuel rods in storage — over five times what the facility was designed to hold.

As in Japan, we seem to have no emergency equipment or strategies worked out for when the unthinkable happens. Of the 26 states with nuclear power plants, their average "radiological preparedness" scores were 4.7 — of a possible 10.

The Japanese plants had backup generators, but they were not elevated above the worst-case tsunami elevation, so they drowned in the flood and could not be used to rescue the reactors.

Our reactors on the West Coast — most of them built right on top of massive fault lines — also have back-up generators, and they aren't elevated either. It was cheaper that way. Meanwhile, industry lobbyists have convinced the Nuclear Regulatory Commission to relax fire safety and cooling regulations to lower construction and operating costs. The NRC allows American plants to store spent rods "dense-packed" rather than in open racks that allow for better cooling.

The commonwealth of Massachusetts has been urging the NRC to consider alternative storage at the Pilgrim and Yankee plants since 2006, but the NRC concluded that further study was unnecessary because the risk of breach and subsequent fire was "insignificant."

In 2003, lobbyists successfully weakened regulations that would protect US plants from the hydrogen explosions we're now seeing in Japan.

Not only is our coastline vulnerable to storms, the Japanese crisis surely offers would-be terrorists food for thought — yet the NRC has decided not to require nuclear plants to be staffed with security personnel sufficiently well-armed to defend against a terrorist attack.

New York's Indian Point nuclear plant has over 20 million people living with 50 miles of it. It's estimated a meltdown would seriously if not fatally sicken thousands, with delayed cancer possibly killing several hundred thousand. The city of New York could be rendered uninhabitable. The NRC is sufficiently satisfied that 20 million people can evacuate the metro New York area, and it's poised to issue Indian Point a 20-year renewal.

It would make sense to create robotic machines capable of working in highly irradiated environments. In highly radioactive settings, only unmanned machines could enter, manipulate equipment, connect water pipes and pour concrete. Trained nuclear "SWAT teams" should be maintained in locations around the world, their expenses paid by the nuclear industry. It is hubris to adopt technologies for which no remedy exists when they fail.

Many private investors avoid nukes — the risks and costs are too high. New reactors cost \$10 billion, so new plants are built only where citizens and taxpayers are footing the bill. Congress has approved rich subsidies to support almost every aspect of nuclear power production, even "risk insurance" for utilities if regulation causes construction delays.

Several states have approved billing ratepayers for the costs of reactor construction, even if the plants never come online. Both parties are in on it, though Republicans, so vocally opposed to national debt, want bigger subsidies than the Democrats.

All energy production has social and environmental costs, but the old promises made when I was a boy — how the peaceful atom would rise like a genie out its electron shell and produce energy so cheap they wouldn't even bother to meter it — have all proved false. It's time to get out while we still can.

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## **Waste Isolation Pilot Plant Contractor Looking At Layoffs (REPUBCO)**

Republic (Columbus, IN), April 8, 2011

The contractor for the federal government's nuclear waste repository in southeastern New Mexico could cut as many as 90 jobs.

Washington TRU Solutions announced Wednesday it is restructuring its work force at the Waste Isolation Pilot Plant near Carlsbad.

The company's president, Farok Sharif, says it had planned to use attrition to help reduce staff levels.

Attrition had been running 6 percent to 8 percent annually, but that's dropped below 2 percent in the last two years.

Sharif says there are now more workers than the budget allows.

The company plans a voluntary separation program, followed by layoffs if necessary.

Company officials say a worst-case scenario could impact up to 90 people.

Sharif says the company also is looking at departmental budgets, overtime and other areas to save money.

## **Vit Plant Safety Attitude Concerns National Panel (TACOMA)**

By Annette Cary

Tacoma News Tribune, April 8, 2011

The Defense Nuclear Facilities Safety Board has concerns about the safety attitude of employees and management at the Hanford vitrification plant, board Chairman Peter Winokur said at a congressional hearing this week.

"We will be identifying them for the energy secretary" in the near future, he said at a hearing about safety oversight of Department of Energy nuclear defense facilities before the House Armed Services Strategic Forces Subcommittee.

Winokur also outlined the three key safety issues at the plant that the board believes require prompt resolution.

The \$12.2 billion plant is being built to turn much of the 53 million gallons of radioactive waste now held in underground tanks at Hanford into a stable glass form for disposal.

The board, which provides independent oversight of Hanford and other DOE defense sites, began an investigation of the vitrification plant's safety culture after Walt Tamosaitis, the former research and technology manager for the project, sent a letter in July. He believes he was dismissed from the project for raising concerns about future safe operations of the plant — claims contractor Bechtel National denies.

"The board believed he was a credible individual who had played a major role in the project," Winokur said at the hearing.

It also wanted to make sure that it heard the full story and that witnesses freely could speak at a hearing held in Kennewick in October to gather information about technical issues related to safe operation of the plant.

"Subsequent to that, we've identified other issues," Winokur said.

The crux of a strong safety culture is an empowered work force, he said. People must be comfortable raising concerns to management and be confident the messenger will not be shot, he said.

In addition, safety culture is driven by leadership, so the board also has looked at that, he said.

"The Department of Energy has a strong history and culture of safety in working with unique nuclear hazards and facilities," Shari Davenport, a DOE spokeswoman, said after the hearing. "We stand by our safety record and the nuclear safety culture of the department."

The board has been concerned about the vit plant's system to keep wastes mixed and moving through the processing system. The high-level radioactive waste is so hazardous that there can be no human access to the mixing tanks during the 40 years the plant operates, so the mixers have been designed without moving parts that would require maintenance.

But if the mixing system is ineffective, flammable gas could accumulate in the tanks and solids could build up on the bottom of tanks, posing a hazard of a nuclear criticality occurring, Winokur said in the written testimony he submitted.

DOE agreed at the October hearing to conduct large-scale testing to make sure the mixing issue is resolved, and the board has sent its recommendations on what should be required in the testing, Winokur said.

"DOE is developing a plan to implement the recommendations now, but it is not yet clear whether the plan will be fully responsive to the board's concerns," according to Winokur's written testimony.

The second technical issue of safety concern is a new control strategy for flammable gas in the plant's processing systems. DOE for the first time has used a quantitative risk analysis as a design tool, but it has no standards for controlling the assumptions that underpin the analysis, according to the written testimony.

The board hopes to see validation of the methodology this month that will convince members hydrogen-related issues in pipes and vessels of the plant will be appropriately addressed, Winokur said. However, if the approach cannot be shown to be adequate, the board will want active safety controls re-established.

The final issue will take longer to resolve. The board is concerned about the ability of the Hanford tank farm to supply waste that is compatible with the vitrification plant. The plant's mixers have limited ability to control the amount and size of solid particles in the waste.

It's an ongoing issue that will be addressed during the next couple of years as the vitrification plant project refines what waste it can accept and the tank farms continue to adjust, Winokur said.

"We have identified a path forward for the remaining three technical issues that will assure the safe design, construction and operation of the (vitrification) plant," Davenport said. DOE is planning to start operating the plant in 2019.

## **DOE: Additional Layoffs At SRS Not Needed (AP)**

By Tony Santaella

Associated Press, April 8, 2011

The US Department of Energy says additional layoffs aren't needed now at the Savannah River Site near Aiken.

The Aiken Standard reports Thursday that necessary restructuring at the former nuclear weapons complex can be done without costing additional jobs.

In December, the company that manages the site said nearly 1,100 employees would be laid off in two phases between January and August of this year. That's on top of more than 300 Savannah River Nuclear Solutions employees who opted to leave voluntarily.

Work at the site that once produced plutonium and tritium for atomic bombs is now focused mostly on research and environmental cleanup.

The site received about \$1.6 billion in federal stimulus cash that funded 1,000 jobs. Those are not included among the 1,400 jobs being eliminated.

## **INTERNATIONAL NUCLEAR NEWS:**

### **Strongest Aftershock Since Japan Tsunami Kills 2 (AP)**

By Jay Alabaster And Tomoko A. Hosaka, Associated Press

Associated Press, April 8, 2011

SENDAI, Japan – A strong aftershock ripped through northeastern Japan, killing two, injuring dozens and piling misery on a region still buried under the rubble of last month's devastating tsunami.

