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# NUCLEAR REGULATORY COMMISSION NEWS SUMMARY

TUESDAY, APRIL 19, 2011 7:00 AM EDT

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## TODAY'S EDITION

### NRC News:

Commissioner Ostendorff Tours Browns Ferry With Sen. Alexander.....	1
Entergy Sues Vermont To Keep Yankee Plant Operating.....	2
Chairman Jaczko To Speak At Johns Hopkins Carey Business School.....	3
US Embassies Said To Reference NRC In Promoting Nuclear Technology.....	3
US Nuclear Reactors Squeezed To Produce More Power.....	4
Fukushima Crisis To Weigh Heavy On Future Of Nuclear Power	4
Threats To Safety Seen In Reactor Upgrades.....	4
NRC Considering Allowing Employee Use Of Personal Devices.....	4
Nuclear Plants Rapidly Running Out Of Room To Store Spent Fuel.....	4
Surry Station Remains Offline Following Storm Outage.....	5
Dominion Official Touts Benefits Of Virginia Nuclear Plants.....	5
Report Says Michigan 'Fairly' Prepared For Radiation Emergency.....	5
Progress Energy Contemplates Closing Crystal River Plant.....	6
Activists Protest Diablo Canyon Nuclear Plant.....	6
Lawmakers Visit Southern Florida Nuclear Plant.....	6
Lawmaker Discusses Nuclear Power In Massachusetts.....	6
EPA To Test Pennsylvania Water Wells For Nuclear Plant, Dump Contamination.....	6

Committee To Review Cancer Risk From Proximity To Nuclear Power Plants.....	6
Malloy Says Controversial "Millstone Tax" Won't Be Approved ...	7
San Luis Obispo Supervisors Call On PG&E To Withdraw Diablo Canyon Relicensing Application.....	7
Japanese Crisis Raises Doubts For Proposed MOX Plant In South Carolina.....	7
Argument Made That Coal Poses More Danger Than Japan Radiation.....	7
ORNL Shuts Down Internet Access, Email After Cyber Attack ....	8

### International Nuclear News:

High Radioactivity Levels Could Complicate Plans For Japanese Plant.....	8
Asian Nuclear Renaissance Occurring In Areas At Risk For Tsunamis.....	8
State Department Calls Talks Between Koreans "Essential First Step.".....	9
Iran: Lift Sanctions Or Face Oil Prices At \$150/Barrel.....	9

### Online Version

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## NRC NEWS:

### Commissioner Ostendorff Tours Browns Ferry With Sen. Alexander.

The Chattanooga Times Free Press (4/19, Sohn, 78K) reports, "In a building off to the side of Watts Bar Nuclear Plant, TVA's nuclear operators have been playing 'what if' for the last month." According to the Times, "On Monday, as reporters waited to hear Sen. Lamar Alexander, R-Tenn., report on what he and Nuclear Regulatory Commissioner Bill Ostendorff saw on a tour of the plant that morning, three operators in a control room simulator responded to a mock earthquake and electric power loss for

cooling to the reactor." The report mentions that "after his tour, Alexander gave the plant and nuclear power glowing praise, adding that he and Ostendorff saw a 'whole variety of backup ways' to deal with any loss of power and cooling such as what plagued the Japan plant."

Similarly, WATE-TV Knoxville, TN (4/18, D'Arcy) reported "government officials were in Spring City Monday to tour the" TVA's "Watts Bar Nuclear Plant The goal was to research what would happen if there was an emergency." WATE-TV said part of the tour that involved Alexander "included an emergency simulation from a control room used for training." Bill Ostendorff, a member of President Barak Obama's Nuclear Regulatory Commission, accompanied

Alexander in the tour. TVA Chief Operating Officer Bill McCollum said the TVA "began an internal review of all emergency protocol at its plants after problems at Fukushima." WATE-TV Knoxville, Tennessee (4/18, 11:08 p.m., EDT) broadcast the story.

WTVC-TV Chattanooga, TN (4/18, Jenereski) also covered Alexander's visit to Watts Bar Nuclear Plant Monday, noting: "Sen. Alexander said he was impressed by his tour." The Senator said, "The management supervision and maintenance that's going on today with several thousands workers on site, that's a big effort, and that's a hard effort." WTVC-TV Chattanooga, Tennessee (4/18, 11:06 p.m., EDT) also broadcast this story.

WBIR-TV Knoxville, TN (4/18, Butera) quoted TVA operation training manager John Dalton, who said: "For Fukushima, the problems they had was they didn't have enough water, didn't have enough electricity to pump water." Dalton added, "For a while they had enough water by pumping steam into their reactor." Officials reassured that "Watts Bar has ways of pumping water into the system to cool down reactors, whether power goes out or not." WRCB-TV Chattanooga, TN (4/18, Harris) and WDEF-TV Chattanooga, TN (4/18, Mitchell) also covered the news of Alexander's visit to the atomic power plant.

**Browns Ferry Road Needs Improvement.** The Decatur (AL) Daily (4/19) reports, "Nuclear Plant Road, which runs from US 31 in Limestone County to Browns Ferry Nuclear Plant, is an essential part of the evacuation route for hundreds of residents whose close proximity to the plant puts them at the greatest risk." According to the report, "Athens and Limestone officials are reasonable in their request that federal dollars assist in improving Nuclear Plant Road." The Daily adds that "assistance from TVA also would make sense, since it has the ability to pass the cost of the repairs to all those who benefit from the plant."

**Entergy Sues Vermont To Keep Yankee Plant Operating.** The AP (4/19, Curran) reports, Vermont Yankee owner Energy Corp., sued "state officials Monday to stop them from closing the plant next year, setting up a court fight about who has jurisdiction — state or federal nuclear regulators." The "civil suit, filed in US District Court in Burlington by subsidiaries Entergy Nuclear Vermont Yankee and Entergy Nuclear Operations, lists the defendants as state Attorney General William Sorrell, Gov. Peter Shumlin and the members of the state Public Service Board." The AP notes that Vermont is the only state that insists "it has authority to block a nuclear plant re-licensing, historically the purview of the US Nuclear Regulatory Commission." According to the suit, state lawmakers reneged on a 2002 memorandum of understanding, in which Entergy agreed to continue operating only with the approval of the state Public Service Board, but

lawmaker passed a law which said the PSB could not issue that approval without the Legislature's permission.

In an above the fold, page one piece, the Boston Globe (4/19, A1, Daley) expects the legal action to "to force a legal showdown over whether state governments can claim a role in the oversight of nuclear power plants, which are regulated by the federal government. What the courts ultimately decide is likely to have significance for some of the nation's 103 other operating reactors, especially those in states that have similar concerns about their safety." The Globe adds if the "Supreme Court were to reject Entergy's suit, other states could be empowered to pass legislation, as Vermont did in 2006, granting lawmakers the authority to approve or deny a plant's license extension, according to legal scholars." The Boston Globe's (4/19, Daley) "Green Blog" offered similar coverage.

The New York Times (4/19, A16, Wald) notes that when Entergy "When they bought the plant from local utilities in 2002, they signed an agreement with Vermont's regulatory agency, the Public Service Board, agreeing that when the plant's 40-year federal operating license expired in March 2012, its 'certificate of public good,' would also need to be renewed. The state requires such certificates of all big power plants."

The Burlington (VT) Free Press (4/19, Hallenbeck) adds that Vermont Attorney General William Sorrell said three attorneys from his office have been preparing for the lawsuit for months. Entergy is asking "for a temporary injunction against any Vermont efforts 'to shut down or make preparations to shut down' Vermont Yankee while the case is pending. The lawsuit also seeks a ruling permanently prohibiting the state from shuttering the plant." Entergy Wholesale president Richard Smith, said the "2006 state law took the decision about Vermont Yankee's future away from the Public Service Board, a quasi-judicial expert decision-maker, independent of legislative control," and instead "placed Vermont Yankee's fate in the hands of political decision-makers."

The Brattleboro (VT) Reformer (4/19, Audette) adds, "Smith said no company likes to take legal action, particularly in a state where it operates." Smith said Entergy made the decision because "We believe the General Assembly changed the rules and left us with no other choice." Smith said that those opposed to continued operation will say Entergy is "going back on its word and is breaking the deal it made in the 2002 memorandum of understanding." But he insisted that is not true.

Bloomberg News (4/19, Jeffrey) adds that Entergy Wholesale Commodities president Richard Smith, said "We believe the state of Vermont changed the rules on us," adding, "We feel we have made every effort to find a resolution without resorting to litigation, but we were not successful."

The Wall Street Journal (4/19, Day, Peters, Subscription Publication) notes that the NRC has said it would not interfere with Vermont's decisions and the agency had no comment on the lawsuit. In a statement, Gov. Peter Shumlin said, "Vermont has a proper role in granting or denying state approval for Vermont Yankee," and added, "We are confident that the court will recognize that role and we are ready to defend Vermont in this lawsuit."

On its website, CBS News (4/18) reported Entergy's lawsuit "says US Supreme Court precedent has found that states have no authority over nuclear plant licensing. It also says Vermont might be interfering with federal authority to regulate the wholesale power market."

The Dow Jones Newswires (4/19, Day) reports, Gov. Shumlin said his administration would resist Entergy's lawsuit and said the company "must follow our laws" on the state's decision to let the plant close next year.

In a statement appearing on the Burlington (VT) Free Press (4/19), Gov. Shumlin said "Entergy's executives" are "breaking their agreement and their word once again. Vermont has a proper role in granting or denying state approval for Vermont Yankee. We are confident that the Court will recognize that role and we are ready to defend Vermont in this lawsuit."

Also covering the lawsuit are the Keene (NH) Sentinel (4/19, Jarvis), AP (4/19), Brattleboro (VT) Reformer (4/18), New Hampshire Public Radio (4/18, Grant), WWLP-TV Springfield, Massachusetts (4/19, Caron), Dow Jones Newswires (4/19, FitzGerald), E&ENews PM (4/18, Northey), and the Mississippi Business Journal (4/19)

WWLP-TV Springfield, Massachusetts (4/18, 5:32 p.m., EDT) broadcast, "The Vermont Yankee Nuclear Power Plant filed a Federal lawsuit today to prevent the state of Vermont from shutting them down. ... Vermont Yankee spokesperson Larry Smith told 22 News the plant passed an exhaustive five year safety and environmental review and that the plant is completely safe. The broadcast also showed local residents on camera expressing fear about the nuclear plant as well as recognizing the economic benefits to having the plant." WVNY-TV Burlington, Vermont (4/18, 11:01 p.m., EDT) and WCAX-TV Burlington, Vermont (4/18, 12:00 p.m., EDT) also broadcast this story.

***Vernon In Discussions With Yankee On Tax Deal.*** The Brattleboro (VT) Reformer (4/19, Garofalo) reports, "The Vernon tax stabilization committee is taking a wait-and-see approach to its preliminary negotiations with Vermont Yankee nuclear power plant as the facility's owner has filed litigation against the state this week." Members of the committee said they were in discussions with plant owner Entergy on a new agreement for the town. Committee member Patricia O'Donnell of the Vernon Selectboard said "Things are just going to go on the way they are right now as the lawsuit

unfolds." Keeping the plant operational is a "major concern" for Vernon residents, since the Yankee plant "pays \$1.3 million in municipal taxes, or about 50 percent of the total levy for the town, not including the school district."

***VPIRG Head Blasts Entergy Move.*** In a news release (4/18), James Moore of the VPIRG said that in "filing this lawsuit, Entergy is reneging on a promise made to the people of Vermont," and is "another indication that this company cannot be trusted to run the plant one day past the expiration of its license."

***Evacuation Would Be Difficult If Vermont Yankee Melted Down.*** In an editorial, the Keene (NH) Sentinel (4/18) called attention to the NRC recommendation in the days after the March 11 earthquake and tsunami hit Japan, that US residents stay at least 50 miles away from the stricken Fukushima reactors. The NRC's recommendation "came as a shock to many Americans," who are used to 10 mile zones around US nuclear plants. In the US, "100 million people live within a 50 mile radius of a nuclear plant," and "if an accident or sabotage were to spread radiation from the Vermont Yankee reactor or breach its spent-fuel storage containers," evacuees "would have to find shelter" beyond "Claremont (41 miles to the north), Milford (43 miles to the east), Springfield, Massachusetts, (45 miles to the south) and Hoosick Falls, New York, (43 miles to the west)."

***Chairman Jaczko To Speak At Johns Hopkins Carey Business School.*** Johns Hopkins' JHU Gazette (4/18, Blumberg) reports, "Gregory B. Jaczko, chairman of the US Nuclear Regulatory Commission, is the featured speaker at the Johns Hopkins Carey Business School's Leaders + Legends lecture series on April 21." Jaczko will speak at the Legg Mason Tower in Harbor East, on the "Past, Present and Future of Nuclear Power: A Regulator's Perspective." In his position, "Jaczko has focused on the NRC being a strong and decisive safety regulator possessing the confidence of the public, and has worked to have the agency clearly communicate with the public and its licensees."

***US Embassies Said To Reference NRC In Promoting Nuclear Technology.*** In a 1,300-word article, Reuters (4/18, Berkowitz, Rampton) reports that while the NRC is supposed to oversee, not advocate for, the US nuclear industry, diplomatic cables obtained via WikiLeaks suggest that the agency is sometimes employed as a selling point to help push US nuclear technology to foreign buyers. The cables, which Reuters says it obtained third-hand, purport to show how American embassies have drawn upon the NRC when they pitch equipment manufactured by Westinghouse, General Electric and other American manufacturers. Reuters says it is uncommon for US regulators to act in any commercial capacity and the issue

comes at sensitive time for the agency, with attention focused on its oversight because of the Fukushima nuclear plant crisis. Reuters says the cables illustrate how in promoting its regulatory model abroad, the NRC is sometimes seen as an advocate for US nuclear technology.

**US Nuclear Reactors Squeezed To Produce More Power.** The Los Angeles Times (4/18, Zaremba, Welsh, 657K) reports, "The US nuclear industry is turning up the power on old reactors, spurring quiet debate over the safety of pushing aging equipment beyond its original specifications. The little-publicized practice, known as uprating, has expanded the country's nuclear capacity without the financial risks, public anxiety and political obstacles that have halted the construction of new plants for the last 15 years." According to the Times, "Tiny uprates have long been common," but "nuclear watchdogs and the US Nuclear Regulatory Commission's own safety advisory panel have expressed concern over larger boosts – some by up to 20% - - that the NRC began approving in 1998."

**Fukushima Crisis To Weigh Heavy On Future Of Nuclear Power.** In a lengthy article, Reuters (4/19, Boselli, De Clercq) reports on the future of nuclear power abroad, zeroing in on Czech power company CEZ, which is planning to build two additional nuclear units at the Temelin plant along with other units in Slovakia and elsewhere and is considering proposals from Westinghouse, an alliance of Czech firm Skoda JS and Russia's Atomstroyexport, and France's Areva. All that could be changed by the Fukushima plant crisis. According to James Acton, of the Carnegie Endowment for International Peace, every nuclear reactor needs "external intervention" at some point. Acton expects that the Fukushima calamity will damage the whole industry "and presumably General Electric will be damaged the most." Reuters says GE-Hitachi is keeping a closed mouth about its future commercial opportunities with the disaster still unfolding. "Now is not the time to speculate on future sales," said GE Hitachi spokesman Michael Tetuan.

**Threats To Safety Seen In Reactor Uprates.** An article on the safety and health website, FairWarning (4/18, Corcoran) reports the US nuclear industry – "hemmed in by safety concerns along with political and financial risks" – has not built a new reactor in 15 years, though the industry has managed, through power uprates to increase generating capacity. "But the boost in power comes with increased risk: the stress on the reactor's components is greater, which could cause a faster rate of deterioration." Smaller uprates have been common since the NRC approved the process in 1998, but newer sharper increases in recent years, by as much 20 percent in some cases, have left critics concerned.

John Large, a former researcher for the British atomic energy agency, said "It's beyond the wit of mankind to identify all challenges to a nuclear plant."

**NRC Considering Allowing Employee Use Of Personal Devices.** On its website, FierceGovernmentIT (4/18, Walker) reports the NRC is considering proposals to allow "the use of a single, employee-provided device for both personal and work environments." NRC's chief information officer Darren Ash said he sees the employees "throughout the agency--the employees with the iPads, the iPhones whatever, a myriad of devices. They're there, and potentially using them for things they need to do. They're not connecting to our network because we won't allow it, but we know those devices exist." Ash said NRC needs to "focus on the business capability" of the given device, though there are "lingering issues" of security and ethical use that must be sorted out.

**Nuclear Plants Rapidly Running Out Of Room To Store Spent Fuel.** The Springfield (MA) Republican (4/18, Cummings) reported, "In an effort to preserve profits, nuclear power-plant operators in New England are stuffing more and more spent nuclear fuel rods into already crowded storage pools that many believe are more dangerous than the reactors." Such pools "now hold up to five times more fuel than they were initially designed to handle." The NRC has approved the change "partly because a national disposal site for nuclear waste has not been established." The piece says that NRC estimates show that in three years, many spent fuel pools will run out room to re-rack assemblies and plant owners will have to either shut down or place spent fuel in dry casks. While the NRC says the "practice is safe, stuffing pools to their limit is inherently dangerous, many scientists and engineers say," and warn that "the sheer volume of radioactivity in the pools," could turn an accident or natural disaster into a catastrophe.

**Some Fear Threat Of Terror Attack.** The Springfield (MA) Republican (4/18, Cummings) examined the prospects of a "nuclear disaster in New England" and says one "would truly be the sum of all fears" with studies projecting that "thousands would be killed and huge areas rendered uninhabitable, potentially displacing one-sixth of the nation's population." Some scientists like National Resource Defense Council nuclear physicist Thomas Cochran fear that "the high concentration of spent fuel" in the spent fuel storage pools "dramatically increases the risk" of such an incident.

**Sixteen Casks Are All That Remain Of Yankee Rowe.** The Springfield (MA) Republican (4/18, Contrada) profiled dry cask technology, reporting that they sit on concrete pads, each weighing more than 100 tons and sporting "21 inches of reinforced concrete surrounding a 3½-

inch steel liner." The "casks, which contain 533 spent fuel assemblies, are all that's left of Yankee Rowe," and after the plant shut down in 1992, "questions about the safety of nuclear power had clouded" early optimism. "Years after they were removed from the reactor, the rods continue to give off heat comparable to a warm oven" and inside the "steel and concrete, an inert gas prevents the nuclear material from exploding."

**NRC Accused Of Weakening Rules.** Under the headline, "US Nuclear Regulatory Commission Oversight Called Too Lenient," the Springfield (MA) Republican (4/18, Totten) reports, "Internal government watchdogs and outside experts alike say the US Nuclear Regulatory Commission is too lenient on the industry it is charged with regulating, often making decisions based on the industry's profit margins rather than safety." An investigation "by the New England Center for Investigative Reporting and Hearst Connecticut Media Group found the NRC has routinely allowed operators to pack spent fuel rods into cooling pools far beyond the pools' original licensed capacity and design basis, rather than forcing the plant owners to move the fuel into safer but more costly dry casks," but it also found that the NRC "has weakened a key, decades-old safety standard," allowing some nuclear operators to use their "containment vessel as a way to help cool a reactor before turning to emergency cooling water pumps."

**Nuclear Waste Funds Said Wasted On Yucca.** The Springfield (MA) Republican (4/18, Mulvihill, Totten, Porter) reports on the lack of a long-term spent fuel repository and how "New England's electricity consumers and nuclear plant owners have poured close to \$1 billion into a federal waste fund for the past three decades," largely without result. Instead, the DOE has spent \$11 billion on Yucca Mountain, a "hole in a Nevada mountainside, a broken promise from the US government to remove the radioactive waste and mounting bills that could still saddle New England with at least five mothballed plants and dozens of dry spent fuel casks, turning communities into mini nuclear waste dumps for decades, if not forever."

**Surry Station Remains Offline Following Storm Outage.** The Washington Times (4/18, Weber) reports, "An unconfirmed tornado landed outside the Surry Nuclear Plant in Virginia on Saturday and automatically shutdown the site's two reactors, according to the Nuclear Regulatory Commission. The apparent tornado affected an electrical switchyard next to the plant, cutting off the electrical feed to the station, in Surry County, about 17 miles northwest of Newport News." Each of the "reactors shut down automatically at about 7 p.m. and backup diesel generators kept power going." The Guardian (UK) (4/19, MacAskill)

reports, "The regulator said no radiation was released and staff were working to restore electricity to the plant."

The Richmond Times-Dispatch (4/19, Bacque) reports, "Dominion Virginia Power's Surry nuclear power plant could be out of service for several days until workers repair the station's tornado-damaged electrical switchyard." NRC spokesman Joey Ledford said, "The plant functioned exactly as designed during the event." DVP "did not have an estimate Monday of the cost to repair the tornado damage at its Surry station, about 50 miles southeast of Richmond."

The Virginia Business Magazine (4/18, Squires) reports that by yesterday afternoon, "Dominion Virginia Power said crews had restored power, although the NRC was reporting that power had been partially restored."

The Hampton Roads Virginian-Pilot (4/19), the Newport News Daily Press (4/19), WWBT-TV Richmond (4/19), WTVR-TV Richmond (4/19), WAMU-FM Washington DC (4/19), WVEC-TV Norfolk (4/19, Rau), ABC News Radio (4/19), the Xinhua News Agency (4/19) and Reuters (4/19) each reported on the Surry Nuclear Plant.

Editorials by the Hampton Roads Virginian-Pilot (4/19) and the Newport News (VA) Daily Press (4/19) note that a tornado took out the power supply of the nuclear power plant.

Bloomberg News (4/19, McClelland) reports that because of the incident at Surry "US nuclear-power output fell to the lowest level in almost 4 years."

**Dominion Official Touts Benefits Of Virginia Nuclear Plants.** Dominion's Leslie N. Hartz writes in a piece supportive of nuclear power in the Richmond Times-Dispatch (4/19), "Our two Virginia stations, North Anna and Surry, provide 40 percent of the electricity used by our customers. Their operation requires a profound respect from everyone involved." She concludes, "I remain confident that our stations and those in the United States are safe and that the tragic events in Japan will be our catalysts for enhanced safety."

**Report Says Michigan 'Fairly' Prepared For Radiation Emergency.** The Detroit News (4/17, Kozlowski, 135K) reports, "As Japan's nuclear crisis unfolds, Michigan is 'fairly,' but not fully, prepared to protect public health if a similar radiation emergency were to happen here." Published in last month's Journal of the American Medical Association, the report "surveyed 38 states last year and concluded there are numerous gaps in radiation preparedness, including in Michigan — home to four nuclear power plants." David Wade, director of the environmental health division at the Michigan Department of Community Health, remarked, "We are fairly well-prepared just given that we have an overall response plan in place."

## **Progress Energy Contemplates Closing**

**Crystal River Plant.** WKMG-TV Orlando, Florida (4/18, 7:17 p.m., EDT) reports on the Crystal River Plant in Florida. "There are reports tonight a troubled Progress Energy Nuclear Plant may be shut down for good. ... It's been shut down for 17 months because of several safety problems and violations. Progress Energy confirms to Local 6 it is weighing the cost of preparing the reactor or shutting it down permanently. Progress Energy will keep pushing for two new nuclear reactors in Levi County. That could take 15 years."

## **Activists Protest Diablo Canyon Nuclear Plant.**

KESQ-TV Palm Springs, California (4/18, 3:22 p.m., EDT) broadcast, "One of our state's nuclear power plants will soon see its license to operate expire and now some activists want to see it shut down. Hundreds of protesters gathered near Diablo Canyon Nuclear Power Plant in San Luis Obispo County yesterday. ... They say Diablo is not safe in the event of a massive earthquake like the one in Japan. ... Paul Flake, PG&E: "Every single day the men and women at Diablo Canyon go to work with seismic safety and safety operations of the plant at the top of our priority. The Nuclear Regulatory Commission has the authority to shut down Diablo Canyon if ever it determines that it's not safe to operate." KESQ-TV continues, "The company has applied to renew licenses to operate the plant, but some state lawmakers want to delay the process until new seismic maps are completed." KLAS-TV Las Vegas, Nevada (4/18, 2:15 a.m., EDT) and KNVN-TV Chico, California (4/18, 2:01 a.m., EDT) also broadcast this story.

**Local TV Editorial on Nuclear Safety.** KSBW-TV Monterey, California (4/18, 9:25 a.m., EDT) in an editorial KSBW general manager Joseph W. Heston expressed the station's approval of California state senator Sam Blakeslee's appearance before a Senate committee regarding the safety of the Diablo Canyon Nuclear Plant and its proximity to earthquake faults. The station particularly agrees with Mr. Blakeslee's position that there should be 3-D seismic studies carried out on the fault lines prior to PG&E receiving relicensure.

## **Lawmakers Visit Southern Florida Nuclear Plant.**

WSVN-TV Miami (4/19) reports on its website, "In the wake of the nuclear disaster in Japan, four members of the South Florida Congressional delegation visited the Turkey Point Nuclear Power Plant in South Miami-Dade, Monday." According to the report, "Democratic Representative Frederica Wilson and Republican Representatives Mario Diaz-Balart, David Rivera and Ileana Ros-Lehtinen toured the power plant during a recess from Congress." The lawmakers "wanted to make sure that if a natural disaster, like a major

hurricane, were to hit South Florida, the Turkey Point Nuclear Power Plant would be well-equipped to handle it."

**Nuclear Experts Gather in Florida.** WKMG-TV Orlando, Florida (4/18, 7:15 p.m., EDT) reports on a gathering of nuclear experts in Central Florida. "The United States Nuclear Regulatory Commission has a high-level task force looking for lessons that could be learned from the disaster in Japan right now. It's in the early stages but NRC representatives say no immediate changes are on the way." Mark Thaggard, NRC: "So far we've seen nothing from the incident over in Japan to indicate that anything that's happening over here is unsafe." The conference covered topics such as technology in detecting radiation and how to train emergency professionals on preventing and preparing for meltdowns.

## **Lawmaker Discusses Nuclear Power In Massachusetts.**

The Salem (MA) News (4/19, Brngr, 26K) reports, "Salem Rep. John Keenan is the new chairman for the Joint Committee on Telecommunications, Utilities and Energy, a job that has taken on greater significance with the nuclear disaster in Japan." Keenan spoke to the Salem News about nuclear power in Massachusetts. In response to the paper's inquiry regarding the safety of the nuclear plants within the state, Keenan says, "I think that was part of our goal for having the hearing last week at the Statehouse — to bring in the two companies, Entergy, who owns both Pilgrim and Yankee Vermont, and then NextEra, which owns Seabrook." Keenan said, "I was certainly comfortable with their responses and their talking about their preparedness for any sort of natural disaster or sabotage or those sorts of things, and talking about their backup systems."

## **EPA To Test Pennsylvania Water Wells For Nuclear Plant, Dump Contamination.**

The AP (4/18) reports, "The federal Environmental Protection Agency plans to test the water wells in a tiny southwestern Pennsylvania village to see if they've been tainted by nuclear waste dumped nearby from a defunct plutonium fuel plant." According to the article, "Officials tell the Valley News Dispatch in Tarentum that the testing is planned later this year in the village of Kiskimere, which is in Parks Township, about 35 miles northeast of Pittsburgh." The report notes that "the village has about 50 homes near the former Nuclear Materials and Equipment Corp. plant and a waste dump along Route 66."

## **Committee To Review Cancer Risk From Proximity To Nuclear Power Plants.**

The Superior (WI) Telegram (4/19, Quirmbach) reports, "The Nuclear Regulatory Commission (NRC) recently asked the National Academy of Sciences to look at the possibility that living near

a nuclear power plant boosts the risk of getting cancer.” Paul DeLuca, UW-Madison provost and medical physicist, is on the study committee. DeLuca says “cancer rates vary across the US and the scientists are looking into whether having a nuclear power plant close by might raise local cancer rates or lower them.” He adds that “if there’s a local nuclear power plant, it’s less likely a big polluter like a coal-fired power plant will be nearby.”

**Malloy Says Controversial “Millstone Tax” Won’t Be Approved.** The Hartford Courant (4/19) reports, “Gov. Dannel P. Malloy predicted Monday that the highly controversial ‘Millstone tax’ on the state’s nuclear power plants will not be approved.” Malloy said instead “a key legislative committee this week would approve an electricity generation tax that is closer to his idea than the Millstone tax that would charge the two nuclear plants about \$330 million a year.” On Monday, Malloy said, “I don’t see that there is the political desire to tax one purveyor of energy by \$300-plus million.”

**Tax would affect Attleboro.** The Attleboro Sun Chronicle (4/19, DeMelia) reports, “The Connecticut Legislature is considering enacting a tax on electric generation that would cost North Attleboro Electric Department up to \$339,643 per year because it receives electricity from Connecticut’s Millstone nuclear plant.” North Attleboro Electric’s James Moynihan said, “It’s definitely a concern because it’s an added cost that is not included our budget.” The Sun Chronicle notes, “The \$339,643 figure is an estimate of the impact provided by the Massachusetts Municipal Wholesale Electric Company, which owns 4.8 percent of Millstone Unit 3, a nuclear power plant in Connecticut.” The Providence Business News (4/19) is also covering this story.

**Editorial Concerned About Long Island’s Proximity To Millstone Station.** An editorial in the Sag Harbor Express (4/19) writes on the how a nuclear disaster at Millstone Nuclear Power Station could impact the East End of Long Island. The Express continues, “It’s a frightening scenario, but one Millstone has never had to envision, since the NRC requires them to only put evacuation plans into place for an area within a 10 mile radius of the reactor— which conveniently avoids the East End all together, but just barely.” State Assemblyman Fred Thiele and State Senator Ken LaValle “are introducing legislation that would require New York’s State Emergency Management Office to conduct a review of disaster plans for all nukes in the state or those within 50 miles of state borders — which would include Millstone.” The Express opines, “We say it’s about time and hope this legislation has legs.”

**San Luis Obispo Supervisors Call On PG&E To Withdraw Diablo Canyon Relicensing Application.** California’s Adobe Press (4/19) reports, “The San Luis Obispo County Board of Supervisors believes Pacific Gas and Electric Co. should stop relicensing efforts” at Diablo Canyon plant, and last Tuesday, agreed unanimously “to send a letter to PG&E requesting the company voluntarily withdraw its relicensing application” for the plant. Supervisor Jim Patterson said that with 13 or 14 years before the licenses expire, “There’s no real hurry here. If PG&E wants to regain the public’s trust, they need to withdraw the application.” Monday, “PG&E announced it would undertake the 3-D seismic studies and has asked the NRC to delay issuing new licenses, if approved, for Diablo Canyon until the studies are completed and reviewed by company scientists.”

**Japanese Crisis Raises Doubts For Proposed MOX Plant In South Carolina.** The New York Times (4/19, Becker, Broad, 950K) reports on the construction of a nuclear project in South Carolina that aims to safeguard weapons-grade plutonium by turning into a new fuel called mox, or mixed oxide. Noting that one of the troubled Japanese reactors uses the mox fuel, the Times says that “against that backdrop, the South Carolina project has been thrown on the defensive, with would-be buyers distancing themselves and critics questioning its health risks and its ability to keep the plutonium out of terrorists’ hands.” The report adds, “the most likely customer, the Tennessee Valley Authority, has been in discussions with the federal Department of Energy about using mox to replace a third of the regular uranium fuel in several reactors - a far greater concentration than at the stricken Japanese reactor, Fukushima Daiichi’s Unit No. 3, where 6 percent of the core is made out of mox.”

**Argument Made That Coal Poses More Danger Than Japan Radiation.** In a story that attempts to dispel fears that Japan’s nuclear crisis poses an immediate threat to Americans, the Orange County (CA) Register (4/19, Zender) mentions that “most of us consider acceptable the much higher doses we receive as ‘background radiation’ from natural and benign man-made sources.” The article adds that “these pervasive sources include cosmic rays, radon seepage from uranium decay in Earth’s interior, and highly dispersed uranium and thorium from coal combustion.” According to the Register, “Watt-for-watt, a coal-fired electricity plant emits into the environment fly ash particles that carry about one hundred times more radioactivity than emitted by a nuclear plant.”

**ORNL Shuts Down Internet Access, Email After Cyber Attack.** The Knoxville (TN) News Sentinel (4/19, Munger) reports, "A highly sophisticated cyber attack – known as Advanced Persistent Threat – forced Oak Ridge National Laboratory to shut down all Internet access and email systems over the weekend." ORNL Director Thom Mason said that "those restrictions will remain in place until lab officials and others investigating the attack are sure the situation is well controlled and manageable." He explained that "the lab's cyber specialists had been monitoring the attack and recommended further action after it looked like efforts were under way to remove data from ORNL systems." Mason said that the lab had not detected any large-scale exfiltrations of data, and shut down access in order to prevent anything similar to a 2007 cyber attack on the lab in which large amounts of data were stolen.

## **INTERNATIONAL NUCLEAR NEWS:**

**High Radioactivity Levels Could Complicate Plans For Japanese Plant.** The New York Times (4/19, A6, Tabuchi, Subscription Publication) reports, "Robots deployed inside two reactors at the Japanese nuclear plant overrun by last month's devastating tsunami have detected radiation levels too high for workers to enter, posing immediate challenges for a new plan to bring the ravaged complex under control by year's end." Workers have not been able to enter the reactors at the Fukushima Daiichi Nuclear Power Plant, but on Sunday, two robots were able to enter two of the reactors to take temperature, pressure and radioactivity readings, which, "released Monday, showed continued high radiation levels." Hidehiko Nishiyama, deputy director general at the Nuclear and Industrial Safety Agency, said the levels "would require the plant's operator, the Tokyo Electric Power Company, to be 'creative' in bringing the plant to a stable state known as a cold shutdown within six to nine months, as the company laid out in a timetable on Sunday."

Nevertheless, the AP (4/19) reports, "officials remained hopeful they can stick to their freshly minted 'roadmap' for cleaning up the radiation leak and stabilizing the Fukushima Dai-ichi plant by year's end so they can begin returning tens of thousands of evacuees to their homes." Chief Cabinet Secretary Yukio Edano said, "Even I had expected high radioactivity in those areas. I'm sure (plant operator Tokyo Electric Power Co.) and other experts have factored in those figures when they compiled the roadmap."

Bloomberg News (4/19, Okada) explains that "measurements show one hour inside the No. 3 reactor building would expose humans to more than one-fifth of the

radiation Japan has said is the most workers can endure in a year, the atomic safety agency said yesterday."

In addition to high levels of radioactivity, the Christian Science Monitor (4/19) reports, there are other obstacles to TEPCO's plans to get its nuclear reactors under control. Nuclear engineer David Lochbaum says that "adding water to the reactor vessels to further cool the damaged uranium fuel rods could have negative consequences...First, it could allow a nuclear reaction to take place again. Second, it would add more water to a structure already carrying a huge load of water in the basement."

Reuters (4/19, Negishi) adds that TEPCO's plans could be further complicated by other unknown factors, such as another powerful earthquake.

**TEPCO Begins Pumping Radioactive Water From Unit 2 Building.** The AP (4/19) reports TEPCO "began pumping highly radioactive water Tuesday from the basement of one of its buildings to a makeshift storage area in a crucial step toward easing the nuclear crisis. Removing the 25,000 tons of contaminated water that has collected in the basement of a turbine building at Unit 2 of the Fukushima Dai-ichi plant will help allow access for workers trying to restore vital cooling systems that were knocked out in the March 11 tsunami." Hidehiko Nishiyama of Japan's Nuclear and Industrial Safety Agency said that TEPCO "is trying to develop a system to decontaminate the incoming water so that it can be reused to cool the plant's reactors." AFP (4/19) also reports this story.

**In Country Known For Technological Savvy, US Robots Deployed.** In a separate story, the AP (4/19) points out that "in this country of break-dancing androids and artificially intelligent pets, nuclear cleanup crews on the tsunami-ravaged northern coast are depending on US-made robots to enter damaged reactor units where it is still too dangerous for humans to tread." Robots from iRobot Corp. called PackBot have been deployed in the reactors. "TEPCO spokesman Shogo Fukuda said the company has only now begun using the robots because it took several weeks for crews to learn how to operate the complex devices. Although Japan has a sophisticated robotics capability, most of its development is in household applications rather than disaster recovery." The AP also notes that the PackBot has been deployed in other disaster zones, such as the rubble of the collapsed World Trade Center following the Sept. 11, 2001 terrorist attacks.

**Asian Nuclear Renaissance Occurring In Areas At Risk For Tsunamis.** The AP (4/19, McDowell, Mason) reports that "at least 32 plants in operation or under construction in Asia are at risk of one day being hit by a tsunami, nuclear experts and geologists warn." The continent, which is also "the world's most seismically charged

region, is undergoing a nuclear renaissance as it struggles to harness enough power for its huge populations and booming economies. But China, Taiwan, India and several other countries frantically building coastal facilities have made little use of new science to determine whether these areas are safe." And even when seismic studies have been done, in many cases the results have not been shared with the UN's International Atomic Energy Agency.

### **State Department Calls Talks Between Koreas**

**"Essential First Step."** AFP (4/19) reports, "Restarting a dialogue between North Korea and South Korea is an 'essential first step' to returning to multinational talks on ending North Korea's nuclear program, State Department spokesman Mark Toner said on Monday." Said Toner, "A successful rapprochement between North and South Korea is an essential first step before we can consider getting involved diplomatically again or even talk about six-party talks."

### **Iran: Lift Sanctions Or Face Oil Prices At**

**\$150/Barrel.** The Washington Times (4/19, Birnbaum, Lake) reports, "The head of Iran's central bank warned that oil prices will rise above \$150 a barrel if economic sanctions against the Islamic theocracy are not lifted soon." Mahmoud Bahmani told the WTimes, "Iran can have an effect on world energy and fuel. Fuel prices will go up dramatically. ... If sanctions are not removed, particularly sanctions against banks and other economic sanctions, the price of oil will go above \$150 a barrel."

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# NUCLEAR REGULATORY COMMISSION NEWS CLIPS

TUESDAY, APRIL 19, 2011 7:00 AM EDT

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## TODAY'S EDITION

### NRC News:

'What Ifs' And Japan Lessons Make Nuclear Safer, Sen. Lamar Alexander Says (CHTNGA).....	2	Nuclear Regulatory Commission Head To Speak At Leaders + Legends (JHU Gazette).....	20
Sen. Alexander, NRC Check Safety Of TVA Watts Bar Nuclear Plant (WATE).....	3	Exclusive: US Nuclear Regulator A Policeman Or Salesman? (REU).....	21
Sen. Alexander On Watts Bar Nuclear Safety (WTVC-TV).....	4	US Is Increasing Nuclear Power Through Upgrading (LAT).....	21
Sen. Alexander, Officials, Tour Watts Bar Nuclear Plant (WBIR).....	4	Special Report: The Nuclear Industry's Trillion Dollar Question (REU).....	23
Watts Bar Nuclear Plant Touts Safety (WRCB).....	4	Nuclear 'Upgrades' Increase Power Generation With Little Scrutiny (FairWarning).....	23
Sen. Alexander Tours Watts Bar, Says Nuclear Still The Best Way To Produce Electricity (WDEF).....	5	Nuclear Regulatory Commission May Adopt A Bring-your-own-device Mobile Strategy (FGHIT).....	23
Nuclear Plant Road Needs Improvement (DECD).....	5	Storage Of Spent Fuel Rods At New England Nuclear Power Plants Generates Fear (SPREP).....	24
Entergy Sues To Keep Vermont Nuclear Plant Open (AP).....	6	Target For Terrorists: New England's Spent Nuclear Fuel (SPREP).....	27
Nuclear Plant Sues Vt. To Stay Open (BOS).....	7	Casks Holding Spent Fuel Assemblies All That's Left Of Yankee Rowe (SPREP).....	28
Vermont Yankee Nuclear Plant Owners File Suit To Stay Operating (BOS).....	8	US Nuclear Regulatory Commission Oversight Called Too Lenient (SPREP).....	29
Plant Owner Sues Vermont Over License For Reactor (NYT).....	9	Nuclear Power Plant Owners Paid Billions For Spent Fuel Facility That Never Opened (SPREP).....	31
Gov. Shumlin Says State Will Fight Entergy's Vermont Yankee Lawsuit (BURFP).....	9	Storm Cut Offsite Power To Va. Nuclear Reactor (WT).....	33
Entergy Sues Vt (BR).....	12	US Tornadoes Force Shutdown Of Two Nuclear Reactors In Virginia (GUARD).....	33
Entergy Files Suit To Stop Vermont From Closing Nuclear Plant Next Year (BLOOM).....	13	Surry Nuclear Plant Could Be Out Of Service For Several Days (RICHTD).....	34
Suit Seeks To Save A Nuclear Plant (WSJ).....	14	Local And State News From Virginia Business (VABIZ).....	35
Vermont Nuke Plant Owner Sues To Keep Doors Open (CBS).....	14	Tornado Passed Surry Nuclear Power Plant, Dominion Says (VAPILOT).....	35
Entergy 'Must Follow Our Laws,' Shut Nuclear Plant (DJNews).....	14	Tornado Touchdown Causes Shutdown At Surry Nuclear Power Plant (NWPRTNWZ).....	35
Gov. Peter Shumlin Statement On Entergy's Vermont Yankee Lawsuit (BURFP).....	15	Surry Nuclear Plant Shuts Down After Tornado (WWBT).....	36
Entergy Files Lawsuit (KSENT).....	15	Tornado Touchdown Causes Shutdown At Surry Nuclear Power Plant (WTVR).....	36
Entergy Files Complaint In Court Against State Of Vermont (AP).....	16	Va. Nuclear Plant Shuts Down After Storm (NBC4DC).....	36
Entergy Files Suit To Keep VY Open (BRATBORO).....	16	US Nuclear Regulatory Commission Monitoring Surry Plant (WVEC).....	37
Vermont Yankee Owners Fight Nuke Plant Shutdown (NHPR).....	16	Tornado Hits Virginia Nuclear Plant (ABCRAID).....	37
Vt. Yankee Files Lawsuit To Stay Open (WWLP).....	16	US Federal Agency Monitors Nuclear Plant After Power Disruption (XIN).....	38
Entergy Seeks Court Injunction To Keep Vermont Yankee Running (DJNews).....	17		
Entergy Sues To Keep Vermont Yankee Running (EPEM).....	17		
Entergy Files Suit Over Vermont Nuclear Plant (MSBJ).....	18		
Vernon In Early Stages Of Yankee Deal (BR).....	18		
Press Release: Entergy Reneges On Its Promise; Sues Vermont : VTDigger (VTD).....	19		
What About That 50-mile Zone Around The Nuclear Power Accident In Japan? (KSENT).....	20		

UPDATE 1-Dominion To Restart One Surry Unit In A Few Days (REU) .....	38
Saturday's Terror From The Skies (VAPILOT) .....	38
Short Takes On Tornadoes In Virginia, Redistricting: The Aftermath (NWPRTNWZ) .....	39
US Nuclear Power Output Hits Lowest In 4 Years After Tornado (BLOOM) .....	39
Hartz: US Nuclear Industry Strives For Safety (RICHTD).....	40
Report: Michigan 'Fairly' Prepared For Possible Radiation Emergency (DETN) .....	41
TV - Politicians Visit So. Fla. Nuclear Plant (WSVN) .....	42
Rep. Keenan Talks About Nuclear Power, Salem Coal Plant (SNEWS) .....	43
EPA To Test Western Pa. Water Wells For Contamination From Long-shuttered Nuclear Plant, Dump :: The Republic (AP).....	44
Committee To Review Whether Proximity To Nuclear Power Plants Boosts Cancer Risk (STEL) .....	44
Malloy Favors Compromise Electricity Bill (HARTC) .....	44
North Attleboro News (ATTLBORO) .....	45
Conn. Tax Proposal Could Cost North Attleboro, Mansfield (PBN) .....	46
Expect The Unexpected (SAGHARBR) .....	46
PG&E Puts Off Diablo Licensing To Study Faults (ADOBEPR) ..	47
Japanese Crisis Raises Doubts On Plan For Plutonium In S.C. (NYTIM) .....	48
More Dangerous Than Japan Radiation (OCR).....	49
Lab Halts Web Access After Cyber Attack (KNOXNS).....	50

## International Nuclear News:

Radiation Poses Barrier To Repair Work At Plant (NYT).....	51
Radiation Near Japan Nuke Plants Too High For Workers (USAT/AP) .....	52
Robots Find High Radiation As Tepco Lays Out Plan To End Crisis (BLOOM) .....	53
Robots Throw Doubt On 'Road Map' To Control Fukushima Crisis (CSM) .....	54
Analysis: Japan Nuclear Crisis Could Drag On Long Past Timetable (REU) .....	55
Japan Nuke Plants Starts Pumping Radioactive Water (AP) .....	55
Workers At Japan Nuclear Plant Pump Out Toxic Water (AFP) ..	56
US Robots Help Japanese Crews Monitor Radiation During Nuclear Reactor Cleanup (WP/AP).....	57
AP IMPACT: Asia Nuclear Reactors Face Tsunami Risk (AP) ..	58
New North-South Dialogue Key Ahead Of Talks: US (AFP).....	60
Iran Central Banker: Lift Sanctions Or Face Spike In Oil Prices (WT) .....	60

## Online Version

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## NRC NEWS:

### 'What Ifs' And Japan Lessons Make Nuclear Safer, Sen. Lamar Alexander Says (CHTNGA)

By Pam Sohn

Chattanooga Times Free Press, April 19, 2011

SPRING CITY, Tenn. — In a building off to the side of Watts Bar Nuclear Plant, TVA's nuclear operators have been playing "what if" for the last month.

What if a very large earthquake occurred? What if the quake caused a dam break? What if more than one reactor lost cooling power?

On Monday, as reporters waited to hear Sen. Lamar Alexander, R.-Tenn., report on what he and Nuclear Regulatory Commissioner Bill Ostendorff saw on a tour of the plant that morning, three operators in a control room simulator responded to a mock earthquake and electric power loss for cooling to the reactor.

Bells and alarms sounded, light flashed, and the trio of operators jumped to action.

Even before an 9.0 earthquake in March dismantled the electrical power system to the six Japanese reactors and a tsunami swept away the fuel for the plant's back-up diesel generators, US nuclear plant operators drilled for 240 hours a year in this and similar training rooms across the US

But since the accident at the Fukushima Dai-ichi plant in Japan, the US simulators also have become testing grounds of "stacked" disasters.

"The trainers are like Satans. They just keep on injecting failures upon failures on these poor operators," said Ray Golden, TVA's nuclear spokesman.

After his tour, Alexander gave the plant and nuclear power glowing praise, adding that he and Ostendorff saw a "whole variety of backup ways" to deal with any loss of power and cooling such as what plagued the Japan plant.

He also used his time with reporters to tout the safety of storing spent nuclear fuel at the plant sites and to talk about what he sees as an opportunity to recycle the spent fuel.

"I favor investing in new research which is being done in Oak Ridge and other places to find ways to recycle and reuse nuclear fuel in a way that will reduce the mass and permit it to be reused over and over and over again," Alexander said.