The quake late Thursday was the strongest tremor since the March 11 jumbo and did some damage, but it did not generate a tsunami and appeared to have spared the area's nuclear power plants. The Fukushima Dai-ichi complex — where workers have been frantically trying to cool overheated reactors since they lost cooling systems last month — reported no new abnormalities. Other facilities retained a connection to the grid or switched to diesel generators after the 7.1-magnitude quake knocked out power to much of the area.

Many people in the area have lived without water and electricity for nearly a month, and the latest tremor sunk more homes into blackness: In total, around 3.6 million households — about 60 percent of residents in the area — were dark Friday, said Souta Nozu, a spokesman for Tohoku Electric Power Co., which serves northern Japan.

Five conventional plants in the area were out, and it was not clear when power would be restored, he said.

Matsuko Ito, who has been living in a shelter in the small northeastern city of Natori since the tsunami, said there's no getting used to the terror of being awoken by shaking.

"I was almost as scared as much as last time," said the 64-year-old while smoking a cigarette outside. "It's enough."

She said she started screaming when the quake struck around 11:30 p.m.

"Something has changed," she said. "The world feels strange now. Even the way the clouds move isn't right."

Thursday's quake initiated a tsunami warning of its own, but it was later canceled. Two people were killed, fire department spokesman Junichi Sawada reported Friday. A 79-year-old man died of shock and a woman in her 60s was killed when power was cut to her oxygen tank. More than 130 people were injured, according to the national police agency.

The temblor's epicenter was in about the same location as the original 9.0-magnitude tremor, off the eastern coast and about 40 miles (65 kilometers) from Sendai, an industrial city on the eastern coast, according to the US Geological Survey. It was strong enough to shake buildings for about a minute as far away as Tokyo, about 200 miles (330 kilometers) away.

At a Toyota dealership in Sendai, most of a two-story show window was shattered, and thick shards of glass were heaped in front of the building. Items fell off store shelves and a large automated teller machine crept across the floor at a FamilyMart convenience store.

Police directed cars through intersections throughout the city on Friday because traffic lights were out. Small electrical fires were reported.

While the city is far enough inland that it largely escaped tsunami damage, people there lived without regular services for weeks. Within an hour of Thursday's quake, they rushed convenience stores and cleared shelves of ice, water and instant noodles — items that were in short supply after the bigger quake.

The operator of the tsunami-ravaged Fukushima Dai-ichi plant said there was no sign the aftershock had caused new problems there. Workers briefly retreated to a quake-resistant shelter in the complex and suffered no injuries.

After the March 11 quake knocked out power in the region, the wave flooded the plant's diesel generators, leaving the complex without any electricity. Workers have been struggling to stem a tide of radiation since, using makeshift methods to pump cooling water into the reactors. That work continued uninterrupted after the latest quake, according to Japan's Nuclear and Industrial Safety Agency.

Other facilities along the northeastern coast remained connected to a power source Friday, and the agency said they were all under control. Backup generators kicked in at two — Rokkasho and Higashidori.

At a third north of Sendai — which has been shut down since the tsunami — one of three power lines was supplying electricity, and radiation monitoring devices detected no abnormalities. The Onagawa power plant's spent fuel pools briefly lost cooling capacity, but it resumed because a power line was available for electricity.

"It's the way it's supposed to work if power is lost for any reason," said David Lochbaum, director of the nuclear safety project for the US-based Union of Concerned Scientists.

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Associated Press writers Shino Yuasa, Malcolm Foster, Ryan Nakashima, Mari Yamaguchi and Cara Rubinsky in Tokyo and Colleen Slevin in Denver contributed to this report.

## **Japan Hit By 7.1 Quake; Workers Evacuated From Fukushima (BLOOM)**

By Tsuyoshi Inajima And Michio Nakayama

Bloomberg News, April 8, 2011

Japan suffered the biggest aftershock since the day of the March 11 earthquake, prompting the operator of the stricken Fukushima nuclear plant to evacuate workers while they were cooling radioactive fuel.

The magnitude-7.1 temblor struck at 11:32 p.m. local time yesterday near the site of last month's record quake in Japan, the US Geological Survey reported on its website. No unusual conditions were observed at the Fukushima plant, according to statements from Tokyo Electric Power Co. and Japan's Nuclear and Industrial Safety Agency.

"Indications of new leakage or a change in radiation levels will be the only way they'll tell if there's further damage," Murray Jennix, a nuclear engineer who specialized in radioactive containment leaks and teaches at San Diego State University, said in a telephone interview. "You've got cracks that could have been made bigger."

Two people died and 93 were injured from yesterday's quake, the Fire and Disaster Management Agency said, as more than 3.6 million households lost power. Tokyo Electric, the operator of the Fukushima Dai-ichi plant 220 kilometers (137 miles) north of Tokyo, evacuated 15 workers who were pumping nitrogen into the No. 1 reactor to prevent hydrogen explosions of the type that damaged radiation containment buildings last month.

Work at Fukushima wasn't affected by the quake, Tokyo Electric spokesman Takashi Kurita said by telephone today. There have been no signs of changes in radiation levels or damage at the plant, he said.

Tepco, as the utility is known, started injecting nitrogen, the most prevalent inert gas in the atmosphere, into the reactor early yesterday and the process may take six days, spokesman Yoshinori Mori said before the aftershock.

Shares of Tepco rose 3.8 percent to 353 yen as of 10:48 a.m. Tokyo time. The stock has slumped 86 percent since the quake on March 11.

"They are manually injecting nitrogen through a very narrow pipe," Tadashi Narabayashi, a professor of nuclear engineering at Hokkaido University in northern Japan, said by phone yesterday. "High radiation levels in the building are also making it difficult as workers have to keep rotating."

Tepco is still using emergency pumps to cool the reactors and pools holding spent fuel, almost four weeks after the initial disaster. Three blasts damaged reactor buildings and hurled radiation into the air last month.

Tohoku Electric Power Co., the main power supplier to Japan's north, restarted its No. 2 350-megawatt oil-fired unit at the Akita plant this morning, spokesman Kazuya Sugawara said by telephone today. Five units at three of its thermal power plants remain shut after the aftershock, he said.

Tohoku Electric also restored power at its Higashidori nuclear power plant in northern Japan this morning, Sugawara said. Cooling systems at the utility's Onagawa nuclear station, which was safely shut down after the March 11 quake, were operating normally, Sugawara said. Two of three power lines remain disabled to the station, he said.

The Rokkasho nuclear material reprocessing facility lost its outside power source and is running on emergency diesel generation, Japan's Nuclear Industrial Safety Agency said.

East Japan Railway Co. (9020), the nation's largest rail operator, suspended bullet train services on three of its five lines. The train operator halted the Tohoku, Yamagata and Akita lines, according to a release on its website.

There have been 897 aftershocks since last month's temblor, which left more than 27,600 dead or missing and caused an estimated 25 trillion yen (\$294 billion) in damage.

The magnitude-7.1 temblor was measured at a depth of about 49 kilometers, the US Geological Survey reported on its website. A tsunami alert for a possible two-meter wave was canceled by Japan about two hours later. There was a magnitude-7.9 aftershock on March 11 about half an hour after the main quake, according to the USGS.

"It is tremendously smaller than the main shock," said Don Blakeman, a geophysicist in the US National Earthquake Information Center in Golden, Colorado. "The main shock caused about 80 times more ground movement."

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## **Two Killed, 100 Hurt In Japan Aftershock (AFP)**

By Hiroshi Hiyama

AFP, April 8, 2011

TOKYO (AFP) – A powerful aftershock that rocked an area of Japan still reeling from last month's earthquake and tsunami disaster killed two people and injured around 100, emergency services said Friday.

The Fire and Disaster Management Agency said a 63-year-old woman in Yamagata prefecture died after her respirator failed when the power was knocked out by the 7.1 magnitude tremor.

"Her respiratory equipment was found turned off. We believe the machine was turned off due to the outage," a spokesman for the agency said.