Recycling nuclear fuel, sometimes called reprocessing, already is done in France and some other countries but is not allowed in the US Critics say it is a nuclear proliferation risk and creates more waste.

"I'm here today because it's very important, especially for those of us who believe nuclear power is important part of our region's and country's future, to make sure our plants are being operated as safely as possible, especially after the Japan incident," Alexander said.

Ostendorff, a former nuclear submarine commander, used the word "impressive" to describe the Watts Bar maintenance work he saw Monday during a refueling outage.

He and Alexander said nuclear power has an enviable record. There has never been a fatality in connection with any of the 104 reactors in America, or with the many nuclear reactors on US Navy ships.

"Three Mile Island was our most celebrated nuclear accident in the United States, and no one was hurt," Alexander said.

Nuclear power is about 30 percent of TVA's power generation mix, and it is about 80 percent of what Alexander termed "clean" electricity.

"By 'clean' I mean no air pollution from sulfur, nitrogen or mercury," he said. "That's important to our health. It helps attract tourists. It's important to Volkswagen as it tries to attract suppliers to East Tennessee.

As for the "what ifs" rehearsed in the simulator control rooms of Watts Bar and other TVA nuclear operators, the exercise already is prompting change, said John Dalton, TVA's Watts Bar operations training manager.

The utility will be toughening up the electrical power "switchyard" to Watts Bar to further protect it against seismic events. TVA officials told the utility's board of directors of the plan last week, along with new plans to add additional diesel generators, portable generators and satellite phones.

## **Sen. Alexander, NRC Check Safety Of TVA Watts Bar Nuclear Plant (WATE)**

WATE, April 19, 2011

Sen. Alexander, NRC check safety of TVA Watts Bar Nuclear Plant

Sen. Alexander, NRC check safety of TVA's Watts Bar Nuclear Plant

Government officials were in Spring City Monday to tour the Tennessee Valley Authority's Watts Bar Nuclear Plant The goal was to research what would happen if there was an emergency.

Monday, April 18, 2011 12:00 AM

By DENAE D'ARCY

6 News Anchor/Reporter

SPRING CITY (WATE) - Government officials were in Spring City Monday to tour the Tennessee Valley Authority's Watts Bar Nuclear Plant.

The goal was to research what would happen if there was an emergency.

Tennessee Republican Sen. Lamar Alexander as well as Bill Ostendorff, a member of President Barak Obama's Nuclear Regulatory Commission, got a tour of the plant.

Part of that tour included an emergency simulation from a control room used for training.

While members of the media looked on, a loud alarm went off and a worker called saying, "I'm outside doing my routine and I felt the ground shake. I think we're having an earthquake."

By the time the call came in, three licensed operators were already reacting to seismic disruptions. The operators train once every month and must pass protocol tests to keep their licenses.

John Dalton, the operations training manager at Watts Bar, described how the training center is set up. "We have all of this fitted with microphones and recording devices. There are also video cameras so we can watch everything the operators do and play it back for them and critique it. This helps evaluate all of their moves."

Beyond critiquing the training, Alexander and Ostendorff were critiquing safety in light of the disaster at the Fukushima nuclear plant in Japan.

"The important thing for the people of Tennessee to know is that most of the problems in Japan came from a simple problem. There wasn't electricity to put water in to cool the fuel rods," Alexander said.

The NRC established 30, 60 and 90-day task forces to study the problems at Fukushima.

When asked about areas of concentration in the first 30 days of research, Ostendorff said, "Response of a plant to an external event such as a hurricane, tornado, flooding, or an earthquake. We look at how our plants are built and how we deal with a station blackout. We also look into specific back-up modes."

Alexander and Ostendorff toured back-up facilities at Watts Bar including diesel generators which are 50 feet above the flood plain, on a man-made berm encased in concrete buildings.

TVA Chief Operating Officer Bill McCollum also talked to reporters on Monday. He says the utility began an internal review of all emergency protocol at its plants after problems at Fukushima.

## **Sen. Alexander On Watts Bar Nuclear Safety (WTVC-TV)**

By Natalie Jenereski

WTVC-TV Chattanooga, TN, April 19, 2011

There has never been a death at a U-S nuclear reactor. And in light of the recent disaster in Japan, authorities here are making sure that doesn't change.

Tennessee Senator Lamar Alexander paid a visit to Watts Bar Nuclear Plant Monday. Officials at the Tennessee Valley Authority say they are confident that a nuclear disaster, like the one in Japan, won't be happening there. But that doesn't mean they haven't been taking some extra precautions.

John Dalton, TVA Training Manager said, "I don't know that we've made any changes yet, but we've done a lot of communications, a lot of lessons learned."

Sen. Alexander said he was impressed by his tour.

"The management supervision and maintenance that's going on today with several thousands workers on site, that's a big effort, and that's a hard effort," said the senator.

NRC Commissioner Bill Ostendorff said, "We have a lot of systems that we saw here today, which would provide this reactor with plenty of water, plenty of electricity in the event of a big problem."

They say employees are the backbone of what they call this "indestructible operation."

180 of them are currently training for everything from a minor glitch to a major disaster. Trainees go through a rigorous regimen on a simulator... and psychological exams. TVA says it is a proactive approach, so that, if needed, workers can effectively react.

According to TVA's website, 30 percent of the Tennessee Valley's electricity is produced by nuclear plants like Watts Bar.

## **Sen. Alexander, Officials, Tour Watts Bar Nuclear Plant (WBIR)**

By Steve Butera

WBIR-TV Knoxville, TN, April 19, 2011

Following the March disaster at the Fukushima Nuclear plant in Japan, there's been ongoing concern about energy safety in East TN.

Senator Lamar Alexander, along with Nuclear Regulatory Commission's Bill Ostendorff and TVA officials toured the Watts Bar Plant in Rhea County Monday to see how the nuclear site stacks up.

"Nuclear power is important to the Tennessee Valley, because it is 80% of our clean electricity today," said Sen. Alexander.

They said there are significant differences between what happened over in Japan, and what could ever happen in Rhea County. This includes geography and the design of the plant.

"For Fukushima, the problems they had was they didn't have enough water, didn't have enough electricity to pump water," said TVA operation training manager John Dalton. "For a while they had enough water by pumping steam into their reactor."

Meanwhile, officials report that Watts Bar has ways of pumping water into the system to cool down reactors, whether power goes out or not.

"Over the rest of the year, 2011, we're going to take a hard look at our existing plant safety and if there are lessons learned in Fukushima," NRC Commissioner Bill Ostendorff added. "If there's a need for changes, I'm confident we will do so."

Sen. Alexander will report to Washington about his findings at Watts Bar.

Currently, the plant is on a temporary refueling outage. It's a standard procedure for maintenance work, TVA officials added.

## **Watts Bar Nuclear Plant Touts Safety (WRCB)**

By Antwan Harris

WRCB-TV Chattanooga, TN, April 19, 2011

RHEA COUNTY, TN (WRCB) – The key word of Monday's tour was safety. Republican Senator Lamar Alexander (TN) says he was pleased with what he saw.

Engineers put on a demonstration of what happens if the worst were to come.

Sirens sounded as seismic activity is detected at Watts Bar, knocking a reactor off line.

Engineers work diligently to put out fires one by one in this disaster simulation training.

The team of three, worked for 5 minutes through an earthquake to secure personnel, avoid further issues, and get a rattled reactor operational.

It's all part of the government's plan to reduce the risk of plant failures and ensure safety.

Watts Bar Operations Manager, John Dalton, said, "We are looking hard at how our disaster response is set up and what we can put in place to address those."

Sen. Alexander said United States nuclear plants go above and beyond strict safety regulations, thus making them the safest on the planet.

Sen. Alexander said, "There are 104 reactors in America. There has never been a fatality at one of them."

A Japanese rescue crews are still sifting thru the rubble of the Fukushima Plant just over a month after the devastation.

Nuclear Regulatory Commissioner Bill Ostendorff said the NRC formed a safety committee of top government engineers after the events of Fukushima.

"The task force is going to look at the Fukushima incident and address anything that is appropriate and any changes that need to be made," Ostendorff said.

## **Sen. Alexander Tours Watts Bar, Says Nuclear Still The Best Way To Produce Electricity (WDEF)**

By Bill Mitchell

WDEF-TV Chattanooga, TN, April 19, 2011

The American nuclear power industry has learned much from the tragedy now unfolding in Japan.

US Senator Lamar Alexander and the Commissioner of the Nuclear Regulatory Industry gave their assessment during an inspection of the Watts Bar Nuclear Plant Monday morning.

The nuclear plant disaster in Japan has brought all U-S plants under close scrutiny in the last four weeks.

Watts Bar, which has one operating reactor and is building Unit 2, is actually shut down for regular maintenance as Sen, Lamar Alexander and NRC Commission Bill Ostendorff come for an inspection.

As they toured the plant, one of the specialized teams who operate the reactor ran through an emergency in a training simulator. In this case, it was a make-believe earthquake, which was handled correctly according to inspectors.

The senator got down to business quickly.

SEN. LAMAR ALEXANDER, (R) TENNESSEE "We continue to have an enviable safety record for nuclear power, not just in Tennessee but in the country. No fatalities in connection with our 104 reactors or any of the navy reactors. and we want to keep it that way."

NRC Commissioner Bill Ostendorff is an Obama administration appointee who is a former commander of a nuclear attack submarine. It was his second visit to Watts Bar in a year.

BILL OSTENDORFF, NRC COMMISSIONER "We're taking a hard look at our existing plant safety, and if there are lessons learned from Fukushima, that suggest we need to make changes, I'm confident we'll do so."

Safety is still the main issue as far as the public is concerned, according to TVA chief operating officer Bill McCollum.

BILL MCCOLLUM, TVA CHIEF OPERATING OFFICER "Although we have many systems in place and diverse means of assuring protection of the core..and the fuel here at Watts Bar and our other plants, we not resting on those preparations...we're learning all the lessons that we can."

SEN. LAMAR ALEXANDER "My report in Washington will be that the more the people of Tennessee..and this country, know about nuclear the better."

Sen Alexander points out that nuclear power produces 80% of the Tennessee Valley's clean, reliable and emission free electricity.

## **Nuclear Plant Road Needs Improvement (DECD)**

Decatur (AL) Daily, April 19, 2011

One of the many lessons from the nuclear crisis in Japan is that the same natural disaster that damages a nuclear plant also can play havoc with the roads. The earthquake and flooding in Japan hampered evacuation efforts and limited the ability of government and nuclear workers to get equipment to the plant.

Nuclear Plant Road, which runs from US 31 in Limestone County to Browns Ferry Nuclear Plant, is an essential part of the evacuation route for hundreds of residents whose close proximity to the plant puts them at the greatest risk. Most of the road is only 19 feet wide, with no shoulder. It has sharp curves, a rail crossing with no gates, poor striping and a weight-restricted bridge.

The main Browns Ferry evacuation routes need to be robust. Even without a disaster, Nuclear Plant Road is in poor shape. Add an earthquake and panicked residents, and the only eastward evacuation route from the plant likely would be useless.

Limestone County has accepted most of the risk for the regional benefit provided by Browns Ferry's power production. Athens and Limestone officials are reasonable in their request that federal dollars assist in improving Nuclear Plant Road. Assistance from TVA also would make sense, since it has the ability to pass the cost of the repairs to all those who benefit from the plant.

## **Entergy Sues To Keep Vermont Nuclear Plant Open (AP)**

By John Curran, Associated Press

Associated Press, April 19, 2011

MONTPELIER, Vt. – The owners of Vermont's troubled nuclear plant sued state officials Monday to stop them from closing the plant next year, setting up a court fight about who has jurisdiction — state or federal nuclear regulators.

New Orleans-based Entergy Corp., which recently won a new 20-year license for Vermont Yankee but has fought with state officials since the discovery of radioactive tritium at the plant, says the state doesn't have the authority to prevent continued operation of Vermont Yankee.

"The question presented by this case is whether the state of Vermont ... may effectively veto the federal government's authorization to operate the Vermont Yankee Station through March 21, 2032," the lawsuit says. "The answer is no."

The civil suit, filed in US District Court in Burlington by subsidiaries Entergy Nuclear Vermont Yankee and Entergy Nuclear Operations, lists the defendants as state Attorney General William Sorrell, Gov. Peter Shumlin and the members of the state Public Service Board.

"The battle is joined," Sorrell said.

Vermont is alone among the states in asserting that it has authority to block a nuclear plant re-licensing, historically the purview of the US Nuclear Regulatory Commission.

In 2006, it enacted a measure giving the Legislature the authority to say no to a license renewal for Vermont Yankee, a generating facility on the banks of the Connecticut River that's had somewhat of a love-hate relationship with the state since opening in 1972.

Lately, it's been more hate than love: Last year, the state Senate voted 26-4 to block the plant from operating past March 2012, when its state permit expires. That followed revelations that the plant in Vernon had leaked radioactive tritium into groundwater and soil around and admissions by its owners that they had misspoken when they told Vermont regulators and lawmakers that the plant didn't have the kind of underground piping that carries radioactive material.

Entergy argues that Vermont's law violates the Atomic Energy Act, which the company says gives jurisdiction to the federal government. The company also says the state unfairly impeded commerce when its officials said they would not grant a new state permit unless Entergy entered into power-purchase agreements with below-market rates favoring Vermont utilities over others.

In a conference call, Entergy Corp. executive Richard Smith said the company didn't want to resort to litigation.

"We believe we have made every reasonable effort to accommodate the state of Vermont and its officials while allowing for the continued operation Vermont Yankee, an outcome that benefits all stakeholders, including Vermont consumers and the approximately 650 men and women who work at the plant," he said.

The suit says Vermont officials changed the rules — set out in a 2002 memorandum of understanding when Entergy bought the plant — by passing a law four years later that said Yankee couldn't operate past 2012 without the Legislature's approval.

Under the original agreement, Yankee's owners needed the approval of the state Public Service Board, which the suit said is a "quasi-judicial expert decision-maker, independent of legislative control."

Giving lawmakers the say-so instead opened the door to politicians who could say no to re-licensing for arbitrary reasons, according to the suit.

Shumlin has called for the plant's closure, and environmental groups describe it as an aging facility that should be mothballed.

Shumlin, who says Entergy agreed to the terms of the law it is now challenging, stood shoulder-to-shoulder with Sorrell at a news conference Monday and read from a 2006 news clipping that quoted a Vermont Yankee spokesman welcoming it and commending lawmakers for passing it.

"Entergy is now attempting to rewrite history, breaking its own promises and its own support of Vermont law," Shumlin said. "Instead of following Vermont law, Entergy seeks to subject the taxpayers of Vermont to an expensive legal proceeding."

Shumlin said he met with Entergy representatives March 30 and that they told him then that they planned to keep operating the facility but not to sue the state.

"The point of the matter is that Entergy does not do business the way we do business in Vermont. We tell the truth. We follow the laws of the state," the governor said. "How can you complain about a law that you supported when it passed and was signed into law by (former) Gov. James Douglas? It just puzzles me."

Asked about the company's claim that state officials were holding up the permit in hopes of getting bargain prices on power, Sorrell said: "Let them prove that in court."

Environmental advocates said Entergy should follow the state's wishes.

"You need two permission slips," said James Moore, clean energy program director for the Vermont Public Interest Research Group, which has long sought Yankee's closure. "It can't be Dad told you one thing, Mom told you another. It doesn't work that way. You need permission from the state you operate in and from federal regulators."

Sandra Levine, senior staff attorney for the Conservation Law Foundation, a New England environmental advocacy group, said: "They're disobeying the law and they're asking the court to sanction their illegal activity."

Entergy had little choice but to sue, said William Driscoll, vice president of Associated Industries of Vermont, a 500-member group that represents manufacturers and related businesses.

"If the governor and legislative leaders do not now take responsibility for finding some sort of positive resolution of this issue with Vermont Yankee, they will ultimately be responsible for the harmful economic consequences that will result from the plant either shutting down or continuing to operate without favorable power contracts with our utilities," Driscoll said.

## **Nuclear Plant Sues Vt. To Stay Open (BOS)**

### **Federal court case may echo across US**

By Beth Daley

Boston Globe, April 19, 2011

Owners of the Vermont Yankee nuclear power plant filed a federal lawsuit yesterday to prevent state lawmakers from shutting the plant down when its 40-year license expires next year.

The Entergy Corp. lawsuit, filed in US District Court in Burlington, Vt., is expected to force a legal showdown over whether state governments can claim a role in the oversight of nuclear power plants, which are regulated by the federal government. What the courts ultimately decide is likely to have significance for some of the nation's 103 other operating reactors, especially those in states that have similar concerns about their safety.

If the Supreme Court were to reject Entergy's suit, other states could be empowered to pass legislation, as Vermont did in 2006, granting lawmakers the authority to approve or deny a plant's license extension, according to legal scholars. Vermont is the only state in the country that has such veto power, and last year the Senate voted overwhelmingly to shutter the plant in Vernon near the Massachusetts line.

"Despite the fact that Vermont Yankee is important to the reliability of the New England electric transmission grid, emits virtually no greenhouse gases, and provides more than \$100 million in annual economic benefits to the state of Vermont, it has been made clear that state officials are singularly focused on shutting down the plant," said Richard Smith, president of Entergy Wholesale Commodities. "That has left us with no other choice but to seek relief in the court system."

The move comes just weeks after the Nuclear Regulatory Commission granted Vermont Yankee approval to operate through March 2032 and in the midst of controversy about its age and design. The plant has the same basic design as the crippled Fukushima Daiichi nuclear facility in Japan that has had widespread radiation releases following a massive earthquake and tsunami there last month.

The Entergy lawsuit argues in large part that federal, not state, law governs licensing and operation of nuclear power plants, as well as radiological safety.

Vermont officials said they were legally justified in passing the 2006 law and argued that while the federal government oversees some portions of nuclear power plants, states also have a role to play. They contend the plant is too dangerous and old to continue operating and that Entergy did not object to the law that gave the Vermont House and Senate a final say in the plant's future operation.

"Entergy's lobbyists, executives, and lawyers all participated in that process," Governor Peter Shumlin said. "Indeed, Entergy expressed its support of that law at the time. Entergy is now attempting to rewrite history, breaking its own promises and its own support of Vermont law."

When Entergy purchased Vermont Yankee in 2002, the company agreed it would seek approval for a license extension from the Vermont Public Service Board. In 2006, the Legislature took that a step further, requiring a second level of state approval.

Since then, Entergy has had several problems with the plant on the banks of the Connecticut River. In 2007, a cooling tower partially collapsed. The plant's safety was not compromised, but the events stoked public concerns about the adequacy of plant maintenance.

Then last year, Entergy discovered elevated levels of tritium, a radioactive isotope of hydrogen, leaking from underground pipes that company officials initially said probably did not exist. Citing these events, the Senate voted 26 to 4 last year to close the plant next March when its license expires.

Legal scholars say the Vermont case could be important in defining state and federal oversight of nuclear issues. In a well known case in 1983, the US Supreme Court upheld California's right to ban construction of new plants until nuclear waste issues were resolved. The ruling acknowledged that states had some rights in nuclear issues.

The Vermont Yankee case could address an even broader question of federal oversight.

"That is, does the federal government have complete power over nuclear issues," said Boris N. Mamlyuk, who teaches administrative law at Ohio Northern University College of Law. Mamlyuk is researching the Vermont Yankee case. He says if federal courts uphold Vermont's right to intercede, then "Nevada, California, and other states will probably renew efforts to curtail the operation of nuclear power plants."

The Nuclear Energy Institute, an industry group, declined comment on the suit. But spokesman Tom Kauffman said: "We do believe it is important for the public to know that Vermont Yankee operates safely and very reliably."

But Michael Dworkin, director of the Vermont Law School Institute for Energy and the Environment and former chairman of the Vermont Public Service Board, questioned why Entergy had waited five years to complain about the law.

"They are a little late out of the gate," Dworkin said. "If Entergy believed [the law was wrong] they should have said it then."

Beth Daley can be reached at [bdaley@globe.com](mailto:bdaley@globe.com).

## **Vermont Yankee Nuclear Plant Owners File Suit To Stay Operating (BOS)**

By Beth Daley

Boston Globe, April 19, 2011

Owners of the Vermont Yankee nuclear power plant filed a federal lawsuit this morning to prevent Vermont lawmakers from shutting the plant down when its 40-year license expires next year.

Vermont is the only state in the country that requires a nuclear plant to get legislative approval for a license extension. Last year, the state Senate voted 26-4 to close the Vernon plant, near the Massachusetts border.

The move comes just weeks after Vermont Yankee, owned by Entergy Corp. received approval to operate another 20 years from the Nuclear Regulatory Commission – and in the midst of a maelstrom of controversy about its age and design. Vermont Yankee has the same design as the crippled Fukushima Daiichi nuclear facility in Japan that has caused widespread radiation releases following a massive earthquake and tsunami there.

"We have made every reasonable effort to accommodate the state of Vermont and its officials while allowing the continued operation of Vermont Yankee – an outcome that benefits all stakeholders, including Vermont consumers and the approximately 650 men and women who work at the plant," said Richard Smith, president of Entergy Wholesale Commodities.

Vermont Gov. Peter Shumlin is a critic of the plant and has pledged to shut it down.

The legal action, while expected, will be a showdown between state and federal authority. Entergy is arguing, in part, that the state has no authority over nuclear power plant licensing and operations or its radiological safety.

Yet Vermont lawmakers disagree. Long-simmering anti-nuclear sentiment in the state accelerated after the plant received NRC permission to increase its power output by 20 percent in 2006.

The next year, a cooling tower partially collapsed. The plant's safety was not compromised, but the events stoked public concerns about the adequacy of plant maintenance. Then last year, Entergy discovered elevated levels of tritium, a radioactive isotope of hydrogen, leaking from underground pipes after company officials told state officials the pipes did not likely exist.

Other nuclear plants have been able to overcome local opposition because the NRC, not local legislators, has final say in whether the plants can be relicensed. In 2006, the Vermont Legislature passed a law requiring the Yankee plant to get its approval to continue operating after next year.

## **Plant Owner Sues Vermont Over License For Reactor (NYT)**

By Matthew L. Wald

New York Times, April 19, 2011

The owners of the Vermont Yankee nuclear power plant filed a federal lawsuit against state officials on Monday challenging the constitutionality of a state law giving the Vermont legislature veto power over operation of the reactor when its current license expires next March.

The federal Nuclear Regulatory Commission had granted the 39-year-old reactor a 20-year operating extension last month, setting up a court battle over who will decide whether the plant can operate.

The parties bringing the suit are two subsidiaries of the Entergy Corporation, which is based in New Orleans and sells power on the open market. When they bought the plant from local utilities in 2002, they signed an agreement with Vermont's regulatory agency, the Public Service Board, agreeing that when the plant's 40-year federal operating license expired in March 2012, its "certificate of public good," would also need to be renewed. The state requires such certificates of all big power plants.

Vermont added another layer when it enacted a law forbidding the Public Service Board from granting such a certificate without the legislature's approval.

In February 2010, the State Senate voted, 26 to 4, to refuse to grant such a certificate to Vermont Yankee, partly at the urging of the governor, Peter Shumlin, who was then a state senator. The House did not vote.

Richard Smith, an Entergy executive, said the legislature had improperly taken the decision out of the hands of experts at the Nuclear Regulatory Commission and given it to "political decision makers." Only the Nuclear Regulatory Commission can make decisions about safety, he said.

But Mr. Shumlin, a Democrat, said the state legislators thought the plant was too old to operate reliably.

"I don't talk about safety; it's not my concern," Mr. Shumlin said in a news conference in Montpelier after the suit was filed.

Underlying the struggle is that the plant has had embarrassing operational lapses in recent years, and is the same vintage and design of No. 1 reactor at the Fukushima Daiichi plant in Japan, which was damaged in the March 11 earthquake and tsunami.

Mr. Smith said in a telephone conference call: "You will hear that Entergy is going back on its word and breaking the deal it made in the 2002 Memorandum of Understanding. This is not true. We believe the general assembly changed the rules, and left us with no other choice."

The suit, filed in Federal District Court in Burlington, argues that the federal government has exclusive jurisdiction on nuclear safety questions. But it also says that the state is trying to interfere with the interstate electricity market.

It accuses state officials of having suggested that they would grant a new operating certificate to Vermont Yankee if Entergy offered utility price breaks to Vermont residents. That would violate the federal authority's exclusive right to regulate interstate commerce, the lawsuit says, because it would result in consumers in New Hampshire and Massachusetts paying higher rates.

The civil suit, filed by the subsidiaries Entergy Nuclear Vermont Yankee and Entergy Nuclear Operations, names the governor, State Attorney General William Sorrell and the members of the Public Service Board as defendants.

Mr. Smith said the plant should be allowed to keep running partly because it had received good ratings from an industry group, but the company refused to release the report.

The plant has had operational problems. A wooden cooling tower collapsed in August 2007. Also, plant officials appearing before two state panels were asked whether the reactor could leak tritium, as other reactors have. They answered that it had no buried pipes, but a few months later, a tritium leak was discovered from an underground pipe.

Entergy officials said the company tried to sell the troubled reactor, but no buyers stepped forward. The company must decide by July whether to order fuel to run the reactor beyond this fall.

## **Gov. Shumlin Says State Will Fight Entergy's Vermont Yankee Lawsuit (BURFP)**

By Terri Hallenbeck

Burlington (VT) Free Press, April 19, 2011

MONTPELIER — Vermont Yankee owner Entergy Corp. turned to federal court Monday to try to keep Vermont from shutting down the Vernon nuclear power plant, setting the stage for a final fight with the state regarding the plant's future.

In a lawsuit filed in US District Court in Vermont, the company argued the state has no right to stop the plant from operating.

"It's been made clear that the governor and many in the General Assembly have concluded that the plant should be shut down. This has left us with no other choice but to seek relief in the court system," Richard Smith, president of Entergy Wholesale Commodities, said in a Monday conference call.

Gov. Peter Shumlin and Attorney General William Sorrell said the state will fight the lawsuit. "We have been ready for this," Shumlin said.

Sorrell said three attorneys from his office and Public Service Department lawyers have been preparing for a lawsuit for months.

Entergy's lawsuit asks for a temporary injunction against any Vermont efforts "to shut down or make preparations to shut down" Vermont Yankee while the case is pending. The lawsuit also seeks a ruling permanently prohibiting the state from shuttering the plant. The company is demanding, too, that Vermont pay Entergy's attorney fees and costs.

The US Nuclear Regulatory Commission last month granted the 39-year-old Vermont Yankee plant a 20-year extension of its operating license. The plant has failed to win state permission to keep operating, however, amid concerns involving tritium leaks and misinformation the company supplied to the state related to the leaks.

#### Previous agreement

In a 2002 agreement with the state when Entergy bought the plant, the company agreed to follow state review for renewed operation of the plant. In its lawsuit, however, Entergy claims a 2006 law that made Vermont the only state where the Legislature has a say in the future of a nuclear power plant changed the ground rules. The law required the Legislature's approval before the Public Service Board could consider granting the plant a certificate of public good.

(Page 2 of 3)

"The 2006 state law took the decision about Vermont Yankee's future away from the Public Service Board, a quasi-judicial expert decision-maker, independent of legislative control," Smith said. "It instead placed Vermont Yankee's fate in the hands of political decision-makers."

The state Senate in 2010, under then-President Pro Tempore Shumlin, voted 26-4 against allowing the Public Service Board to rule.

"This is not what we signed up for in 2002," Smith said.

"Vermont law is clear," Sorrell countered. "They signed agreements to abide by Vermont law."

The 2006 law passed the Legislature easily and was signed by Republican Gov. Jim Douglas without complaint from Entergy. In 2009, Vermont Yankee spokesman Rob Williams told the Burlington Free Press, "We did not oppose the Legislature's involvement because we felt then, as we do now, that open discussion on the state's long-term energy supply is in everyone's best interest."

Michael Dworkin, who was state Public Service Board chairman in 2002 when Entergy bought the plant, said Entergy is renegeing on the 2002 agreement.

"When Entergy agreed to submit to the board's jurisdiction, it was agreeing to a board that was a creation of the Legislature," he said. Overall, Dworkin called Entergy's lawsuit "very, very weak."

Federal or state control?

Entergy argues in its lawsuit that a state has no authority regarding the licensing of nuclear power plants, highlighting a 1983 US Supreme Court decision that determined only the federal government has jurisdiction over radiological safety.

"Vermont has asserted that it can shut down a federally licensed and operating nuclear power plant, and that it can regulate the plant based upon Vermont's safety concerns," Entergy stated in a news release Monday. The lawsuit cites instances in which Shumlin has referred to tritium leaks at the plant and other safety issues as reasons for shutting down the plant.

Dworkin said Entergy's argument failed to note the decision allows states jurisdiction over energy planning and other aspects of a plant.

(Page 3 of 3)

The US Nuclear Regulatory Commission has indicated states have a role in decision-making regarding nuclear power plants. NRC spokesman Neil Sheehan would not comment Monday other than providing this statement: "Entergy's legal challenge is a matter between the company and the state. The NRC has already granted a license extension after a comprehensive and thorough review that took more than five years."

Sorrell said he thinks other states will be watching closely for the outcome of Entergy's lawsuit and its impact on a state's role. "This is a case of potentially national significance," he said.

Sorrell, Shumlin and the three members of the Public Service Board are named as defendants in Entergy's lawsuit.

The lawsuit has been assigned to US District Judge J. Garvan Murtha, who presides in federal court in Brattleboro. The 34-page claim asks Murtha to rule on the issues, rather than having a jury decide. Among the other claims Entergy raises is that

Vermont should not be allowed to require state legislative or regulatory approval for Vermont Yankee to deliver power to the grid or store spent fuel at the site after March 21, 2012.

The lawsuit also says Vermont's regulation of the plant also represents an improper interference in interstate commerce by requiring Vermont Yankee "to provide below-market wholesale electricity rates to Vermont customers."

#### Reaction

The lawsuit was hailed by supporters of Vermont Yankee and denounced by opponents.

"It has been a failure of leadership and responsibility on the part of the (Shumlin) administration and legislative leaders that this issue has come to this point," said William Driscoll, vice president of Associated Industries of Vermont, which represents manufacturers with an interest in the cost of electricity and contends Vermont Yankee's offer to sell Vermonters power for 4.9 cents per kilowatt hour should not be passed up.

"By filing this lawsuit, Entergy is renegeing on a promise made to the people of Vermont," said James Moore, energy program director with Vermont Public Interest Research Group, which wants the plant shut down.

Vermont's three-member congressional delegation spoke in support of Shumlin's position.

"They're obviously going to mount a propaganda campaign and mount their lawsuit. They're will say what they want," Sen. Bernie Sanders, I-Vt., said Monday. "But I think the state Legislature did the right thing. It's what the people of Vermont wanted them to do, and I think that it's certainly lawful."

"The 2006 state law took the decision about Vermont Yankee's future away from the Public Service Board, a quasi-judicial expert decision-maker, independent of legislative control," Smith said. "It instead placed Vermont Yankee's fate in the hands of political decision-makers."

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## Entergy Sues Vt (BR)

By Bob Audette

Brattleboro Reformer, April 19, 2011

BRATTLEBORO – The decision to file suit against Vermont was its "least favored approach," said Richard Smith, president of Entergy Wholesale Commodities, but the Legislature's refusal to allow the Public Service Commission to issue a certificate of public good for Vermont Yankee's continued operation "has left us with no other choice but to seek relief in court."

Early Monday morning, Entergy issued a press release announcing its decision to file suit in US District Court in the state of Vermont, seeking a declaratory judgment to prevent the state from shutting down the nuclear power plant in Vernon.

"It is clear our disagreement with the state of Vermont on the scope of its authority over Vermont Yankee cannot be resolved between the two parties," said Smith, during a teleconference. "Putting this dispute before a federal judge is the appropriate and responsible way to resolve this disagreement."

Last month, the Nuclear Regulatory Commission approved Entergy's relicensing application for Yankee, which authorized the plant to keep operating 20 years past its original license expiration date of March 21, 2012.

But in 2006, the Vermont Legislature passed Act 160, which gave it the power to prevent the PSB from issuing the certificate, which Yankee needs to continue operation. When Entergy bought the plant in 2002, it agreed in its memorandum of understanding to abide by the PSB's decision.

But Smith said the Legislature's passage of Act 160 "placed Vermont Yankee's fate in the hands of political decision-makers (depriving Entergy) of the opportunity to operate the Vermont Yankee plant ... for unsupported or arbitrary reasons."

Smith said no company likes to take legal action, particularly in a state where it operates.

"We made this decision after much consultation and examination of all possible options," he said. "We believe the General Assembly changed the rules and left us with no other choice."

Smith said the public will hear from those opposed to Yankee's continued operation that Yankee is going back on its word and is breaking the deal it made in the 2002 memorandum of understanding.

"This is not true," he said.

He said that Entergy disagreed with Act 160, but had made "considerable effort to achieve state approvals to allow the continued operation of Vermont Yankee without resorting to litigation."

Those efforts included offering Vermont utilities a 20-year power purchase agreement at a fixed price of \$49 per megawatt hour for the first contract year, followed by a market-adjusted pricing structure that ensured the utilities and their customers would benefit from low power market prices, which was well below comparable offers from other electricity providers.

Entergy also offered to negotiate with the Vermont Department of Public Service the establishment of a "date certain" for the commencement of decommissioning activities at Vermont Yankee earlier than the 60-year SAFSTOR period permitted by NRC regulations.

In addition, Entergy explored the potential sale of Vermont Yankee.

"Despite interest from some potential buyers, based largely on the superior operational record of the plant, Entergy was unable to reach commercial terms with any party due to the political uncertainty in Vermont; more specifically, due to the stated intent of Vermont officials to shut down the plant," said Smith.

"We believe we have made every reasonable effort to accommodate the state of Vermont ..." he said. "After exhausting all avenues, we reluctantly decided to seek relief in the federal court system."

The state also needs to consider Yankee's importance to the New England grid, the fact that it emits virtually no greenhouse gases, that its operation contributes \$100 million in economic benefits to the state and that it employs 650 people.

Because of the hard work of those employees, said Smith, Yankee has been one of the top performing nuclear power plants in the country and operated for 532 days straight between the last two refueling outages.

He also said that recent polling revealed more Vermonters want the plant to stay open than see it shut down.

Entergy's lawsuit is partially based on a 1983 Supreme Court decision, which ruled states have no authority over nuclear power plant licensing and their operation of radiological safety.

Smith also noted that statements from Vermont officials that it would not allow continued operation if Entergy didn't offer a purchase agreement the state would consider agreeable violated the Commerce Clause of the US Constitution, which prohibits the state from conditioning post-March 2012 operation of the Vermont Yankee Station on the plant's agreement to provide power to Vermont utilities at preferential wholesale rates.

"The Federal Power Act preempts any state interference with the Federal Energy Regulatory Commission's exclusive regulation of rates in the wholesale power market (and) The Commerce Clause of the US Constitution bars a state from discriminatory regulation of private markets that favors in-state over out-of-state residents," stated Entergy's court filing.

## **Entergy Files Suit To Stop Vermont From Closing Nuclear Plant Next Year (BLOOM)**

By Don Jeffrey

Bloomberg News, April 19, 2011

Entergy Corp. (ETR), the second-largest operator of nuclear power plants in the US, sued the state of Vermont to prevent it from shutting down the Vermont Yankee plant next year.

Two Entergy subsidiaries asked for an order from the US District Court in Burlington, Vermont to prevent the forced closing of the plant in March, the New Orleans-based company said today.

Vermont breached an agreement with Entergy when it announced it wouldn't agree to the plant's remaining open after March 2012, the company said in the lawsuit. Vermont passed a law in 2006 that transferred authority to approve the operation of the nuclear plant to its General Assembly.

"We believe the state of Vermont changed the rules on us," Richard Smith, president of Entergy Wholesale Commodities, said today in a conference call. "We feel we have made every effort to find a resolution without resorting to litigation, but we were not successful."

The US Nuclear Regulatory Commission renewed Yankee's license this year to operate through March 2032, according to the complaint. Entergy said in the suit that a state may not interfere with the federal government's "exclusive authority over the operation of a nuclear power plant."

The suit names as defendants Governor Peter Shumlin, Attorney General William Sorrell and three Vermont Public Service Board members. The board oversees public utilities.

"We think this is an example of a company that doesn't want to follow the law," Shumlin said today in a telephone press conference. "The NRC does not believe Vermont doesn't have authority over the future of its nuclear power plants."

"We're going to fight very hard to stop operations in March 2012," Sorrell said at the press conference. "We hope to have a decision favorable to us from the District Court."

Entergy entered into a memorandum of understanding with the Public Service Board in 2002 when it acquired the plant, making concessions on energy rates in exchange for approval of the purchase. Entergy said the board has breached that agreement.

The company said it attempted to find a buyer for the plant last year. Smith said on the conference call that the company was unable to reach a deal with interested parties "because of political uncertainty in Vermont, specifically Vermont officials' stated intent to shut down the plant."

Vermont Yankee, operating since 1972 as the only nuclear power plant in the state, provides about one-third of Vermont's electricity, according to Entergy. It also supplies power to wholesale energy markets in New Hampshire and Massachusetts, Smith said.

The nuclear plant "emits virtually no greenhouse gases, and provides more than \$100 million in annual economic benefits to the state of Vermont," Entergy said today in a statement. It employs about 650 people.

Entergy is also a supplier of electrical power to Arkansas, Louisiana, Mississippi and Texas.

The company's shares fell 55 cents, or 0.8 percent, to \$65.97 at 4:03 p.m. in New York Stock Exchange composite trading. The stock has dropped 6.9 percent this year.

Exelon Corp. (EXC) is the largest US nuclear power plant operator.

The case is Entergy Corp. v. Shumlin, 1:11-cv-00099, US District Court, District of Vermont (Burlington).

## **Suit Seeks To Save A Nuclear Plant (WSJ)**

By Matt Day And Mark Peters

Wall Street Journal, April 19, 2011

Full-text stories from the Wall Street Journal are available to Journal subscribers by clicking the link.

## **Vermont Nuke Plant Owner Sues To Keep Doors Open (CBS)**

CBS News, April 19, 2011

Entergy Corp. has filed a lawsuit in Vermont to keep the Vermont Yankee nuclear power plant open past 2012.

The New Orleans-based company has federal approval to keep the plant running until 2032, but it so far has been unable to secure state approval.

The lawsuit was filed Monday in federal court in Vermont.

It says US Supreme Court precedent has found that states have no authority over nuclear plant licensing. It also says Vermont might be interfering with federal authority to regulate the wholesale power market.

Federal regulators last month gave the Vermont Yankee nuclear plant a 20-year license renewal, despite calls for reconsideration following the nuclear disaster in Japan.

Issuance of the license was a foregone conclusion after the NRC voted to approve it on March 10, one day before an earthquake and tsunami triggered the still unfolding crisis at the Fukushima reactors in northeastern Japan, which are of the same design and about the same age as Vermont Yankee.

Vermont Yankee spokesman Larry Smith said they were pleased to have the license in hand. But he added, "It's not a cause right now for any celebration in light of world events."

"I think the NRC has done their job," Smith added. "This has been a five-year review. There's been ample opportunity for people to weigh in."

The license renewal was granted a year to the day before Vermont Yankee's initial 40-year license was to expire. The plant still must be relicensed by the state, but the Senate last year rejected the idea, leaving its future uncertain.

The renewal was the first granted by the NRC since events in Japan began to unfold 10 days earlier.

Sen. Bernie Sanders, I-Vt., had issued a statement Sunday calling for a moratorium on new licenses or license renewals for US reactors in the wake of the Japanese crisis.

"It's hard to understand how the NRC could move forward for a license extension for Vermont Yankee at exactly the same time as a nuclear reactor of similar design is in partial meltdown in Japan," Sanders told The Associated Press. "The idea of keeping Vermont Yankee open ... until it is 60 years of age defies comprehension."

Vermont Yankee, which operations in 1972, is located in Vernon, in Vermont's southeast corner, within sight of New Hampshire across the Connecticut River and about three miles from the Massachusetts line. It's a General Electric Mark 1 boiling water reactor, as are the Fukushima reactors.

Entergy bought Vermont Yankee in 2002 from the group of New England utilities that had owned it and boosted its power output in 2005.

Vermont Yankee announced in January of 2010 that test wells had turned up evidence that radioactive tritium had leaked from underground pipes at the plant into surrounding soil and groundwater. Within days it was revealed that plant executives had misled state lawmakers and regulators — the latter under oath — by saying the plant did not have the type of underground pipes that carried radioactive substances.

## **Entergy 'Must Follow Our Laws,' Shut Nuclear Plant (DJNews)**

By Matt Day

Dow Jones Newswires, April 19, 2011

Vermont's governor said Monday that his administration will resist a lawsuit brought by Entergy Corp. (ETR) challenging the state's authority to shut the Vermont Yankee nuclear plant.

Entergy "must follow our laws" and abide by the state's decision to let the plant close next year, Gov. Peter Shumlin said at a news conference.

The New Orleans-based company Monday filed a lawsuit in US District Court in Vermont to prevent its nuclear power plant there from having to shut down. Its current operating license expires in March 2012.

Entergy, the second-largest US nuclear plant operator, has won approval from federal regulators to operate the plant for another 20 years. But Vermont legislators have blocked the company from receiving a state certificate, which is needed to extend the reactor's life.

Entergy agreed to give state regulators a say in extending the plant's operating license when it bought Vermont Yankee in 2002. The state legislature revised the process in 2006, requiring approval from the Vermont House of Representatives and Senate before the public service board could proceed. Entergy contends in the suit filed Monday that the 2006 law invalidates the agreement, and the plant's fate should rest with federal regulators alone.

The state Senate last year overwhelmingly rejected a measure to extend the life of the plant.

## **Gov. Peter Shumlin Statement On Entergy's Vermont Yankee Lawsuit (BURFP)**

Burlington (VT) Free Press, April 19, 2011

Today Entergy sued the State of Vermont in US District Court in Vermont. Entergy's lawsuit claims that Vermont should have no role in approving Vermont Yankee's continued operation after March 2012.

As Governor, I have taken an oath to uphold and protect the laws of our state and I want to reassure Vermonters that I will keep that promise. Fortunately, we are ready for this event. The Attorney General's Office and other state agencies have been working hard to prepare a defense and protect our state's laws.

In 1972, Vermont Yankee began to operate after our Legislature voted to allow a nuclear plant to be built in our state under a 40-year license, until 2012. In 2006, mindful of its proper role in the process, the Legislature passed a law, signed by my predecessor Governor James Douglas, that clearly outlined the requirements for the continued operation of a nuclear power plant in our state. Entergy's lobbyists, executives and lawyers all participated in that process – indeed, Entergy expressed its support of that law at the time.

Entergy is now attempting to rewrite history, breaking its own promises and its own support of Vermont law. Instead of following Vermont law, Entergy seeks to subject the taxpayers of Vermont to an expensive legal proceeding. I am deeply concerned about this action because it flies in the face of commitments made by Entergy. When it purchased Vermont Yankee, Entergy clearly agreed that it must obtain a new state license to operate beyond March 2012, and that it would not attempt to claim preemption regarding the state's licensing decision. The Public Service Board relied upon that promise when it allowed Entergy to purchase the plant. Later, Entergy supported the law passed by the legislature and signed by my predecessor giving the legislature a role in the state licensing process.

Yet now, as March 2012 approaches and the state license is not in hand, we see Entergy's executives breaking their agreement and their word once again. Vermont has a proper role in granting or denying state approval for Vermont Yankee. We are confident that the Court will recognize that role and we are ready to defend Vermont in this lawsuit.

## **Entergy Files Lawsuit (KSENT)**

**Says Vermont oversteps power**

By Kyle Jarvis

Keene Sentinel, April 19, 2011

VERNON Vt. — Officials from the parent company of Vermont Yankee nuclear power plant filed a lawsuit against the state of Vermont today in the ongoing battle over whether the plant should be allowed to operate past March 21, 2012.

Last month, the federal Nuclear Regulatory Commission renewed Entergy's operating license, allowing the plant to remain online through March 21, 2032.

In 2002, Entergy officials signed an agreement with Vermont officials that said Entergy would seek approval from the Vermont Public Service Board if it sought to operate the plant beyond March 21, 2012.

Entergy officials said doing so was in accordance with the process and standards for securing the state certificate in effect at that time.

But, Entergy argues, the Vermont General Assembly invalidated that provision in 2006, therefore breaking the signed agreement from 2002.

Entergy says it has done everything in its power to appease the state, including filing a petition for a "certificate of public good" in 2008 (required by Vermont for all new gas and electric purchases, investments, and facilities including transmission upgrades), offering Vermont utilities a 20-year power purchase agreement at reduced rates, offering to establish a "date certain" for the commencement of decommissioning the plant, and trying to sell the property.

Entergy said it was unable to sell the property due to the uncertain political climate in Vermont and, more specifically, "due to the stated intent of Vermont officials to shut down the plant."

Entergy said the lawsuit filed today was based in part on legal principles relating to federal law.

Under the Atomic Energy Act Preemption, "a state has no authority over ... nuclear power plant licensing and operations or ... the radiological safety of a nuclear power plant," Entergy argued. "Vermont has asserted that it can shut down a federally licensed and operating nuclear power plant, and that it can regulate the plant based upon Vermont's safety concerns."

Entergy also claims that the Federal Power Act Preemption and the commerce clause of the US Constitution prevents states from interfering in regulation of rates in the wholesale power market.

It also said the law bars states from discriminatory regulation of private markets that favors in-state over out-of-state residents.

## **Entergy Files Complaint In Court Against State Of Vermont (AP)**

Associated Press, April 19, 2011

Entergy Corporation filed a complaint Monday against the state of Vermont in US District Court. The company is seeking a judgment to prevent the state from forcing Vermont Yankee to shutdown in May 2012.

"We have made every reasonable effort to accommodate the state of Vermont and its officials while allowing the continued operation of Vermont Yankee," said Richard Smith, president of Entergy Wholesale Commodities, in a press release.

Monday's request for declaratory and injunctive relief follows on the heels on the Nuclear Regulatory Commission's renewal of the plant's license. The NRC renewed the plant's licenses after a safety and environmental review of the plant.

"It has been made clear that state officials are singularly focused on shutting down the plant," said Smith. "That has left us with no other choice but to seek relief in the court system."

## **Entergy Files Suit To Keep VY Open (BRATBORO)**

Brattleboro Reformer (VT), April 19, 2011

Early today, Entergy filed a complaint in US District Court to keep Vermont Yankee nuclear power plant in Vernon open despite Vermont's refusal to issue a certificate of public good for the plant's continued operation.

Entergy is seeking a judgment to prevent the state of Vermont from forcing the Vermont Yankee nuclear power plant to cease operation on March 21, 2012.

Today's request for declaratory and injunctive relief follows the federal Nuclear Regulatory Commission's March 21, 2011, renewal of Vermont Yankee's operating license authorizing the plant's operation through March 21, 2032.