The agency said one person also died in Miyagi prefecture – the area worst hit by the 9.0 magnitude quake of March 11 and the tsunami it spawned.

Broadcaster NHK identified the Miyagi casualty as a 79-year-old man. It said he was found unconscious after the quake and taken to hospital, where he was confirmed dead.

The disaster management agency said at least 93 people were confirmed injured as of 9:30 am (0030 GMT) while Jiji Press said about 130 were injured.

Power remains off for about 3.6 million households in the northeastern region, Jiji said.

Workers battling to control the stricken Fukushima Daiichi nuclear plant on the northeast coast were temporarily ordered to evacuate, plant operator Tokyo Electric Power Co. (TEPCO) said.

The evacuation order came less than 24 hours after they began pumping nitrogen, an inert gas, into reactor No. 1, where engineers were concerned a build-up of hydrogen might react with oxygen to cause an explosion.

Work at the plant was remotely controlled and was continuing, the company said.

A TEPCO spokesman told a press conference there was "no information immediately indicating any abnormality at Fukushima Daiichi plant."

A nuclear safety agency official told reporters: "There are no abnormal readings at the Fukushima Daiichi's monitoring posts", adding: "We have not seen any problem... with regard to the injection of nitrogen."

The official said some external power sources used to cool reactor cores had been lost at plants in Onagawa in Miyagi prefecture and at Rokkasho and Higashidori in Aomori prefecture, but at least one emergency source remained operational at each.

The loss of external power sources at Fukushima Daiichi in the March 11 tsunami left reactor cores heating up uncontrollably, resulting in the world's worst nuclear emergency since Chernobyl.

There was no indication that Thursday's loss of power was causing a problem at any of the nuclear plants.

The tremor hit at 11:32 pm local time (1432 GMT) with an offshore epicentre 66 kilometres (40 miles) east of Sendai, a city severely impacted by the March 11 quake and tsunami, according to the US Geological Survey.

Japan's Meteorological Agency promptly issued a tsunami alert for the Pacific coast, saying waves of up to two metres (six feet) could hit the shoreline, but the alert was cancelled 83 minutes after the quake.

Footage from broadcaster NHK showed power was off in parts of Sendai, a regional commercial hub badly shaken last month's double disaster.

An AFP photographer in Kitakami city in Iwate prefecture reported that power had gone off following Thursday's quake.

Jiji Press news agency said shortly after midnight there were five fires and 13 gas leaks in Sendai city, according to the Miyagi prefectural office.

In Iwate prefecture, local authorities ordered some 500 households to evacuate, NHK said. The broadcaster also reported three fires in Iwate and Miyagi prefectures.

The quake had a depth of 49 kilometres, the USGS said. Although the epicentre was 330 kilometres from Tokyo, it shook buildings in the Japanese capital.

A Meteorological Agency official said the tremor was an aftershock of the March 11 tremor, and data on the organisation's website showed that it was one of the most powerful.

Around 400 strong aftershocks have rocked Japan since the 9.0 magnitude quake last month and the tsunami it spawned, which killed 12,500 people and left around 15,000 unaccounted for.

Before the tremor chief government spokesman Yukio Edano indicated Tokyo was considering widening the 20-kilometre (12-mile) evacuation zone around the stricken plant, a week after a UN nuclear watchdog said it should be increased.

"The existing safety standards for local residents are that an evacuation order is issued if there is a possibility that they might receive radiation 50 millisieverts or above," he said.

"The standard assumed that a high level of radiation is emitted temporarily. We are discussing how best to issue evacuation orders based on data and standards for accumulative radiation," Edano said.

Around 3,400 people are unaccounted for along the 40-kilometre stretch of coast covered by the exclusion zone and on Thursday, around 300 police began searching for bodies in the the outer 10-kilometre band of the zone.

Television pictures showed officers in full body suits entering the area, while a police spokesman said all officers were armed with radiation meters.

The Bank of Japan on Thursday warned of pressures as a result of the triple disaster and bolstered funding for quake-hit areas, unveiling a 1.0 trillion yen (\$11.7 billion) scheme to keep banks in affected areas liquid.

The BoJ also downgraded its view of the economy due to last month's disasters.

## **Powerful Aftershock Complicates Japan's Nuclear Efforts (NYT)**

By Hiroko Tabuchi And Andrew Pollack

New York Times, April 7, 2011

TOKYO — The strongest aftershock to hit since the day of the March 11 earthquake and tsunami in Japan rocked a wide section of the country's northeast Thursday night, prompting a tsunami alert, raising fears of further damage to the already crippled Fukushima Daiichi nuclear plant and knocking out external power at three other nuclear facilities.

The public broadcaster, NHK, said there were local reports of injuries, fires and blackouts. The aftershock had a magnitude of 7.1, according to the United States Geological Survey; last month's quake, which devastated much of the northeastern coast, was measured at 9.0.

The tsunami alert, which warned of waves up to three feet and possibly higher in some areas, was lifted after about an hour and a half and Japan's Meteorological Agency said no tsunami had been detected.

But it warned that slight changes in sea level were still possible and it was unclear whether there was any damage along the coast. Many coastal communities were ravaged last month, and some are vulnerable because sea walls were breached and land levels have sunk.

Workers at the Fukushima plant were told to take cover until the tsunami warning was lifted, but Japanese officials said at a news conference that water was being automatically pumped into three damaged reactors in the crucial effort to keep their nuclear fuel cool. The plant's cooling systems were knocked out by last month's quake and tsunami, and there was no immediate word of whether there was new damage to the plant, according to its operator, the Tokyo Electric Power Company.

Nitrogen also continued to be piped into the No. 1 reactor, the company said, in an effort to prevent a possible explosion. Tokyo Electric said it was unsure of the status of the damaged No. 4 reactor because it has not been able to station workers there.

Monitoring posts around the plant were not showing any rise in radiation levels, the company said.

Experts have said that a big aftershock poses an additional risk to the Fukushima plant because its containment structures are filled with water that was used in the cooling efforts and is now highly radioactive. The strain from holding that water could make the structures more vulnerable to rupture in the event of an earthquake, according to an assessment made by the United States Nuclear Regulatory Commission in late March.

Two other nuclear facilities — a fuel reprocessing plant at Rokkasho and a nuclear power plant at Higashidori, both in northern Aomori Prefecture — were running on emergency diesel generators after their external power supplies were knocked out by the aftershock.

A third site, the Onagawa nuclear power station in Miyagi Prefecture, lost two of its three external power systems. All three facilities have been shut down since the March 11 quake, but power is needed to keep the nuclear fuel cool.

The aftershock hit at 11:32 p.m. local time and was centered 41 miles east of Sendai, 72 miles from Fukushima and 205 miles from Tokyo, officials said. It was about 30 miles below the ocean floor, considerably deeper than March 11's magnitude 9.0 quake, which hit about 20 miles below the sea floor.

Thursday's aftershock was the strongest since the day of the March 11 quake, according to the United States Geological Survey. There have been hundreds of aftershocks since the initial quake.

Also on Thursday, the police searched for people missing in an evacuation zone around the Fukushima Daiichi plant.

Nearly 240 police officers from Tokyo and about 100 from Fukushima Prefecture fanned out wearing protective suits in a search for bodies in the 12-mile evacuation zone around the plant, according to Mikio Murakoshi, a spokesman for the Fukushima Prefecture police.

Japanese and American soldiers last weekend conducted a huge search for the missing but avoided the evacuation zone because of the radiation risk. But Mr. Murakoshi said radiation levels had dropped, making a search in the area possible.

The police say about 12,600 people have died as a result of the March 11 earthquake and tsunami. More than 14,700 are listed as missing, including about 4,200 in the evacuation zone around the Fukushima plant.

The magnitude 9.0 quake and tsunami flattened communities, has kept an estimated 160,000 still housed in temporary shelters and knocked out power at the Fukushima Daiichi plant, where workers have since battled to stabilize the reactors.

Raising new concerns about the plant, the United States Nuclear Regulatory Commission said that some of the core of the No. 2 reactor had probably leaked from its steel pressure vessel into the bottom of the containment structure. The assessment implied that the damage at the No. 2 unit was worse than previously believed.