The NRC's action came after a thorough and exhaustive five-year safety and environmental review of the plant.

"We have made every reasonable effort to accommodate the state of Vermont and its officials while allowing the continued operation of Vermont Yankee - an outcome that benefits all stakeholders, including Vermont consumers and the approximately 650 men and women who work at the plant," said Richard Smith, president of Entergy Wholesale Commodities. "Despite the fact that Vermont Yankee is important to the reliability of the New England electric transmission grid, emits virtually no greenhouse gases, and provides more than \$100 million in annual economic benefits to the state of Vermont, it has been made clear that state officials are singularly focused on shutting down the plant. That has left us with no other choice but to seek relief in the court system."

## **Vermont Yankee Owners Fight Nuke Plant Shutdown (NHPR)**

By Elaine Grant

New Hampshire Public Radio, April 18, 2011

The plant's 20-year license expires on March 21, 2012, and the Nuclear Regulatory Commission recently voted to relicense it for another two decades.

But Vermont has authority over the plant, and the state senate voted overwhelmingly last year to shut it down.

Vermont Senate President Pro-Tem John Campbell contends that in return for permission to operate and to store nuclear waste near the Connecticut River, Entergy had agreed to the state's involvement in the relicensing decision. "It's quite troubling when a nuclear power plant such as Entergy of Louisiana is unwilling to keep its word," he said. "I guess in Louisiana they don't honor their word as we do here in the Northeast."

Entergy's lawsuit claims that states have no legal authority over nuclear power plants. Vermont is the only state in the US with such a law.

## **Vt. Yankee Files Lawsuit To Stay Open (WWLP)**

By Matt Caron

WWLP-TV Springfield, MA, April 19, 2011

BERNARDSTON, Mass. (WWLP) - The owners of the Vermont Yankee Nuclear power plant filed a lawsuit Monday in US District Court to prevent the State of Vermont from shutting the plant down.

Vermont Yankee's current operations license will expire on March 21, 2012. The nuclear regulatory commission has already granted them an extension to operate until 2032; the problem is that state law requires the plant to get approval from the Vermont legislature.

The lawsuit comes after the Governor of Vermont said that he wants to shut the plant down--citing maintenance issues like the collapse of a cooling tower and a leak of radioactive tritium into the groundwater.

Vermont Yankee spokesperson Larry Smith told 22News that the plant passed an exhaustive five-year safety and environmental review, and that the plant is completely safe.

22News talked to Franklin County residents who live on the Vermont state line to see what they thought about Vermont Yankee.

"I fall, as a member of Bernardston, just right in the blast zone. Every Wednesday at 6:00 P.M., they test the siren here in town, and it's just another reminder that we've got a nuclear power plant right across the border. Especially with what's happened in Japan and the trouble that they're having just containing it it makes me a little nervous," Tommy Byrnes of Bernardston said.

"I think it creates a lot of good jobs for people, but I'd feel safer probably if it wasn't there," Timothy Dirth of Winchester, New Hampshire said.

## **Entergy Seeks Court Injunction To Keep Vermont Yankee Running (DJNews)**

By Drew FitzGerald

Dow Jones Newswires, April 19, 2011

Entergy Corp. (ETR) said Monday it will go to court to seek an injunction to prevent Vermont officials from forcing it to shut down its nuclear power plant there.

The complaint filed in Vermont's US District Court aims to prevent the state from forcing Entergy's Vermont Yankee plant to cease operations next year. The second-largest US power generation company wants to renew the plant's 20-year license, which expires March 20, 2012.

"It has been made clear that state officials are singularly focused on shutting down the plant," Entergy Wholesale Commodities President Richard Smith said. "That has left us with no other choice but to seek relief in the court system."

Entergy last month decided to keep the aging power plant after it failed to find a buyer for it. The company cited political uncertainty for the lack of a sale.

Opposition to the plant grew after the New Orleans-based company reported several leaks of radioactive material from underground pipes. State officials said Entergy had told them the piping didn't transport radioactive materials.

The complaint disclosed Monday hinges on a provision of a 2002 memorandum of understanding that state officials signed with Entergy's two subsidiaries when the company bought the facility. Vermont's General Assembly passed a law in 2006 that invalidated the provision and breached the memorandum of understanding, Entergy contends.

Shares closed at \$66.52 and were mostly inactive premarket. The stock has fallen 17% over the past year.

## **Entergy Sues To Keep Vermont Yankee Running (EETP)**

By Hannah Northey

E&ENews PM, April 19, 2011

Entergy Corp. filed a lawsuit today against the state of Vermont to keep the company's 650-megawatt Vermont Yankee nuclear power plant operating after its current operating license expires next year.

Two Entergy subsidiaries -- Entergy Nuclear Vermont Yankee LLC and Entergy Nuclear Operations Inc. -- filed the complaint in the US District Court for the District of Vermont in a bid to stop the state from halting plant operations next year.

On the federal level, the Nuclear Regulatory Commission already renewed the plant's operating license on March 21 after a five-year review, allowing the reactor to operate for 20 additional years (E&ENews PM, March 21).

But Entergy still needs Vermont's General Assembly to approve a so-called certificate of public good for the 39-year-old plant that would allow the power plant to continue operating beyond 2012. The plant is in Vernon, Wyndham County, in the state's southeastern tip.

The state passed a law in 2006 that grants the state's Legislature power to approve the certificate.

Entergy argues that it bought the Vermont Yankee plant in 2002 under an agreement with the state that stipulated the Vermont Public Service Board, not the state's Legislature, would grant the plant's certificate.

The 2006 law "took the decision about Vermont Yankee's future away from the Public Service Board, a quasi-judicial expert decision-maker, independent of legislative control" and placed it into the "hands of political" individuals, Richard Smith, president of Entergy Wholesale Commodities, said in a statement.

Entergy says Vermont cannot interfere with the federal government's exclusive authority over the operation of the nuclear plant under the Atomic Energy Act.

Vermont also told the company it would consider approving the license if Entergy sold power from the nuclear plant at "preferential rates" compared to non-Vermont utilities, according to the lawsuit. Such an agreement would favor in-state residents over out-of-state residents and violates the US Commerce Clause, Entergy said.

Vermont Gov. Peter Shumlin (D) said during a press conference today that the state is prepared to defend itself and that Entergy must follow state law. The state is expecting a decision from the court by late fall.

## **Entergy Files Suit Over Vermont Nuclear Plant (MSBJ)**

Mississippi Business Journal, April 19, 2011

Entergy Corporation announced that two of its subsidiaries, Entergy Nuclear Vermont Yankee, LLC (ENVY) and Entergy Nuclear Operations Inc. (ENOI), have filed a complaint in US District Court for the District of Vermont seeking a judgment to prevent the State of Vermont from forcing the Vermont Yankee nuclear power plant to cease operation March 21, 2012.

The request for declaratory and injunctive relief follows the federal Nuclear Regulatory Commission's March 21 renewal of Vermont Yankee's operating license authorizing the plant's operation through March 21, 2032.

"We have made every reasonable effort to accommodate the State of Vermont and its officials while allowing the continued operation of Vermont Yankee, an outcome that benefits all stakeholders, including Vermont consumers and the approximately 650 men and women who work at the plant," said Richard Smith, president of Entergy Wholesale Commodities. "Despite the fact that Vermont Yankee is important to the reliability of the New England electric transmission grid, emits virtually no greenhouse gases, and provides more than \$100 million in annual economic benefits to the State of Vermont, it has been made clear that state officials are singularly focused on shutting down the plant. That has left us with no other choice but to seek relief in the court system."

"Litigation is by far the least preferred approach. But it is clear our disagreement with the State of Vermont on the scope of its authority over Vermont Yankee cannot be resolved between the two parties. Putting this dispute before a federal judge is the appropriate and responsible way to resolve this disagreement."

## **Vernon In Early Stages Of Yankee Deal (BR)**

By Chris Garofolo

Brattleboro Reformer, April 19, 2011

VERNON – The Vernon tax stabilization committee is taking a wait-and-see approach to its preliminary negotiations with Vermont Yankee nuclear power plant as the facility's owner has filed litigation against the state this week.

During a brief Monday evening meeting, the committee members said they remain in the preliminary stages of working with the plant owner, Entergy Corp., on a new agreement for the town.

The committee was re-established in December 2010 to begin negotiations with Entergy as the current operating contract expires next year.

The committee also was set to review options for receiving a taxable value from the plant in the event Yankee closes in 2012.

"Things are just going to go on the way they are right now as the lawsuit unfolds," said Patricia O'Donnell of the Vernon Selectboard and a member of the committee.

"We're starting the tax committee early so we have time to sift through all the information and make a decision," she said. "Vermont Yankee and Entergy have been really good neighbors to the people of Vernon and nobody in Vernon wants to rush this and make quick decisions. We want to be fair and involve Vermont Yankee and Entergy in the process, and that's what we're going to do as time goes by."

The committee met on Monday with George "Skip" Sansoucy, a New Hampshire-based consultant and engineer specializing in the valuation of utility properties such as power plants, during a nonpublic session. He referred all questions to the committee.

Keeping Yankee operational is a major concern among Vernon residents. The plant pays \$1.3 million in municipal taxes, or about 50 percent of the total levy for the town, not including the school district.

The 39-year-old plant is located on the banks of the Connecticut River and was scheduled to shut down in March 2012.

But a pending legal battle is now set up after the Vermont Senate voted 26-4 in February 2010 to block the site's continued operations, followed by the US Nuclear Regulatory Commission's decision to renew Yankee's license until March 21, 2032, last month.

The NRC decision to renew came after its extensive safety and environmental review of the application submitted in January 2006 by Entergy. More recently, Entergy announced two of its subsidiaries, Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc., filed a complaint in US District Court for Vermont seeking a judgement to prevent the state from forcing Yankee to cease operations next year.

"We have made every reasonable effort to accommodate the state of Vermont and its officials while allowing the continued operation of Vermont Yankee," according to a statement from Richard Smith, president of Entergy Wholesale Commodities. The company was left not choice but to seek relief in the court system, he continued.

The Yankee lawsuit hinges upon the fact that under the current Atomic Energy Act, only the federal government has jurisdiction over the relicensing of nuclear plant licensing and operations, and the conditioning state approval (which was not granted) violates the commerce clause of the US Constitution (barring states from regulating private markets in a way that gives preferential treatment to in-state businesses).

Yet opponents of Yankee argue that lawmakers gave themselves the authority to prohibit the Vermont Public Service Good from issuing a certificate of public good to the plant. The legislation was signed by then-Gov. James Douglas.

"It appears that Entergy has developed a bad case of corporate amnesia in refusing to honor an agreement it signed with the state in 2002," said Vermont's congressional delegation in a press statement.

"Entergy agreed to waive any claim that federal law preempts the jurisdiction of Vermont. The company also agreed to comply with the terms of the agreement and Vermont laws. The Vermont laws are clear; Entergy must be approved by both the state Legislature and the Vermont Public Service Board to receive a certificate of public good to continue to operate the Vermont Yankee nuclear power plant beyond March of 2012," according to the release from Sens. Patrick Leahy and Bernie Sanders and Rep. Peter Welch. Chris Garofolo can be reached at [cgarofolo@reformer.com](mailto:cgarofolo@reformer.com) or 802-254-2311 ext. 275.

## **Press Release: Entergy Reneges On Its Promise; Sues Vermont : VTDigger (VTD)**

By James Moore

VTDigger, April 19, 2011

Entergy Corporation of Louisiana announced this morning that two of its corporate subsidiaries had filed a lawsuit against the state of Vermont in a desperate move to continue operating its troubled nuclear plant for another 20 years after its license expires in March of next year.

Vermont Yankee, which is the same age and design as the crippled nuclear reactors in Fukushima, Japan, has suffered through its own remarkable string of accidents, malfunctions, and failures in recent years. "The accidents in Japan prove that there is nothing reliable about this reactor design" noted James Moore, Energy Program Director with VPIRG. An abbreviated sampling of Vermont Yankee's record of unreliability includes the following:

Failed pipes that carried radioactive materials leaked from Vermont Yankee into the waters of Vermont in 2009-2010. The initial leak was found to be coming from pipes that Entergy officials swore only months before did not exist;

Additional plumes were discovered early in 2011 and the leaks have not yet been located;

Failed pipes and valves have caused numerous decreases in power production or threatened full shutdown in 2007, 2009, and 2011;

Timber supporting water pipe gave way triggering catastrophic cooling tower section collapse in 2007;

Significant leaks and damaged brackets discovered one year later in areas that were inspected and rebuilt after the collapse;

A defective pump prompted ENVY to reduce power in June 2008;

Condenser tube leak triggered plant shutdown in April, 2008;

Stop valve malfunction triggers shutdown in August, 2007; and

Dozens of cracks in steam dryer have been discovered in recent years.

"This nuclear plant is already limping toward the finish line," said Moore. "Given its age and design flaws, the idea that Entergy essentially wants to patch it up now and send it out for another marathon run is dangerously irresponsible."

An overwhelming and tri-partisan majority of Vermont state senators voted against continued operation of the nuclear plant in February of last year. The myriad problems plaguing the plant's operation and the extraordinary untrustworthiness of Entergy officials ensured Vermont Yankee's fate in the eyes of many legislators.

Today's lawsuit will do nothing to improve Entergy's record of untrustworthiness. When Entergy purchased Vermont Yankee in 2002 the company agreed in a formal memorandum of understanding to waive any claim that federal law preempts the jurisdiction of the state in these matters.

"By filing this lawsuit, Entergy is renegeing on a promise made to the people of Vermont," said Moore. "This may not be a shock given the corporation's track record of giving false statements under oath and incompetence in managing the facility, but it's another indication that this company cannot be trusted to run the plant one day past the expiration of its license."

Entergy makes much of the fact that the Nuclear Regulatory Commission gave its approval of the plant's continued operation last month. However, at that time according to the Associated Press, NRC Chairman Gregory Jaczko noted that there are "a variety of permits and requirements for this facility to operate," and that, "I would defer any of those actions (aside from the NRC's approval) to the state or other authorities."

"It seems clear that even the nation's biggest cheerleader for nuclear power, the NRC itself, disagrees with Entergy over the proper role of the state in these matters," added Moore.

## **What About That 50-mile Zone Around The Nuclear Power Accident In Japan? (KSENT)**

Keene Sentinel, April 19, 2011

Less than a week after the March 11 tsunami hit Japan, causing the ongoing crisis at the Fukushima nuclear power plant, the US Nuclear Regulatory Commission recommended: "Under the guidelines for public safety that would be used in the United States under similar circumstances, the NRC believes it is appropriate for US residents within 50 miles of the Fukushima reactors to evacuate."

Japanese officials may be agreeing, but slowly.

First, they ordered everyone living within a six-mile radius of the place to evacuate. Then, as radiation began to spread, they expanded the evacuation zone to 12 miles. Late last week, they extended it to 18 miles, noting the danger to children, pregnant women and people in hospitals. A Japanese government spokesman said that decision was based on data related to cumulative radiation exposure. And engineers have not been able to repair the reactors or seal leaks of radioactive water.

The NRC says it still stands by its 50-mile recommendation, which came as a shock to many Americans. Physical evacuation zones around this country's nuclear plants are only about 10 miles. In the United States, 100 million people live within a 50 mile radius of a nuclear plant — 20 million within range of the Indian Point reactors in New York. New York Governor Andrew Cuomo says the NRC has promised to make Indian Point its "first and top priority" in a review of seismic risk at 27 American nuclear plants.

Closer to home — indeed, right here at home — is the Vermont Yankee plant in Vernon. It is operated by Entergy Corporation, the company that runs Indian Point, and Vermont Yankee is not on the NRC seismic checkup list.

The 10-mile evacuation zone for the Vermont Yankee plant includes all or part of Chesterfield, Hinsdale, Richmond, Swanzey and Winchester in New Hampshire; Bernardston, Colrain, Gill, Leyden and Northfield in Massachusetts; and Brattleboro, Dummerston, Gilford and Vernon in Vermont.

That's a pretty big circle.

But if an accident or sabotage were to spread radiation from the Vermont Yankee reactor or breach its spent-fuel storage containers, and if the NRC were to apply its newly announced 50-mile safety standard, all the Vermont Yankee emergency reception centers for displaced people would be useless, as they are too close to the plant. Instead, evacuees would have to find shelter and, eventually perhaps, new homes and livelihoods beyond Claremont (41 miles to the north), Milford (43 miles to the east), Springfield, Massachusetts, (45 miles to the south) and Hoosick Falls, New York, (43 miles to the west).

After great disasters strike, whether natural or man-made, survivors traditionally move back into the affected area begin rebuilding. Such determination may not be possible in places where nuclear energy goes wild. The operator of the Fukushima plant announced last week that each household in its evacuation zones would be paid \$12,000, and that it hoped to have the plants stabilized in six to nine months, allowing some refugees to go home. But an unknown number of the mostly middle-class families who lived near the Fukushima complex will never be able to go home. The US Environmental Protection Agency estimates that radioactive elements of spent nuclear fuel will remain deadly to humans for 10,000 years.

Japanese authorities now say the Fukushima damage, while still continuing, has reached the severity level of the 1986 Chernobyl accident in Ukraine. Let us note that a permanently contaminated 19-mile circle around that hastily abandoned community is now officially known as the Chernobyl Zone of Alienation.

## **Nuclear Regulatory Commission Head To Speak At Leaders + Legends (JHU Gazette)**

By Andrew Blumberg

The JHU Gazette, April 18, 2011

Gregory B. Jaczko, chairman of the US Nuclear Regulatory Commission, is the featured speaker at the Johns Hopkins Carey Business School's Leaders + Legends lecture series on April 21. The event will take place at 7:30 a.m. in the Legg Mason Tower in Harbor East. The title of his remarks is "The Past, Present and Future of Nuclear Power: A Regulator's Perspective."

Jaczko was first sworn in as a commissioner of the NRC on Jan. 21, 2005, and he was designated chairman by President Barack Obama on May 13, 2009. His current term runs through June 2013.

In his position, Jaczko has focused on the NRC being a strong and decisive safety regulator possessing the confidence of the public, and has worked to have the agency clearly communicate with the public and its licensees. He is committed to the safety of existing nuclear reactors and radioactive materials sites, an effective and efficient safety review process for license applications, thorough environmental reviews, and strong enforcement and accountability.

Jaczko previously served as science policy adviser and appropriations director for US Sen. Harry Reid and as a congressional science fellow in the office of Rep. Edward Markey. He also has been an adjunct professor at Georgetown University, teaching in the areas of science and public policy.

Jaczko holds a bachelor's degree in physics and philosophy from Cornell University and a doctorate in physics from the University of Wisconsin, Madison.

The Leaders + Legends monthly breakfast series, which features today's most influential business and public policy leaders addressing topics of global interest and importance, is designed to engage business and community professionals in an examination of the most compelling issues and challenges facing society today.

Admission to the lecture, which includes breakfast, is \$35. To register and for more information, go to [carey.jhu.edu/leadersandlegends](http://carey.jhu.edu/leadersandlegends).

## **Exclusive: US Nuclear Regulator A Policeman Or Salesman? (REU)**

By Ben Berkowitz And Roberta Rampton

Reuters, April 18, 2011

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

## **US Is Increasing Nuclear Power Through Uprating (LAT)**

**Turning up the power is a little-publicized way of getting more electricity from existing nuclear plants. But scrutiny is likely to increase in the wake of Japan's nuclear crisis.**

By Alan Zarembo And Ben Welsh

Los Angeles Times, April 18, 2011

The US nuclear industry is turning up the power on old reactors, spurring quiet debate over the safety of pushing aging equipment beyond its original specifications.

The little-publicized practice, known as uprating, has expanded the country's nuclear capacity without the financial risks, public anxiety and political obstacles that have halted the construction of new plants for the last 15 years.

The power boosts come from more potent fuel rods in the reactor core and, sometimes, more highly enriched uranium. As a result, the nuclear reactions generate more heat, which boils more water into steam to drive the turbines that make electricity.

Tiny uprates have long been common. But nuclear watchdogs and the US Nuclear Regulatory Commission's own safety advisory panel have expressed concern over larger boosts — some by up to 20% — that the NRC began approving in 1998. Twenty of the nation's 104 reactors have undergone these "extended power uprates."

The safety discussions have largely escaped public attention, but they could become more prominent as the Japanese nuclear crisis focuses more scrutiny on US reactors.

In an uprated reactor, more neutrons bombard the core, increasing stress on its steel shell. Core temperatures are higher, lengthening the time to cool it during a shutdown. Water and steam flow at higher pressures, increasing corrosion of pipes, valves and other parts.

"This trend is, in principle, detrimental to the stability characteristics of the reactor, inasmuch as it increases the probability of instability events and increases the severity of such events, if they were to occur," the Advisory Committee on Reactor Safeguards, which is mandated by Congress to advise the NRC, has warned.

Still, the committee has endorsed uprates, based on assurances that any increased risk falls within federal safety standards and is countered by additional safety measures such as plant modifications and more frequent inspections.

"You can always make a plant safer," said William Shack, a materials engineer and member of the safety committee. "The question is, when do I say I've made it safe enough?"

Computer models used to analyze risk suggest that a properly uprated reactor is no more vulnerable than one operating at its original capacity.

But critics of uprates point out that such analyses may fail to account for unforeseen accident scenarios.

"It's beyond the wit of mankind to identify all challenges to a nuclear plant," said John Large, a former researcher for the British atomic energy agency who runs a consulting company in London specializing in nuclear safety.

A case in point involved three uprated reactors in Illinois.

In 2002, both reactors at the Quad Cities Nuclear Plant were restarted after having their capacity boosted by 17.8%. Pipes began to shake, and cracks formed in a steam separator, which removes moisture from the steam before it enters the turbines. In one case, a 9-by-6-inch metal chunk broke off and disappeared.

Similar problems were discovered at the Dresden Nuclear Power Plant, about 60 miles southwest of Chicago, which had undergone a 17% uprate.

Broken parts were replaced, but the problem continued. Exelon Corp., which owns the three plants, and the NRC were mystified.

"The greatest concern is loose parts that you can't find," John Sieber, a nuclear engineer on the NRC advisory committee, said during a 2004 meeting. "Are they in the bottom of the reactor vessel? ... Is it floating around where it can damage internal parts of the core?"

Eventually the problem was uncovered: acoustic waves caused by the geometry of the steam pipes. The pipes were acting like a musical instrument. Their geometry was modified to "detune" them.

Plans to boost the power by 14.3% at three reactors in Athens, Ala., and 12.9% at a plant in Monticello, Minn., have been held up, in part, by NRC concerns over the steam separators.

Nuclear industry officials and regulators say that safety calculations are conservative and that even the biggest uprates fall far short of the power loads the reactors could actually handle.

Craig Nesbit, an Exelon spokesman, said that uprates "do not cut into the safety margins of these plants."

He and other industry officials note that uprates often require replacing turbines, transformers and other major equipment to accommodate higher water and steam flows.

But some things do not change, including the suppression pool, which is designed to soak up heat from the reactor core during some kinds of accidents, and the heat removal pumps, which deliver water from the pool into the core to prevent the fuel from melting down.

David Lochbaum, a nuclear engineer with the environmental group Union of Concerned Scientists, has argued that in some uprated reactors the pool may be too small and could become so hot that its contents could begin to vaporize, causing the pumps to lose suction.

Such a scenario is extremely unlikely, because the accident itself would create a pressure buildup in the surrounding containment vessel that would ensure that the pumps kept working. The system would risk failure only if the containment vessel itself were breached, allowing outside air to rush in.

The NRC allows companies to include that containment vessel pressure in their safety calculations. It has been used in 17 uprate approvals, according to NRC spokesman Scott Burnell.

But factoring in the pressure buildup "represents a decrease in the safety margin available to deal with a phenomenon subject to large uncertainties," the agency's safety advisory committee wrote in a March 18, 2009, letter to the agency. Forcing regulators to show that the safety system would work without the pressure buildup would offer an extra layer of protection against "potential melting of the core," the letter said.

The alternative would be requiring plant modifications so costly that companies say it would no longer make economic sense to uprate.

For the US nuclear industry, which supplies a fifth of the nation's electricity, uprating is attractive because it is one of the cheapest ways to add power to the grid.

The 1979 partial meltdown at Three Mile Island eroded public confidence in nuclear power. Construction proceeded on many reactors that had already been approved — the last one went into operation in 1996 — but the industry was forced to look for ways to get more out of existing plants.

The biggest gains have been achieved by running reactors more efficiently — less downtime for fuel changes, for example.

But uprates have played an important role, adding the equivalent output of nearly five average-sized reactors since 1996. Regulators say they expect to approve boosts totaling 3 1/2 more reactors over the next four years.

Exelon, the nation's top nuclear provider, plans to spend \$3.65 billion on power boosts equivalent to one new nuclear reactor over the next eight years, according to its filings for investors.

"They would come at half the cost of a new plant and with less risk because of the opportunity to defer expansion if power prices do not support it," its annual report says.

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## **Special Report: The Nuclear Industry's Trillion Dollar Question (REU)**

By Muriel Boselli And Geert De Clercq

Reuters, April 19, 2011

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

## **Nuclear 'Uprates' Increase Power Generation With Little Scrutiny (FairWarning)**

By Patrick Corcoran

FairWarning, April 18, 2011

Hemmed in by safety concerns along with political and financial risks, the US nuclear industry hasn't built a new power plant in 15 years.

But, as the Los Angeles Times reports, companies have still managed to generate more power through a little-known process called "uprating."

Uprating refers to using more potent fuel rods and, sometimes, more highly enriched uranium. The materials enable plants to boil reactor water more quickly, sending more steam through the turbines and generating more power.

But the boost in power comes with increased risk: the stress on the reactor's components is greater, which could cause a faster rate of deterioration.

Since being approved by the Nuclear Regulatory Commission in 1998, small uprates have long been common, but what is newer are the sharper increases in power output in the past several years. Some plants have experienced 20 percent increases in power, and 20 of the 104 American power plants have undergone "extended power uprates."

Federal authorities have raised red flags about uprating. "This trend is, in principle, detrimental to the stability characteristics of the reactor, inasmuch as it increases the probability of instability events and increases the severity of such events, if they were to occur," the Advisory Committee on Reactor Safeguards, a Congressionally mandated advisory group to the Nuclear Regulatory Commission, warned in a January letter.

Some defenders of the process argue that computer models show that when done properly, there is no increased risk to an uprated nuclear plant. Indeed, the advisory committee gives the practice a thumbs-up, despite its concerns.

However, others suggest that nuclear plants are far too complicated for either the smartest expert or a computer model to plan for all of the contingencies.

"It's beyond the wit of mankind to identify all challenges to a nuclear plant," John Large, a former researcher for the British atomic energy agency and the director of a nuclear consulting firm, told the Times.

In fact, three reactors in Illinois that were uprated in the past decade began showing increased wear and tear, including cracks in equipment, despite the calculations by the reactors' operators that there was no greater risk.

## **Nuclear Regulatory Commission May Adopt A Bring-your-own-device Mobile Strategy (FGHIT)**

By Molly Bernhart Walker

FierceGovernmentIT, April 18, 2011

Allowing the use of a single, employee-provided device for both personal and work environments is "on the table" at the Nuclear Regulatory Commission.

"It's actually getting to a point where I couldn't care less what device you've got," said Darren Ash, chief information officer at the NRC, while speaking at an April 14 AFFIRM mobility event in Washington, D.C.

"The genie's out of the bottle," he said. "I know that we've got employees—I see them throughout the agency—the employees with the iPads, the iPhones whatever, a myriad of devices. They're there, and potentially using them for things they need to do. They're not connecting to our network because we won't allow it, but we know those devices exist."

Many NRC employees work at fuel and power plants in rural locations, using laptops and docking stations. Ash said NRC's exploration of consumer-provided devices isn't that much of a jump considering its remote workforce. As a CIO, Ash said he "shouldn't focus on the brand or device, I need to focus on the business capability."

The lingering issues with allowing devices that can toggle between work and personal needs aren't necessarily technical or security-oriented, they're primarily cultural and contractual, said Carl Froehlich, associate CIO, end user equipment and services at the Internal Revenue Service.

"With the smartphone, when you're in the sandbox doing work, you're protected. If you're using the same phone and you're not in the sandbox, you're in the wild wild west," said Froehlich.

"If it's an IRS-provided device, and we allow them to use it for personal use, because our ethics say if it doesn't increase cost to government incremental use of IT facilities are okay," said Froehlich. "Now, if they go to a site on an IRS-provided phone, even if it's on the personal side of the phone, is it an ethics violation? We don't have an answer to that."

This issue has to be negotiated because "rules of behavior" have major considerations for union employees' contracts, said Ash.

"In all the pilots I'm doing with smartphones and iPads, not a single person is a union member," added Froehlich.

In February Federal CIO Vivek Kundra revealed that he was looking into a move to "employee-owned" mobile devices which would disintermediate centralized IT departments. Government employees could virtualize a mobile operating environment for work on their personal mobile device. As a result, security concerns would shift and CIOs would be less focused on inventory and device management and more focused on the HTTPS environment, a scalable approach, said Kundra.

Kundra's proposal was met with less than universal approval, however. One federal official said it would require a change in congressional appropriations law.

## **Storage Of Spent Fuel Rods At New England Nuclear Power Plants Generates Fear (SPREP)**

**Editor's note: This series is a collaboration between the Hearst Connecticut Media Group and the New England Center for Investigative Reporting ([www.necir-bu.org](http://www.necir-bu.org)), a nonprofit investigative newsroom based at Boston University**

By Bill Cummings

Springfield (MA) Republican, April 19, 2011

In an effort to preserve profits, nuclear power-plant operators in New England are stuffing more and more spent nuclear fuel rods into already crowded storage pools that many believe are more dangerous than the reactors.

The spent-fuel pools at New England's oldest plants now hold up to five times more fuel than they were initially designed to handle.

The dramatic increases in the number of rods per pool have been approved by the federal Nuclear Regulatory Commission, partly because a national disposal site for nuclear waste has not been established.

Experts say this federally sanctioned "re-racking" has allowed plant operators to avoid millions of dollars in costs by delaying when the nuclear fuel rods have to be moved to safer but expensive dry cask storage, which involves sealing the material in giant concrete urns.

Now, though, the operators are running out of time. The NRC estimates that by 2015 many of the nation's spent fuel pools, particularly in older plants like many in this region, will run out of room. Then, operators will face an unpleasant choice: Move waste into dry casks to free up space in the pools, or shut down their plants.

While the NRC insists the practice is safe, stuffing pools to their limit is inherently dangerous, many scientists and engineers say. They warn that the sheer volume of radioactivity in the pools, often far more than what is in a reactor, could turn an accident or natural disaster into a cataclysm. Also, they worry that the storage pools make tempting targets for terrorists.

"The New England plants are older and the issues with older reactors are mostly ignored. These plants are like the canary in the coal mine. They never intended to put lifetime storage into the plans," said David Lochbaum, a former nuclear plant operator and a member of the Union of Concerned Scientists, a group that has sounded the alarm over nuclear safety.

The still-unfolding Japanese nuclear disaster - spent fuel rods in pools at the Fukushima Daiichi reactors were exposed to the air and released large amounts of radiation after a tsunami knocked out the cooling system - is a graphic example of the risks inherent in onsite spent-fuel storage. And the Japanese pools that caught fire held much less waste than many of the New England pools.

A 1997 study by the Brookhaven National Laboratory on Long Island concluded that a pool fire at a plant like Millstone Nuclear Power Station in Waterford, Conn., or Pilgrim Nuclear Generating Station in Plymouth could kill 100 people instantly and another 138,000 people eventually. Some \$546 billion in damage would result, the study said, and 2,170 square miles of land could be contaminated.

## Waste piles up

Nationally, the nation's 104 nuclear power plants are now storing some 63,000 metric tons of spent fuel rods, according to 2010 numbers compiled by the Nuclear Energy Institute.

In New England, the four operating nuclear power plants are storing at least 2,900 metric tons of spent fuel, according to current figures provided by two plants and 2002 data available for two others, which is the most recent available. The Indian Point Energy Center nearby in New York state is storing at least 903 metric tons of spent fuel.

New England's plants have re-racked their spent-fuel storage pools many times over the past few decades. In many cases, the stored spent-fuel rods are now packed closer together than ever before - nearly as close as they were positioned inside the reactor.

The storage pool at Vermont Yankee Nuclear Power Station in Vernon, Vt., was originally licensed to hold 600 spent fuel assemblies. There are now 2,935 assemblies in the pool, or 932 metric tons of radioactive waste.

At Millstone, the pool at the Unit 3 reactor was originally licensed to hold 756 assemblies. It now holds 1,040 assemblies, or 449 metric tons of waste, and is licensed to handle up to 1,860 assemblies.

Millstone's Unit 2 reactor was originally licensed to hold 677 spent fuel assemblies. It now holds 909 assemblies, or 304 metric tons, and is licensed to hold 1,346 assemblies. The Pilgrim Nuclear Power Generating Station currently holds 2,918 fuel assemblies. Its original license allowed 880 fuel assemblies, according to NRC documents. The license was later updated to allow for 3,859 assemblies.

The spent fuel pool at Seabrook Nuclear Power Station in New Hampshire, the newest of New England plants - Seabrook came online in 1990 - was originally licensed to handle 1,236 fuel assemblies and now has 936 assemblies in its pool. There are also 192 fuel assemblies in dry cask storage.

## A failed plan

New England's nuclear power plants, most of which were built in the 1970s, came online with a promise: the government would take the spent fuel rods that result from nuclear fission and safely store the waste at a national site. In 1982, Congress made that promise into law, and the national repository was scheduled to open in 1998.

That plan officially fell apart last year when the Obama administration, under considerable political pressure from opponents, canceled plans for a nuclear disposal facility in Yucca Mountain in Nevada, which was to be hollowed out to create a repository [» Editorial: Obama administration wisely canceled plans to bury nuclear waste beneath Yucca Mountain in Nevada"]. That decision came despite the fact that electric ratepayers have contributed \$18 billion toward building the national repository through a special assessment included in their monthly bills, according to a 2010 accounting.

Spent fuel pools were originally intended to be temporary storage and as a result were not given the same level of protection as reactors. As the volume of spent fuel grew over the years, scientists began warning the pools could be more dangerous than the reactor because they now held more radioactive material. Without a national storage site, plant operators, with the blessing of the Nuclear Regulatory Commission, packed more and more spent fuel rods into the pools.

"There used to be space between them. The assemblies were so far apart they could not go to critical mass. Then they took out the racks. The walls of the pool now have material that prevents a reaction. It's the same size pool with many more rods," Lochbaum said.

Lochbaum said storage pools were reconfigured to handle more fuel rods by redesigning how the rods are placed in the pool, moving them closer together, and adding substances like boron, which restricts nuclear fission.

That closer proximity, however, means rods could heat up much faster if there is a major loss of cooling water, Lochbaum and other experts said.

The alternative to pool storage is a dry cask, which typically is a concrete bunker approximately 20 feet high, 10 feet wide and 20 feet deep, with walls and roof areas up to 5 feet thick. Spent fuel rods are placed in a steel canister typically capable of holding 32 fuel assemblies and the lid is welded in place. The canisters weigh up to 40 tons fully loaded. The loading procedure occurs under water.

"The New England plants are older and the issues with older reactors are mostly ignored. These plants are like the canary in the coal mine. They never intended to put lifetime storage into the plans."

- David Lochbaum, former nuclear plant operator and member of the Union of Concerned Scientists

In the summer of 2010, Lochbaum testified before the Blue Ribbon Commission on America's Nuclear Future, formed by the Obama administration after the Yucca Mountain project was canceled, and said all nuclear waste represents a risk but stressed early transfer to dry casks is the best course.

"From the time it is removed from reactor vessels until the time it is shipped offsite, interim storage of spent fuel at nuclear plant sites represents a risk to public and worker safety. The risk from onsite storage is highest during wet pool storage. The risk drops significantly when the spent fuel is transferred to dry-cask storage onsite," Lochbaum said.

A 2010 statement signed by 170 environmental and activist groups declared that "as the amount of waste generated has increased beyond the designed capacity, the pools have been reorganized so that the concentration of fuel in the pools is nearly the same as that in operating reactor cores."

"If water is lost from a densely packed pool as the result of an attack or an accident, cooling by ambient air would likely be insufficient to prevent a fire, resulting in the release of large quantities of radioactivity to the environment," the statement continued.

Such conclusions are actually nothing new.

In a 2002 report, Robert Alvarez, a former top official at the federal Department of Energy and a senior scholar at the Institute for Policy Studies, wrote in the Bulletin of Atomic Scientists that if a fire broke out at the Millstone Reactor Unit 3 spent-fuel pool in Connecticut it would result in a three-fold increase in background exposures [» "What About The Spent Fuel?" – pdf]. That would trigger the NRC's evacuation requirement and could render about 29,000 square miles of land uninhabitable, severely affecting Connecticut, much of Long Island and even New York City.

"On average, spent fuel ponds hold five to 10 times more long-lived radioactivity than a reactor core," Alvarez wrote in his report.

"Particularly worrisome is the large amount of cesium 137 in fuel ponds, which contain anywhere from 20 to 50 million curies of this dangerous isotope. With a half-life of 30 years, cesium 137 gives off highly penetrating radiation and is absorbed in the food chain as if it were potassium. According to the NRC, as much as 100 percent of a pool's cesium 137 would be released into the environment in a fire," Alvarez wrote.

Cesium-137 is known to cause liver cancer and circulates within the body for years. Other isotopes, the byproducts of nuclear fission, are also extremely dangerous: Iodine-131, strontium-90 and plutonium-239. Iodine-131 can cause thyroid cancer. Strontium-90 gets incorporated into bones and teeth and stays there, irradiating the body and causing leukemia. Plutonium-239 is the worst of all; it can be inhaled and cause lung cancer.

NRC: Pools are safe

The NRC's official position, however, is there is nothing dangerous about more densely packed storage pools.

"Let me begin by saying public health and safety is protected by the safety and security features associated with storage of spent fuel in either pools or casks," said Diane Screnci, an NRC spokeswoman.

"The NRC, after careful study of the safety and security issues, concluded that fuel is safely stored in wet pools or dry storage casks. There is no justification, from a safety or security viewpoint, for removing fuel from pools and loading it into casks in order to return to low density racking," Screnci said.

The details of the NRC's studies on storage pools are not available to the public due to national security concerns.

A nuclear reactor is surrounded by 6 to 9 inches of steel, and sits within a containment dome some 3 to 4 feet thick. But a spent fuel storage pool at a pressurized water reactor, like Millstone in Connecticut and Seabrook in New Hampshire, is located outside the containment dome and housed in a traditional steel industrial building.

At a boiling water reactor, like Fukushima Daiichi in Japan, the Vermont Yankee Nuclear Power Plant and the Pilgrim Nuclear Generating Station in Massachusetts, the pool is several stories above ground level, within the containment dome.

In testimony last year before Obama's Blue Ribbon commission, Lochbaum told the panel that "better management of the wet-pool risk is particularly crucial at boiling water reactors with pools located inside secondary containment. A reactor accident at such plants can initiate a wet pool accident and vice-versa."

Nuclear power plants create electricity by placing nuclear fuel rods consisting of uranium pellets close together within a water-filled reactor vessel. A controlled atomic fission is created as the uranium atoms split and their mass is converted to energy. The resulting heat is used to turn liquid water into steam, which then turns turbines connected to electric generators to make electricity.

About every 18 months, one third of the reactor core is spent and the fuel rods are removed and placed in a nearby storage pool. Although no longer efficient for heating water within the reactor, the rods remain highly radioactive and very hot. Over time, they cool while resting in the pool and the radioactivity lessens.

The cost factor

Clay Turnbull, director of the New England Coalition on Nuclear Power, said it costs plant owners about \$1 million per dry cask, and that's why the fuel remains in pools. Other estimates place the price tag per cask at about \$1.5 million.

"It's a lot of money to move them around. If you need 50 casks, that's \$50 million at least," Turnbull said, adding that nuclear plants operate on a tight profit margin so any additional costs are a disincentive.

"The plants are resisting this, going to dry casks," Lochbaum said. "When the space in the pool is filled, then they go to dry cask. They move it only when needed. By doing this, the risk to the pool is as high as it can be."

Power plant officials disagreed and insisted that economics has nothing to do with fuel remaining in wet storage for so long.

"When we opened, the expectation was the fuel would be taken in 25 years and reprocessed," said Holt, the Millstone spokesman.

"We were not that big. We never thought we would have to contain fuel for the full life of the plant," Holt said.

Still, Holt acknowledged cost is an issue. "Both are safe. But there is a cost element to dry cask and it is a fairly heavy cost and a major factor in why we have not pulled fuel sooner. It's true that dry casks use a passive storage system that is not dependent on pumps and mechanical systems."

Larry Smith, a spokesman for Vermont Yankee, acknowledged there are hefty costs involved in moving fuel from pools to casks.

"We believe pools are perfectly safe. It was designed to be safe and there are redundant systems so there is never a loss of coolant," Smith said.

Tom Kaufman, spokesman for the pro-nuclear Nuclear Energy Institute, said operators would not put residents or workers at risk just to save money.

"No [operator] would jeopardize safety for cost, if that's what the implication is. That's wrong. All of the pools meet the requirements of the NRC and have to have the right procedures in place," Kaufman said.

"The individual operators have held up their end but the federal government has not come through with a disposal regime," Kaufman said "The fact is it's a matter of science. There are materials that absorb the neutrons and control this. When they run out of storage space, they will have to move it to dry cask," Kaufman said.

At Maine Yankee, activists have recently called on the federal government to finally remove the dry casks stored there since the plant was shut down in 1996. The Blue Ribbon Commission on America's Nuclear Future, formed by the Obama Administration, is studying what to do with the nuclear waste and recently visited Maine Yankee to look over its cask storage.

## **Target For Terrorists: New England's Spent Nuclear Fuel (SPREP)**

By Bill Cummings

Springfield (MA) Republican, April 19, 2011

Editor's note: This series is a collaboration between the Hearst Connecticut Media Group and the New England Center for Investigative Reporting ([www.necir-bu.org](http://www.necir-bu.org)), a nonprofit investigative newsroom based at Boston University.

A nuclear disaster in New England would truly be the sum of all fears. Studies project that thousands would be killed and huge areas rendered uninhabitable, potentially displacing one-sixth of the nation's population.

As such, it is the very definition of a terrorist objective.

Some scientists worry that the high concentration of spent fuel in the region's waste-storage pools dramatically increases the risk of such an outcome.

Thomas Cochran, a nuclear physicist with the National Resource Defense Council, said that after the 9/11 terrorist attacks a variety of groups began raising concerns about the safety of pools and whether they are vulnerable to a terrorist attack or pose a danger if their cooling systems failed. Those groups urged federal regulators to mandate that rods be taken out of the pools as soon as possible and placed in dry cask storage.

Such terrorist attacks, scientists, engineers and activists warn, could include flying an airplane into a pool, blowing up the intake ports where a nuclear plant sucks water for cooling the reactor and the pools, or firing some type of explosive device into the pool buildings. A number of academic reports assert that a standard commercial airliner could easily disable a spent-fuel pool.

"The plants should move the rods to dry cask storage sooner," said David Lochbaum, a former nuclear plant operator and a member of the Union of Concerned Scientists, a group that has sounded the alarm over nuclear safety. "You lessen the risk to a great extent. You can't take shampoo on an airplane, but we can have 400 metric tons of waste in a pool at a nuclear plant."

A 2009 report by the Congressional Research Service noted that the National Academy of Sciences in April 2005 found that "successful terrorist attacks on spent-fuel pools, though difficult, are possible," and said that "if an attack leads to a propagating zirconium cladding fire [pool fire], it could result in the release of large amounts of radioactive material." The report urged the NRC to conduct more analysis of the issue and consider moving the spent fuel rods to dry cask storage as soon as possible.

In a 2010 report, CRS noted that “reactor vulnerability to deliberate aircraft crashes has also been a major concern since 9/11. Most existing nuclear power plants were not specifically designed to withstand crashes from large jetliners, although analyses differ as to the damage that could result.”

Kenneth Holt, a spokesman for Dominion, which owns Millstone in Connecticut, said a pilot would have to be very skilled to hit the storage pool building attached to reactors within Millstone’s large waterfront campus.

“To pinpoint a crash like that would be difficult. And there are concrete buildings and steel reinforced buildings. Even if the cooling went wrong, we have the ability to put water back in,” Holt said.

He said that despite what happened in Japan, Dominion does not officially acknowledge that a pool fire is a realistic possibility.

Nancy Burton, director of the Connecticut Coalition to Mothball Millstone, scoffed at Holt’s response. She pointed out that air traffic controllers at the nearby Groton airport use Millstone’s big red and white smokestack as a marker for planes approaching the airport.

“It’s a big plant that’s wide open right on Niantic Bay. There is nothing around it. We had a pilot fly all around the plant a few years ago and take pictures. Nobody said anything. It would be easy to hit one of those buildings,” Burton said.

## **Casks Holding Spent Fuel Assemblies All That’s Left Of Yankee Rowe (SPREP)**

By Fred Contrada

Springfield (MA) Republican, April 19, 2011

ROWE – They sit on a 3-foot-thick concrete pad in Rowe where no one but security personnel can see them: 16 casks, each weighing more than 100 tons.

Each sports 21 inches of reinforced concrete surrounding a 3½-inch steel liner. Inside that protection is enough radioactive waste to turn Rowe and the surrounding area it into a no-man’s land.

The casks, which contain 533 spent fuel assemblies, are all that’s left of Yankee Rowe, the region’s first nuclear power plants. When it began operation in 1961, nuclear power was America’s hope for the future. When Yankee Rowe shut down in 1992, questions about the safety of nuclear power had clouded that optimism. By the time the facility was decommissioned and disassembled in 2007, the spent fuel had become a radioactive hot potato that no one, including the federal government, wanted to touch.

As Robert Capstick, a spokesman for Yankee Atomic Electric Co., explained it, the fuel assemblies consist of bundles of rods containing uranium and other elements that create the chain reaction that produces nuclear power. These rods last for a few years before they must be replaced. Even after they are no longer effective in the nuclear reaction process, however, the rods remain radioactive. When Yankee Rowe was up and running, the spent rods were put in pools of water for up to five years before being bundled.

Until the early 1970s, the spent fuel from Yankee Rowe was shipped to West Valley, N.Y., for reprocessing, Capstick said. During the Carter administration, however, there was growing concern that the waste, which contains plutonium, could be used to manufacture nuclear weapons. In 1982, Congress passed the Nuclear Waste Policy Act, which directed the Department of Energy to assume responsibility for the spent fuel. The plan was to build a repository for the waste at Yucca Mountain in Nevada, with utility companies financing the project by paying into a Nuclear Waste Fund.

Nearly 30 years later, the Yucca Mountain facility has yet to be built and the Department of Energy has yet to take possession of the fuel rods. In 2006, a federal court ruled in favor of three nuclear power plants that sued the government for failing to remove the waste. Yankee Rowe, one of the plaintiffs, was awarded \$32.9 million in damages. The Department of Energy has appealed that ruling, however, and as the matter continues to play out in the court, the nuclear waste at Yankee Rowe and other sites is awaiting a final destination.