The agency emphasized its interpretation was speculative and based on high radiation readings that Tokyo Electric had found in the lower part of unit No. 2's primary containment structure, called the drywell. The statement said that the commission "does not believe that the reactor vessel has given way, and we do believe practically all of the core remains in the vessel."

Linda L. Gunter, a spokeswoman for Tokyo Electric, dismissed the analysis, saying Thursday morning, "We believe the containment for the reactor is still functioning at Unit 2; however, the damage to the suppression pool may be the source of the radiation."

But a spokesman for the Nuclear and Industrial Safety Agency of Japan said that he was familiar with the Nuclear Regulatory Commission's statement and agreed that it was possible the core had leaked into the larger containment vessel.

The statement was issued after Representative Edward J. Markey, Democrat of Massachusetts, told a House hearing on Wednesday morning that the commission had told him that the core had melted through the vessel.

He based that on a question his staff had asked the agency. But the agency responded to him by e-mail on Tuesday without directly addressing possible melting, saying only that it speculated that "part of the Unit 2 core may be out of the reactor pressure vessel and may be in the lower space of the drywell." After the hearing, in response to numerous questions, the agency said that "there are possible leakage paths from the reactor vessel into the drywell."

It did not say whether the fuel was molten or solid. If molten fuel has left the reactor's pressure vessel and reached the drywell in substantial quantities, it raises the possibility that the fuel could escape the larger containment structure, leading to a large-scale radioactive release.

Some engineers have theorized that if a core melted down and concentrated at the bottom of the vessel it could melt through the vessel and then burn through the concrete of the foundation. One element of such an event would probably be a resumption of the nuclear chain reaction, in a molten mass in which no control would be possible because there would be no control rods to slide smoothly between neatly arrayed bundles of fuel.

Other experts say that a resumption of the chain reaction would be difficult or impossible with the type of fuel in use at Fukushima Daiichi.

But extremely radioactive material continues to ooze out of the reactor pressure vessel at Reactor 2, and the leak is likely to widen with time, a senior nuclear executive said.

"It's a little like pulling a thread out of your tie," he said. "Any breach gets bigger."

Flashes of extremely intense radioactivity have become a serious problem, he said. Tokyo Electric's difficulties in providing accurate information on radiation are not a result of software problems, as some Japanese officials have suggested, but stem from radiation damaging measurement instruments because it exceeds the maximum dose that they are designed to measure, he said.

"It's killing the measuring equipment," he said. "They're blaming it on software — it's their meters getting cooked."

Broken pieces of fuel rods have been found outside of Reactor 2, and are now being covered with bulldozers, he said. The broken pieces may be from spent fuel rods in the spent-fuel pools, as opposed to the reactors themselves. Hydrogen explosions have flung them out of the reactor building.

"They're running bulldozers around to bury the stuff so it doesn't cook people going by," he said.

Keith Bradsher contributed reporting from Hong Kong.

## **Aftershock In Japan Highlights Vulnerability Of Nuclear Network (WP)**

By Andrew Higgins And Chico Harlan

Washington Post, April 7, 2011

TOKYO — A powerful aftershock 16 miles off northeastern Japan late Thursday disrupted power supplies to two nuclear facilities and complicated efforts to contain a month-long emergency at a third, the Fukushima Daiichi nuclear power station.

The quake, which left tens of thousands of homes without power, struck an area still digging itself out from the wreckage left by a devastating tsunami on March 11.

Japanese television interrupted programming Thursday night to flash warnings of another tsunami, but the alert was later lifted.

The US Geological Survey estimated the quake's magnitude at 7.1, down from an initial estimate of 7.4, compared with 9.0 on March 11.

Broadcaster NHK reported scores of injuries.

Blackouts were seen throughout the northeastern coastak region of Honshu, Japan's main island, and two nuclear facilities lost much of their external power supply.

Electrical troubles at the Onagawa nuclear power station, north of Sendai, the region's biggest city, and a nuclear reprocessing plant farther north, near a US air base in Aomori prefecture, did not appear to pose any risk of catastrophic failure, as happened after the March 11 tsunami slammed into the Fukushima Daiichi nuclear plant.

But they highlighted the vulnerability of Japan's nuclear archipelago, a network of reactors and other facilities that have been a central pillar of the country's energy policy since the 1970s.

Seeking to calm a public traumatized by the debacle at the Fukushima Daiichi plant, Tetsuro Fukuyama, the deputy chief cabinet secretary, told a hastily convened late-night news conference that adequate power had been restored to both the Onagawa plant and the reprocessing facility, either from generators or from undamaged power lines, and that they pose no danger.

The quake came just hours after a rare bit of good news — a successful operation to avert a possible explosion at a crippled reactor at Fukushima Daiichi by injecting nitrogen. Earlier blasts at the six-reactor plant had led to the world's worst nuclear disaster since Chernobyl.

In Tokyo, 207 miles south of the epicenter of Thursday's quake, buildings swayed for more than a minute. Japan has experienced hundreds of aftershocks since the March 11 quake, but until Thursday none had exceeded a 6.6.

This aftershock was stronger than the 6.9-magnitude Kobe earthquake in 1995 that led to more than 5,000 deaths, with 310,000 evacuated to temporary shelters.

A spokesman for Tokyo Electric Power Co. said at a news conference that it had no information of any further damage to the Fukushima Daiichi plant and that Thursday's quake would not interrupt efforts to bring the facility under control. But the

temblor added another headache for workers engaged in an already highly risky and technically difficult operation to cool overheating and to plug leaks that have allowed radiation to seep into the air and sea — and that have led to the evacuation of more than 80,000 people at risk of contamination.

Japanese TV broadcast footage of of swaying newsrooms, toppled store shelves and burst pipes at Sendai railway station, which had only just started to operate again following the March 11 quake. One female newscaster reported updates wearing a hard hat.

The damage was nowhere near as severe that that caused by the March quake and tsunami, which killed more than 12,500 people, with nearly 15,000 still listed as missing. But it plunged the country back into a state of deep anxiety that, at least in areas undamaged last month, has been slowly beginning to lift.

The Onagawa plant, which is also being used as an evacuation center, stands on relatively high ground outside the town of the same name, a seaside community pulverized by the March 11 tsunami, which killed up to half the population. The Onagawa facility is operated by Tohoku Electric Power Co.

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## Japan Nuclear Crisis Ebbing, US Experts Say (LAT)

**Although the situation at the Fukushima Daiichi nuclear plant is far from stabilized, evidence suggests that a complete meltdown is unlikely, Obama administration experts say. Meanwhile, a 7.1 aftershock rattles Japan, killing two and injuring more than 1**

By Ralph Vartabedian

Los Angeles Times, April 8, 2011

Although the damaged Fukushima Daiichi nuclear power plant has not yet been stabilized, there is no evidence that overheating during the last month has resulted in any melting of the reactor vessels or their containment structures, Obama administration officials said Thursday.

If that assessment is correct, then significant additional releases of radioactivity into the environment will be limited, and emergency crews should have a far better chance of preventing further damage to the plant's reactors.

The assessment, provided to The Times on background, suggests that the plant is unlikely to suffer a complete meltdown, in which uranium fuel gets so hot that it melts through the bottom of the reactor and containment vessels, spewing high-level radiation into the plant's underlying foundation.

"We are a long way from a point where anybody would say this is stable," a senior administration official said. "But it is not a runaway. For a long time, we will be at a declining level of risk."

The conclusions by Obama administration experts appear more optimistic about the outcome at Fukushima than recent reports that have leaked out of the Nuclear Regulatory Commission, which have suggested that the situation is increasingly risky and dangerous.

Separately, the staff of the NRC came under heavy questioning Thursday by the Advisory Committee on Reactor Safeguards, a panel of outside experts, academics and nuclear industry officials that provides guidance to the agency.

At a committee meeting, NRC officials were asked about the scientific basis for their agency's advice that Americans evacuate a 50-mile zone around the plant. NRC officials said they couldn't provide an explanation and would have to get back to the committee.