According to Capstick, 15 of the 16 casks at Yankee Rowe contain spent nuclear fuel. The other holds other high-level waste. Years after they were removed from the reactor, the rods continue to give off heat comparable to a warm oven. Inside the steel and concrete, an inert gas prevents the nuclear material from exploding. It costs Yankee Atomic Electric Co. some \$8 million a year in security to keep the casks on site, Capstick said, although their weight alone makes theft unlikely. The casks are so sturdy that they can withstand the impact of a large aircraft like those that struck the World Trade Center towers, Capstick said.

The battle over the canisters is scheduled to return to court this year. In the meantime, the ones at Yankee Rowe are packaged and ready to go. Like the citizens who live near it, the utility companies will be relieved to see the nuclear waste go, Capstick said.

“We share the frustration with the federal government’s failure to meet its obligations,” he said.

## US Nuclear Regulatory Commission Oversight Called Too Lenient (SPREP)

By Shay Totten

Springfield (MA) Republican, April 19, 2011

Editor's note: This series is a collaboration between the Hearst Connecticut Media Group and the New England Center for Investigative Reporting ([www.necir-bu.org](http://www.necir-bu.org)), a nonprofit investigative newsroom based at Boston University.

Internal government watchdogs and outside experts alike say the US Nuclear Regulatory Commission is too lenient on the industry it is charged with regulating, often making decisions based on the industry's profit margins rather than safety.

The charges are similar to complaints leveled against the Mine Health Safety Administration and the Minerals Management Service over the past year, after high-profile tragedies - the Upper Big Branch Mine collapse and the Deepwater Horizon spill - in the industries they are responsible for regulating.

In the wake of the events in Japan, there is a heightened sense of concern throughout the United States that a similar meltdown could occur, particularly in New England where reactors similar to those in Japan remain in operation.

Top nuclear industry officials maintain the public has nothing to fret about - that the NRC is a tough regulator that asks tough questions. NRC critics counter that the agency might ask tough questions, but is all too willing to accept easy answers.

Concerns about the NRC's oversight are nothing new. A clear illustration is a series of reports issued since 2002 by the NRC's internal inspector general and the US General Accountability Office related to a near-catastrophe at Davis-Besse, a nuclear reactor on the shores of Lake Erie.

From those reports:

- In 2002 the GAO found the NRC weighed the financial impacts of its safety-related decisions on the industry's bottom line - stalling a forced reactor shutdown at Davis-Besse because the NRC fretted about the impact on the plant owner's finances and the "black eye" an emergency shutdown might give the industry.

- In 2004 the GAO found that little had changed within the NRC's safety and inspection culture since Davis-Besse. An internal NRC task force failed to look at more agency-wide issues uncovered during their post-mortem review, the GAO found.

- In 2009, the inspector general found that key NRC staff couldn't name the four core areas of improvement the NRC had identified to better protect the public's health and safety after Davis-Besse incident. In fact, the inspector general discovered many NRC staff didn't know the "lessons learned" project existed.

A report issued last month by the nuclear watchdog group, the Union of Concerned Scientists, found 14 "near misses" at US nuclear reactors in 2010, with the NRC's response to some critical errors less than reassuring.

"If you still believe that the NRC is a nuclear watchdog, you are probably still sending your money to Bernie Madoff," said Arnie Gunderson, a former nuclear-industry executive turned whistleblower.

Key safety rule weakened

As detailed earlier in this series, an investigation by the New England Center for Investigative Reporting and Hearst Connecticut Media Group found the NRC has routinely allowed operators to pack spent fuel rods into cooling pools far beyond the pools' original licensed capacity and design basis, rather than forcing the plant owners to move the fuel into safer but more costly dry casks.

But the investigation also has found that the NRC has weakened a key, decades-old safety standard, potentially saving owners tens of millions of dollars by removing a key requirement that could avert a nuclear tragedy.

The failing reactors at Fukushima Daiichi in Japan are of the General Electric Mark 1 design. There are 23 such reactors in operation in the U.S, including Vermont Yankee in Vernon, Vt., and Pilgrim in Plymouth, Mass.

NRC Chairman Gregory Jazcko told a panel of US senators recently during a congressional hearing that the NRC had required upgrades of the Mark 1 model in the US that would prevent some of the failures seen in Japan.

Still, additional concerns with the Mark 1, as well as Mark 2 and Mark 3 boiling water reactors, have arisen thanks to the recent change in safety rules.

In 2005, both Gunderson and David Lochbaum, a former nuclear operator and now a member of the Union of Concerned Scientists, questioned the NRC's decision to allow some nuclear power operators the ability to use their containment vessel as a way to help cool a reactor before turning to emergency cooling water pumps.

If the containment vessel is allowed to absorb heat from reactor and spent fuel pool water, the overall pressure could add stress to the concrete containment shell, increasing the risk of a failure, Lochbaum and Gunderson contend.

While the analogy isn't perfect, said Lochbaum, think of a plastic bottle half filled with soda. If you stick a straw down into the soda, you can drink the soda. But, if you put your thumb over the top and shake it up vigorously, the bottle is filled with foam. If you stick a straw into the foam region, you don't get soda.

That, in a nutshell is what happens inside a boiling water reactor (BWR). Trying to use emergency pumps without containment pressure is like drinking foam from a soda bottle with a straw, added Gundersen.

"In the old days, we had protection, and nowadays, we're relying on one thing, the containment remaining intact. If that's gone, we lose our ability to cool the reactor cores, and we also open up a pathway for radiation to be released to the environment," said Lochbaum.

NRC staff and industry officials disagree. In multiple filings, including an allowance at Vermont Yankee, the NRC claims BWR containment vessels can absorb additional heat for short periods of time without causing a drop in the reactor pressure levels necessary to push water through emergency pumps.

"These credits were granted to some licensees on their original licenses, so this issue is not new," said Tony Pietrangelo, senior vice president and chief nuclear operator, of the Nuclear Energy Institute. The NEI is the industry's chief lobbying and trade association. "I know there is some disagreement, but the NRC has reviewed this issue extensively."

It's not just external critics who disagree with the NRC's position. The NRC's own internal Advisory Committee on Reactor Safeguards has objected to the policy and believes the new stance is a "serious compromise" of reactor safeguards.

Lochbaum contends the NRC is unnecessarily putting industry profits ahead of public safety.

"The NRC sold out the American public in order to boost profits of companies," said Lochbaum. "It's put millions of Americans at undue and elevated risk, and it was done simply for business purposes instead of safety. There's no excuse for doing that."

Lessons learned - or ignored?

NRC's blurring of lines between public safety and company profits isn't a concern only raised by outside agitators.

The closest the US has come to full-scale core reactor meltdown was in February 2002 when workers at the Davis-Besse reactor in Ohio found a pineapple-sized cavity in the reactor's vessel head - a cavity caused by leaking boric acid used, in part, to help cool the reactor.

Davis-Besse's owner, FirstEnergy Corp., had sought, and received, permission from the NRC to remain open 45 days beyond a required end-of-year inspection date.

The NRC allowed FirstEnergy to remain in operation beyond the end of 2001 to conduct a more thorough inspection of boric acid-related damage during a scheduled February 2002 refueling.

In 2002 the OIG found the NRC backed away from forcing FirstEnergy to shut down Davis-Besse prior to the refueling because the NRC fretted about the impact on FirstEnergy's finances and the "black eye" it might have on the industry as a whole.

It took two years, and millions of dollars in improvements, before Davis-Besse restarted in 2004.

The same year, a separate GAO report found that an internal NRC task force missed an opportunity to learn lessons from the Davis-Besse incident.

"Because the Davis-Besse task force did not address NRC's unwillingness to directly assess licensee safety culture, we are concerned that NRC's oversight will continue to be reactive rather than proactive. NRC's oversight can result in NRC making a determination that a licensee's performance is good one day, yet the next day NRC discovers the performance to be unacceptably risky to public health and safety. Such a situation does not occur overnight," the GAO concluded in 2004.

An NRC spokesman disagrees.

"The NRC is a learning organization and always strives to incorporate lessons learned from previous events and developments," said spokesman Neil Sheehan. "In the case of the reactor head corrosion identified at Davis-Besse in 2002, the NRC formed a Lessons Learned Task Force that produced more than 50 recommendations, 21 of which were considered high-priority."

A 2009 OIG report found otherwise: Key NRC staff responsible for disseminating information about the Lessons Learned Task Force couldn't name the four core areas of improvement the NRC had identified to better protect the public's health and safety, according to the OIG report.

NEI's Pietrangelo said it's not just luck that has kept the US safe from a serious accident since Three Mile Island in 1979.

"They are tough regulators who are devoted to their public health and safety mission and are not afraid to bring down a plant if it is not safe to operate," said Pietrangelo. "I say, don't look the reports, look at the record. We're operating now at record levels of safety for a decade and the proof is in the performance."

Lochbaum and the Union for Concerned Scientists think the NRC can be an effective regulator - if it forces the industry to live up to existing rules and regulations and not grant exemptions.

A UCS report of safety problems issued last month found 14 "near misses" at US nuclear power plants, a high number for what Lochbaum calls a "mature industry."

"This overview shows that many of these significant events occurred because reactor owners, and often the NRC, tolerated known safety problems," the report said.

The report highlighted both effective and ineffective responses by the NRC to safety problems, including an ineffective response at Vermont Yankee, where the agency allowed the release of radioactively contaminated air in ways that had forced shutdowns at other reactors.

"The chances of a disaster at a nuclear power plant are low and current events remind us how important it is to keep them that way," notes the report's executive summary. "The NRC is capable of functioning as a highly effective watchdog, but ... much work remains to be done before the agency can fulfill that role as consistently as the public has a right to expect."

## **Nuclear Power Plant Owners Paid Billions For Spent Fuel Facility That Never Opened (SPREP)**

By MAGGIE MULVIHILL, SHAY TOTTEN, MATT PORTER

Springfield (MA) Republican, April 19, 2011

New England's electricity consumers and nuclear plant owners have poured close to \$1 billion into a federal waste fund for the past three decades, honoring their end of a 1982 bargain with the government to finance the permanent storage of thousands of tons of spent fuel from the region's reactors.

The payoff?

A cavernous empty \$11 billion hole in a Nevada mountainside, a broken promise from the US government to remove the radioactive waste and mounting bills that could still saddle New England with at least five mothballed plants and dozens of dry spent fuel casks, turning communities into mini nuclear waste dumps for decades, if not forever.

"It's the most expensive dry hole we've ever built," said David Lochbaum, a nuclear engineer and director of the Union of Concerned Scientists Nuclear Safety Project. "Who would trust the government with a dollar after they've wasted billions? We've messed this up as bad as we possibly could."

As the nuclear calamity in Japan has resurrected debate about government and industry promises of the energy's cost effectiveness, a review of regional costs by the New England Center for Investigative Reporting and the Hearst Connecticut Media Group has found:

- New England plants, among the nation's oldest, have already generated over 4,200 tons of spent fuel, data from the Nuclear Energy Institute, an industry policy organization, shows, but the plants have no clear financial plan on how to pay for long-term storage. The spent fuel sits at or near the nine regional reactors in either pools of water or dry cement fortifications known as "dry casks," which cost between \$6 to 8 million annually per plant to secure.
- At least one New England plant is seeking US Nuclear Regulatory Commission approval to raid funds set aside to decommission to cover mounting spent fuel costs, raising concerns about its plans to pay for the future dismantling and cleanup costs.
- New England's continuing federal bill for the waste generated to date tops \$2.1 billion, including interest, NEI data shows. Millions more will be needed to house the additional 20 metric tons plants are generating annually.
- Regional plants have a bleak history of underestimating decommissioning costs by hundreds of millions, shifting those unanticipated costs onto taxpayers and ratepayers far into the future.
- Operators or owners of some New England plants have a limited liability corporate structure, meaning taxpayers could be financially responsible for a plant disaster.
- Taxpayers in New England and the rest of the nation have paid out \$750 million in settlements or judgments for generator lawsuits against the federal government for defaulting on its promise to remove the spent fuel to Nevada. The US Department of Energy has estimated its potential liability at \$13.1 billion, a November 2010, DOE report shows.

The cost bleed is not unique to New England. Plant owners and the ratepayers they charge are grappling with intensifying spent fuel storage bills now that the Obama administration - even as it touts industry expansion - has tabled plans for a federal dump at Nevada's Yucca Mountain.

"The real story here is the failure of the government to remove the fuel," said David Tarantino, spokesman for the Pilgrim Nuclear Generating Station in Plymouth, whose pools will reach maximum capacity in 2014. "We don't want to store fuel, but we have to."

Political opposition has currently sunk the proposal that would have moved, beginning in 1998, up to 70,000 metric tons of waste to the Yucca site 90 miles from Las Vegas.

While safety, not finances, has been at the core of the intense debate about the industry following the Japan calamity in March, analysts, anti-nuclear activists, New England politicians and even plant operators said the cost issue sorely needs public attention.

"If a nuclear renaissance were to take place - if it were not just a figment of wishful thinking - we would need another Yucca Mountain every few years," said Ray Shadis, a Maine environmentalist and anti-nuclear activist. "When you grasp the scale of what is proposed, the cost is astronomically high and I don't know that in the public debate that is really being considered."

As the question of whether nuclear energy will ever be affordable is debated, the federal government continues to spend money to support it on a vast scale. To date, \$11 billion has been spent to excavate and prepare the now-abandoned Yucca site, leaving about \$20 billion in the fund, industry experts said.

It could cost \$10 billion to find another site and prepare it if Yucca is canceled, said Arnold Gundersen of Fairewinds Associates, an industry consultant and former licensed nuclear operator based in Vermont.

Beyond the unexpected storage costs, taxpayers and ratepayers could also be on the hook for billions in additional costs ranging from proposed federal subsidies and loans, as well as the possibility owners won't have enough money to decommission the plants and clean up the hazardous sites.

At least one New England plant is seeking an exemption from federal law that would allow it to use its decommissioning fund to pay for storage costs.

Vermont Yankee - whose fund is already short millions - wants the NRC to allow them to use the money to pay for fuel storage, according to a 2008 plan it filed with the agency.

In 2009, the NRC required Entergy Nuclear Operations Inc., which owns Vermont Yankee, a limited liability corporation, to put up a \$40 million loan guarantee because its decommissioning funds are off track, said NRC spokesman Neil Sheehan.

In its NRC proposal, Entergy estimated it would need about \$220 million - about half the current fund - to deal with spent fuel, seeking permission to draw from the decommissioning fund built up with ratepayer money.

"Entergy VT will periodically revisit the cash contribution required for the decommissioning fund to ensure that spent fuel management withdrawals would not inhibit the ability of the licensee to complete radiological decommissioning," the proposal states.

The NRC can't act on the proposal until decommissioning begins.

Because of the limited liability corporate structure of some New England plants, like Vermont Yankee, and Seabrook in New Hampshire, industry critics worry the public will have to pick up the tab to clean up sites if the firms go bankrupt.

"Decommissioning is a real problem in New England," said Gundersen.

NRC spokesman Neil Sheehan disagrees.

"The corporation would not be off the hook. We could always go after the parent company," Sheehan said.

Still, history is not on the side of New England plant operators when it comes to properly estimating decommissioning costs.

"The colossal failure of nuclear power is really seen in decommissioning," said Deborah Katz, who runs the Massachusetts-based Citizens Awareness Network, an anti-nuclear group.

"When you have to engage in cleanup, then this notion of being a clean, technologically advanced form of generating power is really put to the test. These are basically nuclear pigsties," Katz said.

A 2006 audit by the NRC's own internal financial watchdog found in a review of 13 nuclear plants that the actual on-site estimate to decommission was 16 percent higher than was what set aside in funds.

"What they have found at these sites again and again is there has been an underestimation by hundreds of millions of dollars of what it will cost," Katz said. "That is why the investment community won't get behind new reactors. They have no faith in what it is going to cost."

The estimated cost to decommission Yankee Rowe in Rowe was \$306 million in 1995 dollars. The actual costs were \$600 million, a company report states.

Decommissioning was completed in 2007.

Similar problems occurred in Maine and Connecticut.

Connecticut ratepayers will contribute to Yankee Connecticut's decommissioning costs until 2015 because the NRC and Yankee underestimated the cleanup costs by about \$300 million, plant critics said.

"It wound up costing a billion to decontaminate Connecticut Yankee," Gundersen said. "All of the ratepayers in Connecticut got nailed for 10 years to pay that off."

Yankee spokesman Bob Capstick put the decommissioning cost closer to \$800 million. He said plant owners will return funds to ratepayers if they are successful in their lawsuits against the government for the fuel storage bills.

Both the NRC and New England plant owners said they are on target to pay the decommissioning bills.

Ken Holt, a spokesman for Dominion Resources Inc., which owns the Connecticut plants, known as Millstone 2 and 3, said it has about half of what it expects it will need to dismantle the two plants in 2035 and 2045 respectively, when their licenses expire, and any shortfall won't fall on ratepayers.

"The company is responsible for making up any difference in the funds to decommission the unit," he said.

Sheehan said the NRC has changed the decommissioning formula to make sure owners are on track. Funds must gain 2 percent annually and be invested in conservative financial vehicles to ensure dependable growth.

Plants without the funds can "mothball" the plant for up to 60 years - a process known as SAFESTOR - to give them time to finance decommissioning, he said.

The public's contributions are far from reaping the promised benefit of affordable, clean energy to consumers, according to a February report by the Union of Concerned Scientists in Cambridge.

"Government subsidies to the nuclear power industry over the past 50 years have been so large in proportion to the value of the energy produced that in some cases it would have cost taxpayers less to simply buy kilowatts on the open market and give them away," the report summary states.

And after 40 years of operation, the plants still can't stand on their own financial footing, the Union of Concerned Scientist's report states.

"The financial story is that nuclear power is not viable without subsidies," said Ellen Vancko, who runs UCS's nuclear energy division. "The waste issue is just one example."

New England politicians continue to raise the fairness of the public tab. Last year, US Rep. Edward J. Markey, D-Mass., asked the General Accounting Office to review the NRC's oversight of plants, in part because of the industry's history of fiscal problems.

In a March 18 letter to President Obama, US Sen. Bernard Sanders, I-Vt., asked the administration to revisit both a federal law providing taxpayer subsidized insurance to the nuclear industry as well as giving federally backed loans to build new plants.

Congress has authorized \$18.5 billion in existing loan guarantees authority to new nuclear plants, and the Obama Administration, in its budget proposal, has asked for another \$36 billion to expand the nuclear power industry.

"Independent analysis suggests that new nuclear power is more expensive than nearly every other energy source, including solar, wind, biomass and geothermal energy," Sanders wrote. "Given that reality, I cannot understand why we would continue to pour massive taxpayer subsidies into nuclear power."

The Yucca debacle has opened up a financial chasm that will take decades to resolve, industry critics said.

"We are taxing our grandchildren. Capitalism kicks these liabilities down the road, so we are kicking the can down the road," Gundersen said. "We get the benefit while our grandchildren get the liability."

## **Storm Cut Offsite Power To Va. Nuclear Reactor (WT)**

By Joseph Weber

Washington Times, April 19, 2011

An unconfirmed tornado landed outside the Surry Nuclear Plant in Virginia on Saturday and automatically shutdown the site's two reactors, according to the Nuclear Regulatory Commission.

The apparent tornado affected an electrical switchyard next to the plant, cutting off the electrical feed to the station, in Surry County, about 17 miles northwest of Newport News.

Both reactors shut down automatically at about 7 p.m. and backup diesel generators kept power going.

Plant operators have partially restored offsite power to both plants, said owner Dominion Virginia Power.

The radioactive material release is below federally approved limits and poses no threat to station workers or the public, the NRC said.

The power company notified the NRC of the situation soon after it happened, and the agency dispatched its resident inspectors to the plant and staffed its incident response center in Atlanta, officials said.

The power company reported no injuries and said its also notified state and local officials.

## **US Tornadoes Force Shutdown Of Two Nuclear Reactors In Virginia (GUARD)**

By Ewen MacAskill

The Guardian (UK), April 18, 2011

US tornadoes were most destructive in North Carolina, where Deborah Dulow, above, was left to survey the damage to her father's house. Photograph: Jim R Bounds/AP

A US nuclear power company has disclosed that one of the tornadoes that hit the US at the weekend, killing at least 45 people and causing widespread damage, forced the shutdown of two of its reactors.

The series of tornadoes that began in Oklahoma late last week barrelled across the country, with North Carolina, where 22 people died, the worst-hit state.

The US nuclear safety regulator said on Monday it was monitoring the Surry nuclear power plant in Virginia. Dominion Virginia Power said the two reactors shut down automatically when a tornado cut off power to the plant. A backup diesel generator kicked in to cool the fuel. The regulator said no radiation was released and staff were working to restore electricity to the plant.

The tornadoes were among the worst in the US in the past two decades. Last year, 10 people died in a tornado in Mississippi, while 57 were killed in North and South Carolina in 1984 and 330 across the south in 1974.

Two of the survivors of this year's storms, Audrey McKoy and her husband Milton, who live near Raleigh, North Carolina, told the Associated Press they had seen the tornado bearing down on them over the tops of pine trees. At a nearby farm, winds were lifting pigs and other animals into the sky. "It looked just like The Wizard of Oz," McKoy said.

They took shelter in their laundry room. After they emerged, disorientated, they realised that the tornado had turned their mobile home around.

The national weather centre in Raleigh issued detailed descriptions of the tornadoes and their paths of destruction.

One of them, with winds greater than 100mph, destroyed trees, ripped off roofs and wrecked power lines. It hit Shaw University in Raleigh and then strengthened to 110mph. "Snapped trees crashed on to and through numerous homes all along the path. It is in this area where three fatalities were reported when two mobile homes were thrown 30 to 50ft [nine to 15 metres]. Nearly all of the mobile homes in the park sustained some type of damage," the weather report said.

Thousands of workers from the Federal Emergency Management Agency, the national disaster organisation, are being deployed in North Carolina to assess the damage.

The North Carolina governor, Bev Perdue, interviewed on the NBC Today programme, said the storms had ripped through homes as if they were made of paper.

## **Surry Nuclear Plant Could Be Out Of Service For Several Days (RICHTD)**

By PETER BACQUÉ

Richmond (VA) Times-Dispatch, April 19, 2011

Dominion Virginia Power's Surry nuclear power plant could be out of service for several days until workers repair the station's tornado-damaged electrical switchyard.

"The plant functioned exactly as designed during the event," said Nuclear Regulatory Commission spokesman Joey Ledford. "The reactors tripped as designed and the generators fired up as designed."

The reactors at Surry Power Station's Units 1 and 2 shut down automatically at 6:49 p.m. Saturday when a tornado touching down in the station's switchyard interrupted its connections to off-site power from the electrical grid, according to the NRC.

The National Weather Service determined that the damage from the Surry twister was consistent with an EF-2 tornado. EF-2 tornadoes have estimated winds as fast as 111 to 135 mph.

Dominion Virginia Power, the state's largest electric utility, did not have an estimate Monday of the cost to repair the tornado damage at its Surry station, about 50 miles southeast of Richmond.

Both of Surry's reactors shut down — "tripped" — as designed when the tornado hit the switchyard, Dominion Virginia Power said. Switchyards are junctions linking power stations to the electrical transmission grid.

Backup diesel generators kicked in immediately to provide the electricity needed to keep the still-hot reactors safely cooled, the utility said.

"It's a non-event," said VCU nuclear engineering professor Sama Bilbao y León, "but it's good to make sure the public knows a non-event happened."