NRC officials were unavailable for comment afterward.

Meanwhile, northern Japan was rattled by a 7.1 aftershock, the strongest since March 11, when the magnitude 9 earthquake and tsunami struck the region and set in motion the nuclear disaster at Fukushima.

Authorities blamed two deaths on Thursday's 11:30 p.m. earthquake, which triggered a new tsunami warning that was later canceled. A 79-year-old man died of shock, and a woman in her 60s perished when a power failure turned off her oxygen tank, Japanese media reports said. More than 130 people were injured, police said.

The operator of the battered nuclear plant said there were no indications that the aftershock caused any new problems or injuries there.

The information filtering out of Japan increasingly appears to be setting a boundary for the severity of the problem at Fukushima — though no doubt it is going to take years, if not decades, to remediate the damage already caused.

The most telling evidence about the condition of the reactors is the absence of heavy radionuclide contamination around the plant, which would indicate that uranium fuel became so overheated that it vaporized heavy fission products such as strontium and technetium, experts said.

Instead, the main contaminants have been isotopes of iodine and cesium, which are water soluble and are not held in the uranium fuel itself.

The Obama administration experts said it appears that three reactors could be leaking radioactive water and other contaminants into areas of the plant that should be free from radioactivity, although the cause of breaches is not yet known.

"We don't know how the containment failed," one expert said. "It is more of a leak than a massive rupture. There is an extremely low probability of a melt-through of the reactor vessel. There is no conclusive evidence of a melt-through."

Temperature gauges at the bottom of the reactor vessel recorded levels of 300 degrees Celsius, far below the 1,500-degree melting point of steel. Even if that level were reached, the experts said they are confident that water in the containment structure would have prevented any melt.

Instead of a melt-through, the experts said the leakage from the reactors might be coming through various pieces of equipment that enter the heavy-gauge steel reactor vessel, including mechanical systems that operate control rods or pipes.

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Times staff writer John M. Glionna in Tokyo contributed to this report.

## **Even As Disaster Unfolds, Plan Forms To Dismantle Reactors (NYT)**

By Ken Belson

New York Times, April 8, 2011

TOKYO — Hydrogen explosions. High levels of radiation. Thousands of gallons of contaminated water dumped into the sea. With the drumbeat of bad news, including another powerful aftershock on Thursday, it will take months, if not years, to stabilize the six reactors and spent fuel pools that were damaged in last month's earthquake and tsunami at the Fukushima Daiichi plant.

Yet it is not too soon for a team of engineers from Japan and the United States to begin working on the thorny task of how to dismantle the reactors, at least four of which are so badly damaged that the plant's operator has said they will be scrapped.

Already, dozens of engineers from Toshiba, which helped build four of the Fukushima Daiichi reactors, have been joined by experts from the United States to prepare for the decommissioning work, a job so big that the planning needs to start even now, in parallel with the efforts to contain the crisis.

The team includes experts from Westinghouse, whose majority owner is Toshiba; the Shaw Power Group, a civil engineering firm; and the Babcock & Wilcox Company, an energy technology and services company, one of whose specialties is the disposal of hazardous materials.

The plans to take apart the reactors are complicated not only by the volatility of the situation but also by the uncertainty about the reactors' condition once they finally cool. No one has ever decommissioned four damaged reactors at one power plant, let alone reactors rocked by a powerful earthquake and swamped by a tsunami.

In fact, no Japanese nuclear power plant has ever been entirely decommissioned, which is one reason Westinghouse and Babcock & Wilcox — companies that helped shut down the damaged reactor at Three Mile Island in Pennsylvania after the accident there in 1979 — have joined the effort.

Among myriad problems, the engineers must find ways to dispose of the fuel, remove reactors, demolish buildings, and clean up nearby land and water.

"Each of these problems is solvable and have been solved before," said Hiroshi Sakamoto, a senior vice president at Toshiba America Nuclear Energy Corporation, who returned to Japan to lead the team. (It has dubbed itself "Mt. Fuji," short for Management Support for Fukushima US and Japan Initiative.)

"The situation is really the complexity and combination of factors," he said.

While the team makes plans, 800 of Toshiba's engineers are helping the Tokyo Electric Power Company, which operates the Fukushima Daiichi plant, with the more pressing problem of cooling the reactors and reducing the radioactivity there. About 250 engineers are stationed in Fukushima, and an additional 500 are working at Toshiba's nuclear engineering center in Yokohama, Japan.

They are helping to re-establish electrical power to pumps and motors and to install power panels; draining contaminated water; and acquiring desalination equipment, underwater pumps and air purifiers to filter radioactive dust. Westinghouse has provided Tokyo Electric with boron, fuel, spare pumps and other supplies.

"We are taking a two-tier approach for Fukushima," said Kiyoshi Okamura, chief of Toshiba's nuclear business. "These efforts are mutually complementary."

Because of the emergency, Toshiba's engineers — those who are helping Tokyo Electric and those planning the decommissioning — are working without a formal contract. But the Japanese-American team submitted a proposal to Tokyo Electric on April 4 that lays out a long-term plan to remove and transfer spent fuel as part of a larger project.

Toshiba has not been told when a decision will be made on the proposal, which might ultimately be worth billions of dollars.

Westinghouse, Shaw and Babcock & Wilcox were eager to help when it became apparent early on that the Fukushima reactors might have to be scrapped. But the crisis made it difficult for Tokyo Electric to respond. By joining hands with Toshiba, the American companies won instant credibility and found a conduit to reach the utility.

"It was chaos at the beginning, so it helps to have Toshiba" as a partner, said Jack Allen, the president of Westinghouse in Asia.

Two weeks ago, engineers from the American companies started arriving in Japan, where they were briefed about the situation. They moved into a war room at Toshiba's headquarters that includes offices in a secure part of the building. The rooms are stuffed with desks, computers, whiteboards and dozens of engineers slumped over laptops.

One door is covered with business cards and a sheet that includes photographs of the engineers so that names can be more easily matched to faces. On the walls are aerial photographs and schematics of the Fukushima reactors, as well as charts and photographs from decommissioned reactors at Three Mile Island and the Maine Yankee nuclear power plant in Wiscasset, Me., which took eight years to shut down. Graphic illustrations of cranes and other equipment are taped to the walls.

A well-used coffee cart sits in the hallway. Soda cans and snacks share desk space with laptops. A mixture of Japanese and English fills the air.

Though it is still in its early days, the "Mt. Fuji" team has proposed installing devices around the Fukushima Daiichi plant to monitor radioactivity. It is weighing what machinery is needed, based on various scenarios, and will soon open an office in New York so that engineers there can take over when the team in Tokyo is asleep.

Most of all, the team is waiting for the engineers at Fukushima Daiichi to cool the reactors so it can begin work. "All things hinge," said David J. Richardson, a president at Babcock & Wilcox, "on having safe access."

## **IAEA: Signs Of Recovery At Fukushima Nuclear Plant -Kyodo (DJNews)**

Dow Jones Newswires, April 8, 2011

Full-text stories from the Wall Street Journal are available to Journal subscribers by clicking the link.

## **Japan's Stricken Nuclear Reactors Spared Damage From Latest 7.1 Earthquake (BLOOM)**

By Akiko Nishimae, Jim Polson And Ichiro Suzuki

Bloomberg News, April 8, 2011

A 7.1-magnitude earthquake minutes before midnight spared the stricken Fukushima Dai-ichi nuclear plant in Japan, although workers struggling to cool radioactive fuel were evacuated, Tokyo Electric Power Co. said based on its initial assessment.

The aftershock was the strongest since March 11 when a record 9-magnitude earthquake and tsunami devastated the coast of Northeast Japan. No unusual conditions were observed at the plant afterward, the utility, known as Tepco, and Japan's Nuclear and Industrial Safety Agency said in statements.

No unusual measurements of water level, pressure or other operations were found at the No. 3 and No. 4 reactors at the six-unit plant, Tepco officials told reporters today.

"Indications of new leakage or a change in radiation levels will be the only way they'll tell if there's further damage," Murray Jennix, a nuclear engineer who specialized in radioactive containment leaks and teaches at San Diego State University, said in a telephone interview. "You've got cracks that could have been made bigger."

Tepco said April 6 engineers had plugged a leak of radioactive water into the ocean from a pit near the No. 2 reactor after several failed attempts. Concentration of radioactive iodine in seawater near the reactor discharge pipe fell by half, to 140,000 times the regulatory limit, the company said yesterday.

"The main fear is more structural damage, leading to additional cracks or reopening of the fixed crack," Peter Hosemann, an assistant professor of nuclear engineering at the University of California at Berkeley, said in an e-mailed message. "Radioactivity can leak again if cracks open."

A day may be needed to detect additional damage at the plant, he said.

Crews at the crippled nuclear station north of Tokyo will continue pumping nitrogen into the No. 1 reactor to prevent hydrogen explosions of the type that damaged radiation containment buildings last month. Injection of nitrogen, the inert gas that comprises most of air, may take six days spokesman Yoshinori Mori said before today's quake.

"They are manually injecting nitrogen through a very narrow pipe," Tadashi Narabayashi, a professor of nuclear engineering at Hokkaido University in northern Japan, said by phone yesterday. "High radiation levels in the building are also making it difficult as workers have to keep rotating."

The March 11 tsunami flooded emergency generators at the Fukushima plant, triggering cooling-system failures at four of the plant's six nuclear units.

Tepco is still using emergency pumps to cool the reactors and pools holding spent fuel, almost four weeks after the initial disaster. Three blasts damaged reactor buildings and hurled radiation into the air last month.

About 3.64 million households in six Japanese prefectures were without power following the aftershock, Kyodo News reported, citing Tohoku Electric Power Co., which operates in seven prefectures.

The Rokkasho nuclear-fuel reprocessing plant and the Higashidori nuclear power plant lost power and were operating on backup diesel generators, the nuclear safety agency said today in a statement. Two of three power lines to the Onagawa nuclear power plant also were disabled, it said.

Five other power stations were shut down by the aftershock, broadcaster NHK reported, citing Tohoku Electric.

"What occurred today is an aftershock in the same area and rupture zone to the magnitude-9 main shock that occurred about a month ago," said Don Blakeman, a geophysicist in the US National Earthquake Information Center in Golden, Colorado. "It is tremendously smaller than the main shock. The main shock caused about 80 times more ground movement."

The 7.1 aftershock was the fourth of magnitude-7 or higher since the major quake on March 11, according to the Japanese Meteorological Agency. The largest measured 7.7, about 30 minutes after the record quake, according to the agency's website.

Police and fire officials reported the number of people injured in today's earthquake reached 82 as of 3:30 a.m. local time, public broadcaster NHK said on its website.

There have been 464 aftershocks of magnitude 5 or greater, counting today's, according to agency statistics.

More than 27,300 people are dead or missing after the initial natural disaster in northeastern Japan, according to the latest figures from the National Police Agency.

## **Japan Earthquake Today: Tsunami Warning Lifted, But Fukushima Evacuated (CSM)**

By Gavin Blair

[Christian Science Monitor](#), April 8, 2011

A magnitude 7.1 earthquake struck off the coast of Japan's Miyagi Prefecture – the region worst affected by the huge March 11 quake and tsunami – at 11:32 p.m. local time on Thursday. Evacuation orders were issued for hundreds of homes along the northeast coastline. Skip to next paragraph

Tsunami advisories were immediately issued, but were lifted approximately one hour later. The quake is the strongest of the hundreds of aftershocks that have shaken Japan since the magnitude 9.0 temblor on March 11. That earthquake caused a tsunami that destroyed thousands of homes, displaced nearly a half million people, and severely crimped the iconic fishing industry there.

The center of the earthquake was 40 kilometers below the seabed, about 60 miles east of the city of Sendai and about 90 miles from Fukushima, according to Japan's Meteorological Agency.

Tokyo Electric Power Company (Tepco) says that the quake hasn't caused any further damage to the Daiichi nuclear power plant and that all the workers have been temporarily evacuated from the facilities. There were no injuries reported.

Two out of three external power lines to the Onagawa nuclear power plant, 75 miles northeast of Fukushima and near the epicenter of Thursday's temblor, have been damaged, causing power loss. The plant, operated by Tohoku Electric Power, has been shut down since the March 11 quake and has been relying on external power to cool the reactors. Japan's Atomic Energy Agency said the two lost power lines were not being used for cooling when tonight's earthquake hit.

The Oshika Peninsula, on which the Onagawa plant is located, was also the closest part of the main Honshu island of Japan to the March 11 earthquake, which shifted the whole peninsula 27 feet to the southeast and sunk it 7 feet. The March 11 tsunami reached heights of 42.5 feet, just below the base of the nuclear plant.

The Meteorological Agency has said that no increased radiation levels have been detected around the plant.

Electricity blackouts have occurred across the northeast region and some highways have been closed.

The Tohoku, Joetsu, and Nagoya bullet train lines were stopped but were able to restart shortly afterwards. The lines closest to the earthquake had not resumed operations since March 11.

## **Tohoku Elec Onagawa Nuclear Plant Safe - Dep Chief Cabinet Sec (REU)**

By Chizu Nomiyama

Reuters, April 8, 2011

Full-text stories from Reuters currently cannot be included in this document. You may, however, click the link above to access the story.

## **Chernobyl Engineer, Carter Adviser Call For Atomic Enforcer (1) (BLOOM)**

By Yuriy Humber

Bloomberg News, April 8, 2011

Nuclear veterans including the chief engineer at Chernobyl and the adviser to US President Jimmy Carter on Three Mile Island are calling for a global regulator with authority to enforce safety standards.

Nikolai Steinberg, who worked at the Chernobyl nuclear plant when it suffered the world's worst nuclear disaster in 1986, and Harold Denton, a presidential adviser on the 1979 Three Mile Island accident, are part of a 16-person group from 11 nations that made an appeal to the United Nations this week.

The group, which also includes the former heads of the nuclear agencies in Germany and India, is calling for a united response on safety standards after the Fukushima nuclear plant disaster in Japan that began last month. China, India, Germany and the U.K. are postponing new plants as the Japanese station spews radiation that has carried around the globe, stoking public opinion against atomic energy.

"We won't survive another accident like this," Victor Murogov, a member of the group and former deputy director general of the UN's International Atomic Energy Agency, said by phone from Moscow. "We need to limit our national interests for the global good. The situation is no longer tolerable."

The IAEA monitors global policy without the power to enforce changes. National regulators accept IAEA guidance on a voluntary basis, according to the agency's website.

### **Emergency Equipment**

Almost a month after the March 11 earthquake and tsunami damaged the station at Tokyo Electric Power Co.'s Fukushima plant, workers are still using emergency equipment to try to cool the reactors. The plant operator did not prepare adequately for the quake and tsunami that disabled the cooling systems, Prime Minister Naoto Kan said last week.

The 40-year-old Fukushima plant was given approval by Japan's Nuclear and Industrial Safety Agency to keep running for another decade a month before the quake.

Seventy-two countries that signed the Convention on Nuclear Safety, drafted after the 1986 Chernobyl meltdown in Ukraine, are in Vienna this week for a triennial meeting. The 10-day closed-door event, during which Ukraine and Japan are scheduled to provide safety assessments, is hosted by the IAEA.

The group of industry veterans was set up two weeks ago to collate ideas and provide a public response to the situation in Japan, Murogov said. The aim is to lobby for change to prevent nuclear accidents and raise safety levels, he said. The statement will be presented to the US Nuclear Regulatory Commission and Department of Energy, as well as the IAEA.

### **International Rules**

IAEA Director General Yukiya Amano reiterated calls for more stringent international safety rules at an April 4 briefing in Vienna. The agency will convene in June a four-day ministerial meeting among its 151 member states to discuss new atomic safety measures.

Members of the 16-person ad hoc group delivered their five-page statement to IAEA's Amano yesterday and plan for a wider distribution among governments and industry players, Murogov said. The group hopes the statement, entitled "Never Again: An Essential Goal for Nuclear Safety," will initiate talks on implementing change in the industry by the June meeting of the IAEA, he said.

"There are signs that national and international safety assessments and peer review missions are becoming more focused on demonstrating that safety is satisfactory and in compliance with national and international standards than on finding and correcting deficiencies, be they in design, operation, or the standards themselves," according to the statement, a copy of which was e-mailed to Bloomberg News.

### **Could Have Avoided**

"Relatively inexpensive improvements detectable by more extensive analysis beforehand may have avoided" the world's worst nuclear accidents, the statement said.

The nuclear industry must enforce a standard level of education and training, allow countries to vet each other's regulation and plant operations, and have more thorough accident management plans, according to the group. Insurance premiums for nuclear power plant owners should be tied to plant safety track records, the statement said.

"Nuclear technology is global but all our regulation regimes are national," Murogov said. "Responsibility on a national level must rise."

## **Physicians Call For Nuclear Power Moratorium (Epoch)**

By Helena Zhu

The Epoch Times, April 8, 2011

As the nuclear crisis continues in Japan, Physicians for Global Survival are calling for a moratorium on new nuclear reactors in Canada and a suspension of operations at existing reactors on fault lines.

PGS said that unlike x-rays, which have little effect on human health due to their limited exposure, radioactive emissions from nuclear power plants expose entire populations and are "gifts that keep on giving."

"There is no safe level of radiation exposure," said Dr. Michael Dworkind, ex-president of PGS, in a press release.

"Only recently, scientists discovered that background natural radon was responsible for an estimated 20 percent of lung cancers in Canadians. The same scientists estimate that 20 percent of childhood leukemia occurs as a result of exposure to natural radiation."

According to the US National Academy of Sciences, any exposure, but especially long-term exposure, increases the risk of developing cancer.

The public health risk from a large radioactive release from Canadian reactors near densely populated areas around Toronto is substantial.

— Physicians for Global Survival

"Human fallibility being what it is, the only way to avoid nuclear accidents is to not build nuclear reactors," said Dr. Birkett, a long-time board member of PGS.

The organization stressed that medical treatment for radiation exposure is still limited. Among other radioactive isotopes, iodine-131 can cause thyroid cancer when absorbed through inhalation and ingestion. Yet iodine pills can only provide minimal protection against the absorption of iodine-131.

PGS is particularly concerned about a large radioactive release to densely populated areas and the financial effects of an accident.

"The public health risk from a large radioactive release from Canadian reactors near densely populated areas around Toronto is substantial," the release said.

The Ottawa-based organization is calling on the federal government and the Canadian Nuclear Safety Commission to immediately implement a moratorium on new nuclear reactor licensing and design certification, and to suspend operations at nuclear reactors on fault lines while a safety review is conducted.

The call comes just as a new nuclear project is proposed for Ontario. Ontario Power Generation is planning to build two new reactors at its Darlington generating station—a move welcomed by the Canadian Nuclear Association.

"This proposed project is a very important step in fulfilling Canada's growing energy demands," CNA president and CEO Denise Carpenter said in a release.

Carpenter said the new nuclear units would meet the Ontario government's commitment to maintaining nuclear power at 50 percent of the province's energy supply and provide jobs for up to 7,500 workers directly and indirectly across the province.

Even though Japan's Fukushima Daiichi nuclear power plant is presenting challenges to the global nuclear community, Canada's nuclear industry will apply lessons learned from Japan's experience, Carpenter said.

"At home and abroad, our industry is participating in discussions on lessons learned from this event and how to address any necessary changes required to enhance safety systems."

South of the border, President Barack Obama said last week that the US will continue to endorse nuclear energy, but future plants will be built based on lessons learned from Japan's crisis.

"Right now, America gets about one-fifth of our electricity from nuclear energy," Obama said at Georgetown University on March 30. "We can't simply take [nuclear power] off the table."

Obama has called for a comprehensive safety review by the Nuclear Regulatory Commission to make sure all domestic nuclear facilities are safe.

## **EDF Strike Cuts 18,000 Megawatts Of French Power Supply (BLOOM)**

By Tara Patel And Albertina Torsoli

Bloomberg News, April 7, 2011

A 24-hour strike by French energy workers over a possible threat to subsidized bills cut power nationwide by 18,000 megawatts, a union representative at Electricite de France SA said.

About 9,000 megawatts of the cuts were from 12 of EDF's nuclear plants, said Laurent Langlard, a member of the CGT union. EDF's press office didn't comment on the strike when contacted by Bloomberg News.

Workers are protesting against a move by management to scale back the size of the discount they receive on electricity and natural gas rates, Langlard said. EDF, which is 85 percent owned by the government, operates the country's 58 reactors.

EDF wants workers to pay taxes on their power bills rather than the current arrangement where they are treated as a perk on income tax forms, he said.

The power and gas discounts date to before World War II and employees are "attached" to them, Langlard said. Ending the discounts will help EDF meet future balance sheet provisions of as much as 2.3 billion euros (\$3.3 billion), he said.

Industry Minister Eric Besson told RMC Radio today that the discounted bills for EDF's current and former employees "weigh heavily on its costs."

It's not "abnormal" to suggest they should face higher bills, alongside the rest of the country, he said.

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## **Sarkozy Risks Brussels Meltdown (FT)**

By Peggy Hollinger, Paris

Financial Times, April 8, 2011

Full-text stories from the Financial Times are available to FT subscribers by clicking the link.

## **Dissident Group Says Iran Factory Really A Nuke Site (WP)**

By Joby Warrick

Washington Post, April 8, 2011

An Iranian opposition group claimed Thursday to have discovered the location of a secret factory that manufactures high-tech equipment for Iran's nuclear program, a facility the group says is disguised as a tool-making plant.

The National Council of Resistance of Iran said the alleged plant makes centrifuge parts for Iran's uranium enrichment program and is closely tied to Iran's Defense Ministry. The dissident group also claimed that Iran already has made components for 100,000 centrifuge machines, far more than is needed to supply the country's known uranium facilities.

"This is a clear indication that there are other secret sites out there, either undergoing construction or perhaps already completed," Alireza Jafarzadeh, a consultant and former spokesman for the NCRI, told reporters after unveiling satellite photos of the site 80 miles west of Tehran.

U.N. nuclear officials have long known that Iran is operating factories for centrifuge parts, but Iranian officials have never allowed visits by U.N. inspectors or even revealed the location of the facilities. Centrifuges are fast-spinning machines used to make enriched uranium, a key ingredient in both nuclear reactor fuel and nuclear weapons.

The opposition group identified a cluster of three buildings inside a small industrial park as Iran's main production center for centrifuge parts since 2006. The complex is dubbed "Taba," after a cutting-tool plant that once occupied the site, and is under heavy security, Jafarzadeh said.

He said some components for Taba were being manufactured at a nearby facility called Shahid Shafizadeh Industrial Complex, a subsidiary of the Iranian Defense Ministry's Aerospace Industries Organization.

Other than labeled satellite photos, the dissidents offered no evidence to back their claims. The NCRI and its operational wing — the Mujaheddin-e Khalq — have revealed the existence of other secret Iranian nuclear sites in the past, and the group was the first to publicly disclose the existence of Iran's underground uranium enrichment site at Natanz.

Jafarzadeh said the group has shared the new information with both the US government and the International Atomic Energy Agency, and he called on Iran to allow inspectors into the Taba facility to remove any doubt about the nature of the site. There was no immediate reaction to the NCRI's claim from US or U.N. officials.

"The easy way to verify this is to open the site to the IAEA so they can inspect it," he said.

Iran, which insists that its nuclear program is entirely peaceful, contends that it is not obligated under international treaties to open its centrifuge production facilities to outsiders for inspection.

About 9,000 centrifuges are currently installed at the Natanz facility, including about 1,000 machines that were rushed into production in the past two years to replace damaged equipment after a series of apparent cyber-attacks on Natanz.

## **Dissidents: Secret Factories Making Key Parts For Iran Nuclear Program (CSM)**

Christian Science Monitor, April 8, 2011

An Iranian dissident group with a track record of revealing secret sites involved in Iran's nuclear program on Thursday offered more information – this time, on industrial facilities where it says the Iranian regime is producing parts for the centrifuges used in its uranium enrichment program. Skip to next paragraph

Flanked by poster boards with aerial photos of the alleged sites northwest of Tehran, two members of the National Council of Resistance of Iran told a Washington audience that the two sites have produced as many as 100,000 centrifuges under the direction of Iran's Defense Ministry.

"The number of centrifuges is way beyond the needs of Tehran for its already-declared sites," said Alireza Jafarzadeh, a prominent Iranian dissident who is known for revealing the Natanz nuclear site in 2002.

For several years, the International Atomic Energy Agency (IAEA) has noted Iran's growing numbers of centrifuges – the machines used to produce low- and highly-enriched uranium – but has been stymied in its efforts to ascertain where and how the centrifuges were produced.

Iran has insisted it is under no obligations to divulge that information. Tehran also maintains that the Iran nuclear program is for peaceful purposes.

Mr. Jafarzadeh and Soona Samsami, an Iranian women's rights activist, said the two sites are located at what they called the TABA industrial site outside the city of Karaj and a site called Shafizadeh outside Qazvin. The two sites, Jafarzadeh said, are closely managed by the Defense Ministry – a fact he said should serve as a "red flag" to the IAEA and others trying to determine if Iran's nuclear program is aimed at military applications.

As in the past, the information was provided by members of the People's Mojahedin Organization of Iran (PMOI, or MEK) who have infiltrated the Iranian nuclear program, according to the two Washington dissidents.

And also as in the past, the dissidents used the opportunity of a press conference to lobby for MEK's removal from the State Department's list of terrorist organizations.

MEK supporters were not successful in efforts to persuade the Bush administration to delist the group, and they've so far failed with the Obama administration as well.

Raymond Tanter, a former national security official in the Reagan White House and a longtime supporter of the MEK, says US intelligence agencies "missed" the so-called Arab spring because they were too focused on official groups rather than on those that "are not permitted." A similar scenario is playing out in Iran, he says, with intelligence officials ignoring the groups that have the best inside information, particularly on Iran's nuclear program.

With the international community paying heightened attention to other parts of the Middle East, the Iranian government is trying to further its own political and security aims, says Mr. Tanter, a visiting professor at Georgetown University in Washington. "The Iranian regime is seeking to fly under the radar while it continues more activities for enriching uranium," he says.

Jafarzadeh and Ms. Samsami provided detailed information concerning what centrifuge parts are produced where. The information also includes the names of Iranian military officers and others involved in managing the TABA and Shafizadeh sites, some of whom are already named in United Nations Security Council resolutions for their involvement in the Iranian nuclear program.

The information divulged at the press conference was turned over to US officials earlier, they said.

Jafarzadeh offered some colorful detail of the operations at the two sites. He said the informants claim that employees traveling between sites with production documents have their briefcases handcuffed to them so they cannot become separated. All phone calls at the facilities are closely monitored, while electronic devices and personal computers are not allowed, he says – making the removal of any information extremely difficult.

Coincidentally or not, the Iranian dissidents are expecting a new State Department ruling on the MEK's terrorist listing within a few weeks. The MEK was listed as a terrorist organization under the Clinton administration, with the urging of the Iranian government at the time and based on information that members of the group were involved in killing American citizens.

But Tanter claims the MEK has not been involved in any "military activity" for a decade.

## **Nuclear-related Site Detected In Iran: Opposition (AFP)**

AFP, April 8, 2011

WASHINGTON (AFP) – A group close to the Iranian opposition in exile said Thursday it has located an industrial site near Tehran that produces components for centrifuges used to enrich uranium.

The Taba site has been in operation for four and a half years, Alireza Jafarzadeh said at a news conference in Washington, citing information gathered by the People's Mujahedeen of Iran (PMOI) opposition group.

Taba, which in Persian stands for Iranian Cutting Tools Factory, produces "aluminium casing, magnets, molecular pumps, composite tubes, centrifuge bases," he said.

Several aerial photographs of industrial installations were presented at the news conference. The site was said to be located in Karaj in Tehran's western suburbs.

"This is another indication that Tehran, unlike what it says, is not transparent, (does not intend) to be cooperative with the international community, is not pursuing a peaceful nuclear energy program, because otherwise there's no need for any of these things, no need to hide the program since 2002," Jafarzadeh said.

He said there was also another factory for making centrifuge components in Sahfizadeh, near Qazvin, 130 kilometers (80 miles) west of Tehran, but provided few details.

He said Iran's capacity to build centrifuges, and the number of them in operation in the country, was a critical question for determining the true intentions and goals of the Iranian nuclear program.

The Iranian opposition in exile has passed detailed information on its findings to the US administration and the International Atomic Energy Agency, he said.

The major powers accuse Iran of secretly seeking to acquire nuclear weapons under the cover of a civilian nuclear program, a charge Tehran denies.

The Iranian nuclear program has been condemned in six UN Security Council resolutions, which have included four sets economic and political sanctions. The United States and other countries have adopted their own sanctions as well.

## **Iran's Bushehr Nuclear Plant To Open With International Oversight (VOA)**

By Jeffrey Young

Voice of America, April 8, 2011

Iran's Bushehr nuclear power plant has been completed. Russia, which supplied the reactor, is now training Iranians to operate the facility. And the International Atomic Energy Agency, or IAEA, of which Iran is a member, says it is committed to imparting a "culture of nuclear safety" for all member nuclear power operators. As last month's nuclear disaster at Japan's Fukushima power plant shows, such safety considerations can become a life-or-death matter.

Workers at the Fukushima nuclear power plant, north of Tokyo, on the Pacific Ocean coast, have struggled to prevent the spread of radiation following damage incurred by that massive earthquake in March. Their efforts reflect the extensive emergency training they, and other nuclear power workers worldwide, are given. That includes the personnel at Iran's new Bushehr nuclear power plant.

The nuclear power industry will never forget what happened 25 years ago at the Chernobyl facility in Ukraine. There, an experiment with the cooling system - one not provided for in the training regimen - led to a reactor explosion and what became the world's worst nuclear power disaster.

Especially after Chernobyl, the global nuclear power industry has focused on what it calls a "culture of nuclear safety." At The Nuclear Energy Institute - a US trade group, Tony Pietrangelo explains the concept.

"The safety culture exists on a continuum," said Tony Pietrangelo. "You can always work to improve it. It is a questioning attitude. It is professionalism. And again, it is that profound respect for the technology you are dealing with."

One pillar of that safety culture is thorough training for those who will operate nuclear power plants. Russia's state nuclear power entity, ROSATOM, which completed the Bushehr plant after years of delays, is now training the Iranian staff to run it. At the US Brookhaven National Laboratory, senior scientist Upendra Rohatgi describes the training regimen.

"They are providing operator training in terms of classroom [instruction]. Then also, they have full-scope simulators, which are the same as western [in terms of] standards, and then, in-plant training," noted Rohatgi.

Like the aircraft simulators that pilots train on, nuclear power operators can learn how to cope with problems and sudden emergencies without making real-life mistakes that could cause fatalities and devastate the environment.

ROSATOM will remain on-site for the immediate future, as it has done with other client nations such as China and India.

And the International Atomic Energy Agency (IAEA), of which Iran is a member state, will oversee the plant's operation.

The IAEA sends teams of inspectors to nuclear power plants to ensure that best practices are being followed.

"They look at the training programs - how the operators are trained to cope with accidents on simulators, and so on. And, we also look at the qualifications of people to perform maintenance. And also, the preparation of the plant for possible emergencies," explained IAEA Nuclear Installation Safety Director Philippe Jamet.

Iran's Atomic Energy Agency has repeatedly said that as an IAEA member, it will follow that U.N. agency's operational and safety protocols at the Bushehr plant.

But what the disaster at Japan's Fukushima plant makes clear is that the severity of natural events, such as a massive earthquake, can overwhelm even the highest levels of training and attention to safety.

This is part three of a three-part series. [Click here for part 1](#) and [here part 2](#).