The tornado did not directly strike the two nuclear units, which are designed to withstand hits from tornados, hurricanes and earthquakes.

The reactors are housed inside steel-reinforced concrete containment buildings. Three of the plant's four backup diesel generators are in separate tornado-protected structures, the company said.

"A tornado striking close to the Surry plant has to give you pause," said Glen Besa, director of the Sierra Club's Virginia chapter.

"When it comes to nuclear power, as unlikely as an accident may be, when there is an accident it can have devastating consequences," the environmental group official said.

Loss of electric power to run the reactor cooling pumps at Japan's tsunami-damaged Fukushima Dai-ichi nuclear reactors caused nuclear fuel rods to overheat and leak radiation.

Surry Unit 2 had already been scheduled to shut down Saturday for a regular refueling outage. Unit 1 will come back online when the switchyard repairs are completed, Dominion Virginia Power said.

Nearly 40 percent of the electricity generated in Virginia comes from nuclear energy, according to the state energy plan.

Dominion declared an unusual event, the lowest of the four NRC emergency classification levels, around 7 p.m. Saturday. The NRC dispatched its resident inspectors to the Surry plant, and staffed its incident response center in Atlanta.

## **Local And State News From Virginia Business (VABIZ)**

By Paula C. Squires

Virginia Business, April 19, 2011

The weekend storm that spawned deadly tornados over some parts of North Carolina and Virginia knocked out electrical power to two nuclear units at Dominion Virginia Power's Surry Power Station. The US Nuclear Regulatory Commission said Monday that it's monitoring the situation after Surry's offsite power was knocked out early Saturday evening by a tornado.

According to Dominion Virginia Power, an apparent tornado touched down on the switchyard supporting the power station near the facility's access road, cutting off the electrical feed from the grid to the station. The plant is located about 17 miles northwest of Newport News.

The NRC reported that Surry's two units automatically shut down after losing power, and four of the plant's diesel generators started to power the units' emergency loads. Dominion notified the NRC of the situation soon after it happened and declared an "unusual event," the lowest of the four NRC emergency classification levels, around 7 p.m.

Roger Hannah, a spokesman for the NRC in Atlanta, said the agency sent its two resident inspectors to Surry, and also is following the situation through an incident response center in Atlanta. "In a situation like this, we have a handful of technical experts on standby in Atlanta, so the resident inspectors can call and ask questions." He said the NRC assigns resident inspectors to every US nuclear plant, and that the typical number, as in the case with Surry, is two. Monitoring will continue, Hannah added, until "they restore the offsite power, and I think they are well on the way to doing that ... When they say they are no longer in the unusual event, we'll stop the monitoring, although we may do a follow up inspection."

By early afternoon today, Dominion Virginia Power said crews had restored power, although the NRC was reporting that power had been partially restored.

Dominion said in a press release that the tornado did not strike the two nuclear units, which are designed to withstand natural events such as tornados, hurricanes and earthquakes. The reactors are housed inside steel reinforced concrete containment buildings. In addition, the company reported no release of radioactive material beyond minor releases associated with normal station operations. Dominion said these minor releases are below federally approved operating limits, and pose no threat to station workers or the public.

There were no injuries at the site. In addition to the NRC, Dominion notified state and local officials about the power outage.

Asked about the frequency of tornados knocking out power to nuclear plants in this country, Hannah said it's not unheard of during bad storms. "I don't know of any that have completely lost offsite power, but it's not unusual with bad storms to lose power. It's unusual to have a switchyard problem, where you lose all power, but it's not unheard of."

## **Tornado Passed Surry Nuclear Power Plant, Dominion Says (VAPILOT)**

Hampton Roads Virginian-Pilot, April 19, 2011

An apparent tornado passed near the nuclear power plant at Surry on Saturday night, knocking down power lines, Dominion Virginia Power said.

Dominion said backup sources including diesel generators kept electricity going to maintain both units at the Surry Power Station. The tornado didn't hit the two nuclear units, which are designed to withstand weather, earthquakes and hurricanes, the company said.

## **Tornado Touchdown Causes Shutdown At Surry Nuclear Power Plant (NWPRTNWZ)**

**Surry nuclear reactors remain shut down after tornado**

By Eric Gillard

Newport News (VA) Daily Press, April 19, 2011

The Surry Power Station was running at diminished capacity Sunday after the effects of Saturday's severe weather.

Dominion officials said Sunday that a tornado apparently touched down on the switchyard supporting the nuclear power station and the facility's access road, cutting off the electrical feed from the grid to the station. A backup generator kept power running to both reactors.

One of the two main reactors has been reconnected to the plant's grid.

"We are trying to restore the second feed," said Dominion spokesperson Dan Genest. That process will take several days, he said.

Once the second feed is restored, then the power station will return to full power, Genest said. On Monday morning, the federal Nuclear Regulatory Commission's website still showed both reactors at zero capacity.

There were no injuries at the site, Genest said. Power company personnel are working to complete restoration of electrical service to the station, he added.

No release of radioactive material has occurred beyond those minor releases associated with normal station operations.

The tornado did not strike the two nuclear units, which are designed to withstand natural events such as tornados, hurricanes and earthquakes.

Dominion notified the US Nuclear Regulatory Commission of the situation, as well as state and county officials.

## **Surry Nuclear Plant Shuts Down After Tornado (WWBT)**

By Phil Riggan

WWBT-TV Richmond, VA, April 19, 2011

RICHMOND, VA (WWBT) – The nuclear power plant in Surry County shut down after getting hit by a tornado. Dominion Virginia Power said the tornado shut down power to the plant.

That power is back on this afternoon.

The storm damaged a switchyard near nuclear unit but didn't hit the actual generators. Dominion says the units are safe and were safe during the storm.

Back-up diesel generators are being used to help with the electrical supply.

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## **Tornado Touchdown Causes Shutdown At Surry Nuclear Power Plant (WTVR)**

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Hampton Roads Daily Press

WTVR-TV Richmond, VA, April 19, 2011

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The tornado did not strike the two nuclear units, which are designed to withstand natural events such as tornados, hurricanes and earthquakes.

Dominion notified the US Nuclear Regulatory Commission of the situation, as well as state and county officials.

## **Va. Nuclear Plant Shuts Down After Storm (NBC4DC)**

NBC Washington, DC, April 19, 2011

Dominion Virginia Power reports that an apparent tornado touched down on the switchyard supporting the Surry Power Station and the facility's access road Saturday. The storm cut off the electrical feed from the grid to the station, which is located in Surry County, Va.

Both reactors at the station shut down automatically as designed and backup diesel generators started immediately to provide the electricity necessary to maintain both units.

A spokesperson for the Nuclear Regulatory Commission says no release of radioactive material occurred beyond minor releases associated with normal station operations.

That release is below federally approved operating limits and poses no threat to station workers or the public, the NRC said in a statement released Sunday.

The apparent tornado did not strike the two nuclear units, which are designed to withstand natural events such as tornadoes, hurricanes and earthquakes.

Power company personnel and NRC staff are working to restore full electrical service to the station.

## **US Nuclear Regulatory Commission Monitoring Surry Plant (WVEC)**

By Emily Rau

WVEC-TV Hampton Roads (VA), April 19, 2011

The US Nuclear Regulatory Commission was monitoring the Surry nuclear power plant Monday after it was affected by storm damage.

A twister swirled through and touched down on the electrical switchyard.

Power lines were knocked down, cutting electricity to the reactors.

After the nuclear disaster in Japan, many are paying close attention to the Surry plant.

Dominion said there is no need to worry.

The problem in Japan was triggered when emergency generators at the Fukushima plant failed to kick on after the earthquake. That was not the case in Surry County.

Monday night, both reactors remained at zero power.

"When the storm hit the switchyard, it took out offsite power. At that moment, at that second, the reactors sensed that there wasn't any electrical power coming into the station and shut down," said Dan Genest of Dominion.

Emergency generators kicked on to power plant operations.

"Those diesels started as they should and provided the power that we needed to keep the reactors in safe, stable conditions," said Genest.

The US Nuclear Regulatory Commission is monitoring the situation.

A spokesman with the commission said as the reactors shut down, they put off heat that must be removed in order to maintain safety.

"If we didn't have the emergency diesel generators, then you wouldn't have power to the station," said Genest. "They can't supply as much as the reactors but they can supply to those critical systems that are needed to keep the reactor safe."

The plant issued its lowest level alert to surrounding Surry County. Officials said their level of concern was low. Dominion said that's right where it should be.

"We have multiple backups and backups for the backups," he said. "The reactors are in a safe and stable condition right now and they will remain that way."

The tornado did not directly hit the reactors or the containment structures, even though Dominion said they are designed to withstand any tornado, hurricane or other natural disaster.

Officials said it will be several days before Dominion crews can finish their repairs and get the reactor back up and running.

Surry Power Station's two nuclear reactors create enough electricity to power 400,000 homes each year.

## **Tornado Hits Virginia Nuclear Plant (ABCRAID)**

ABC News Radio, April 19, 2011

Electricity was lost at a Virginia nuclear power plant that was brushed by an apparent tornado, but officials say the situation is safe.

The twister hit the Surry Nuclear Plant's switchyard connecting it to off-site power, but the plant's two reactors were untouched.

"No one really knows what would happen if a very powerful tornado hit a nuclear power plant directly," said nuclear policy expert and ABC News consultant Joe Cirincione, and that's because it has never happened before.

Dominion Virginia Power says underground backup generators kicked in, ensuring a constant flow of coolant, and a safe shutdown.

"Unlike the reactors at Fukushima, many of the backup power systems at US reactors are shielded in one way or another," Cirincione said, but he warns that even the strongest plant couldn't withstand a direct hit.

## **US Federal Agency Monitors Nuclear Plant After Power Disruption (XIN)**

Xinhua News Agency, April 19, 2011

The US nuclear safety regulator said on Monday that it was monitoring the situation at a Virginian nuclear power plant after a tornado cut its external power over the weekend.

"The US Nuclear Regulatory Commission (NRC) staff is monitoring the situation at the Surry nuclear power plant after the site lost offsite power early Saturday evening due to a tornado affecting an electrical switchyard next to the plant," the agency said in a statement posted on its website.

The plant is operated by Dominion Virginia Power near Surry, Virginia, about 17 miles northwest of Newport News.

The two units at the Surry plant automatically shut down after losing offsite power, and four of the plant's diesel generators started to power the units' emergency loads, according to the statement.

Plant operators have partially restored offsite power to both plants. Safety systems have operated as needed, the agency said.

Dominion, one of the nation's largest producers of energy, notified the NRC of the incident soon after it happened on Saturday evening, with no injuries reported.

"No release of radioactive material has occurred beyond those minor releases associated with normal station operations. These minor releases are below federally approved operating limits, and pose no threat to station workers or the public," the company said in a statement.

## **UPDATE 1-Dominion To Restart One Surry Unit In A Few Days (REU)**

Reuters, April 19, 2011

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

## **Saturday's Terror From The Skies (VAPILOT)**

Hampton Roads Virginian-Pilot, April 19, 2011

It's hard to comprehend a force that lifts buildings off their foundations, that rolls buses and shears trees and then disappears, leaving the skies clear and the stars shining. It's hard to make sense of a power that skips through neighborhoods, demolishing homes here and there but leaving the ones next door untouched.

Hundreds of tornadoes tore through six states Saturday, killing at least 44, including six Virginians. The National Weather Service is still trying to determine whether other reported deaths were caused by the twisters, but a tornado with winds of up to 135 mph killed at least two in Gloucester and injured 60 others.

The storm's tragic footprint in Hampton Roads was more than eight miles long. A tornado touched down first in Surry County, where it apparently hit the Surry nuclear power plant's switchyard and cut off electricity to the plant, requiring backup generators.

The twister then cut across two rivers and through Gloucester. It ripped off a middle school's roof and collapsed its walls. It filled neighborhoods with errant shingles, smashed vehicles and debris, and left dozens homeless.

As Gov. Bob McDonnell toured the devastation Monday, promising government help, the people closest to the devastation did what Southerners are known to do. They fixed plates of food for their neighbors. They used their chain-saws to clear roads. They foraged through their own closets for clothing and supplies for people who had lost everything. They opened their hearts and homes and wallets.

The scenes that played out Sunday and Monday - in Gloucester, in Raleigh and northeastern North Carolina, in Oklahoma and Arkansas, Alabama and Mississippi - showed not just the power of nature but the strength of community.

Suffolk knows that spirit. Almost exactly three years ago, a tornado tore through the city, injuring dozens of people and destroying houses and businesses. Given that the twister danced across the roof of an elementary school a little more than an hour after kids went home, it could've been so much worse. The April 28, 2008, tornado didn't kill anyone, and today its scars are hard to find.

But its memory was on the minds of everyone who feared this latest system of twisters would take a similar path. On Saturday afternoon, two miles from a neighborhood wrecked in the 2008 storms, parents worried as they watched their children play at the wind-whipped Suffolk Youth Athletic Association fields on Kings Fork Road.

As the clouds gathered and the skies darkened, they braced for a repeat.

Instead, the twisters wreaked calamity on the Middle Peninsula's historic community of Gloucester and northeastern North Carolina's rural Bertie County, where 11 people died.

As residents there pick up the remains of their lives, as schools and towns rush to bring normalcy back to communities that are anything but normal, the rest of us need reminding that hurricane season is fast approaching, that weather is haphazard and relentless and not always predictable, and that our best resources in times of trouble are each other.

## **Short Takes On Tornadoes In Virginia, Redistricting: The Aftermath (NWPRTNWZ)**

Newport News (VA) Daily Press, April 19, 2011

'Blessed to be alive'

Hurricanes give us days of notice and time to prepare. Tornadoes and destructive thunderstorms barge in suddenly, catching us unawares.

And leaving destruction in their wake. We can only marvel at the fury of the storms that beat a path, Saturday evening, from Surry and Isle of Wight counties across the upper Peninsula, through Gloucester County and on to Deltaville. We see the roof ripped off a middle school in Gloucester and school buses overturned, homes reduced to rubble, big trees tossed about like twigs.

We swallow hard when we hear that a tornado skipped across the Surry nuclear plant and took out its power supply. With our sensitivity raised by the disaster that followed when a nuclear plant in Japan lost power, we are grateful that the back-up generators in Surry kicked in and danger was averted.

We are sobered by the confirmed deaths in Gloucester and the understanding that more fatalities may be attributed to the weather. Storms can tear apart families as well as structures.

In the aftermath, we re-sort our priorities. People whose possessions were trashed are feeling grateful, like the James City County woman who said that even though she has to start over, "I'm just blessed to be alive."

It took the storm a few hours to rip through our area. It will take a long time to fix it again. Gloucester has to figure out how to finish the school year, Zion Baptist Church in Deltaville has to repair its sanctuary, and people from Windsor to Deltaville have to replace roofs and walls.

As always in disasters, we find a bright spot: the people who quickly materialized, lugging chain saws, helping salvage belongings, offering a place to stay. The Red Cross, churches and civic groups will offer more ways to help—and confirm, again, that a community is more than its structures.

Unacceptable

Gov. Bob McDonnell may have saved Virginia considerable angst when he vetoed the General Assembly's redrawn state legislative districts. If critics are right, and the Senate plan in particular would have faced legal challenges, he may have averted expenses and delays that could complicate Virginia's ability to hold its November elections.

The plan drawn by the Republican Party that has the majority in the House of Delegates was partisan advantage-seeking, as redistricting always is in Virginia. But the plan drawn by the Democrats who call the shots in the Senate crossed a line, with a display of partisan exploitation that violated the basic principles that must be respected even in a process that has long been politically tinged. It sliced up communities that should be intact, like Williamsburg and Virginia Beach, and lumped together communities with little in common. Its map looked like a three year old had run amok with a crayon, not like the work of people who honor representative democracy.

If Virginia needs an reason to switch to a nonpartisan approach to redistricting, this will do. States that have adopted this method find that it produces districts that make sense, allowing communities to have meaningful representation and representatives to better serve their constituents. It results in elections that offer voters real choices, unlike the elections in many Virginia districts in which the outcome is a foregone conclusion.

The General Assembly needs to get back to work and draw districts that are not so tainted by political self-serving. Because now it knows: If it doesn't do a decent job on its assignment, the governor won't accept it. Thank goodness for that.

## **US Nuclear Power Output Hits Lowest In 4 Years After Tornado (BLOOM)**

By Colin McClelland

Bloomberg News, April 19, 2011

US nuclear-power output fell to the lowest level in almost 4 ½ years after a tornado forced Surry Units 1 and 2 in Virginia to shut yesterday, the Nuclear Regulatory Commission said.

Power generation nationwide fell 3,730 megawatts, or 4.9 percent, from April 15 to 72,425 megawatts, or 71 percent of capacity, the smallest amount since Oct. 22, 2006, according to an NRC report today and data compiled by Bloomberg. Twenty-nine of the nation's 104 reactors were offline.

The Surry reactors, operated by Dominion Resources Inc. with a capacity of 799 megawatts each, automatically shut down when a tornado touched down in the switchyard and knocked out offsite power, the NRC said. The incident was declared an "unusual event," the lowest of four categories in the federal agency's emergency classification system. Unit 1 was operating at full power and Unit 2 at 98 percent of capacity on April 15.

"No release of radioactive material has occurred beyond those minor releases associated with normal station operations," Dominion said in a statement yesterday. "The apparent tornado did not strike the two nuclear units, which are designed to withstand natural events such as tornados, hurricanes and earthquakes."

There were no injuries at the plant, 17 miles (27 kilometers) northwest of Newport News, and the company said it is working to restore electrical service to the station.

Dominion notified authorities that about 100 gallons of oil leaked from an above-ground storage tank and 200 gallons of oil spilled from a damaged transformer, the NRC said.

Entergy Corp. (ETR) idled the 685-megawatt Pilgrim 1 reactor in Massachusetts after it was operating at 86 percent of capacity on April 15. The plant is 4 miles (6.4 kilometers) east of Plymouth. Scana Corp. (SCG) closed the 966-megawatt Virgil C. Summer reactor, which was operating at 40 percent of capacity on April 15. The plant is near Jenkinsville, South Carolina, about 26 miles northwest of Columbia.

Exelon Corp. (EXC) shut the 1,152-megawatt Braidwood 2 reactor in Illinois, operating at 91 percent of capacity on April 15. Another reactor on the site, the 1,178-megawatt Braidwood 1 unit, was operating at full power. The plant is about 54 miles southwest of Chicago.

FirstEnergy Corp. (FE) idled the 1,235-megawatt Perry nuclear reactor in Ohio for refueling. The plant, located on Lake Erie about 35 miles northeast of Cleveland, was operating at 86 percent of capacity on April 15.

FirstEnergy started the 940-megawatt Beaver Valley 1 reactor in Shippingport, Pennsylvania, about 26 miles northwest of Pittsburgh. It was operating at 82 percent of capacity today. Another 940-megawatt unit at the plant, Beaver Valley 2, is operating at full power.

The Tennessee Valley Authority boosted output from the 1,104-megawatt Browns Ferry 2 reactor in Alabama to full power from 92 percent of capacity on April 15.

Browns Ferry Units 1 and 3, which have respective capacities of 1,065 megawatts and 1,115 megawatts, are operating at full power. The plant is 84 miles north of Birmingham near the Tennessee line.

Some reactors close for maintenance and refueling during the spring and fall in the US, when demand for heating and cooling is lower. The outages can increase consumption of natural gas and coal to generate electricity.

The average US reactor refueling outage lasted 41 days in 2009, according to the Nuclear Energy Institute.

## **Hartz: US Nuclear Industry Strives For Safety (RICHTD)**

By LESLIE N. HARTZ

Richmond (VA) Times-Dispatch, April 19, 2011

live about 40 miles from the North Anna Power Station. I worked at North Anna in the 1980s, including in 1986 when my daughter was born, and I served as site vice president at one of our nuclear power stations.

I can tell you from firsthand, on-site experience that Dominion's nuclear facilities and the rest of those in the US nuclear industry are safe. They are robustly designed to withstand the severest of events and safely shut down.

Now we have a new severe event to study — the 9.0-magnitude earthquake and unstoppable tsunami at Fukushima Daiichi power station in Japan. Four days after it struck, the industry's Institute of Nuclear Power Operations issued a mandate for us to re-examine all safety systems, backup safety systems, procedures and training to ensure that they could function properly in an event of similar circumstances.

More than two dozen engineers and technicians are working on this full-time at Dominion, and several dozen more are supporting them. They are examining our practices and asking "what-if" questions to challenge current thinking. It will be months before we understand all that happened, but this industry has always had the willingness and expectation to share lessons learned and improve. We will get better and even safer.

What occurred in Japan is an unspeakable tragedy. We all have seen the video of entire towns being swept away by the tsunami. Between the earthquake and the tsunami, reactor control rods were inserted successfully and shut down the three operating units. The tsunami hit the station shortly after, knocking out backup generators at the site.

Without power for cooling systems, the operating reactors and spent fuel storage pools began to overheat until other systems and containment structures were affected. Some were ultimately damaged, which released radioactive material.

Operators are bravely doing everything in their power to bring the situation under control. The US and worldwide nuclear community have established an around-the-clock organization to assist Japan, including placing US utility individuals with critical expertise in Japan. Fortunately, as far as we know, the highest radiation levels that workers have been exposed to are about the same as what US nuclear workers could be exposed to in accordance with federal limits over the course of less than three years and below the limits for emergency situations.

This is not to make light of this accident or the release of radioactive material. The events at Fukushima Daiichi in 2011 have now entered history alongside Chernobyl in 1986 and Three Mile Island in 1979.

In a way, though, perhaps the most extraordinary aspect is that given the forces of nature involved — enough energy in the earthquake alone to move the island of Japan 8 feet closer to the United States — it is a testament to the design and construction of nuclear facilities that the station held up as it did. In the end, the station's problems stemmed mostly from the tsunami that knocked out the offsite and backup power systems.

In the United States, our station designs have additional backup power and backup pumps that were not available to the Fukushima operators. Additionally, US nuclear stations added equipment and procedures to provide additional means of dealing with a catastrophic terrorist attack following the events of Sept. 11, 2001. Those can be applied to deal with a large-scale natural disaster.

My heart goes out to the Japanese in this terrible crisis. There are multiple stories of the individuals at Fukushima Daiichi who have worked tirelessly to deal with the unfolding events, many with displaced families.

The production of nuclear power is an extremely important element of our country's energy profile. Our two Virginia stations, North Anna and Surry, provide 40 percent of the electricity used by our customers. Their operation requires a profound respect from everyone involved. We in the industry take that responsibility seriously and, as a result, we are driven to learn and improve every day. I remain confident that our stations and those in the United States are safe and that the tragic events in Japan will be our catalysts for enhanced safety.

## **Report: Michigan 'Fairly' Prepared For Possible Radiation Emergency (DETN)**

By Kim Kozlowski

Detroit News, April 17, 2011

As Japan's nuclear crisis unfolds, Michigan is "fairly," but not fully, prepared to protect public health if a similar radiation emergency were to happen here.

State officials offered the assessment in response to a recent report that showed most states are poorly prepared.

The report, published in last month's *Journal of the American Medical Association*, surveyed 38 states last year and concluded there are numerous gaps in radiation preparedness, including in Michigan — home to four nuclear power plants.

The report did not rank the states or cite their responses to the survey.

Michigan officials acknowledged that there are gaps in the state's response plan in the event of a radiologic emergency, such as a lack of resources to test for radiation in water or food.

But officials said Michigan is further along in its emergency planning than other states with nuclear power plants.

"We are fairly well-prepared just given that we have an overall response plan in place," said David Wade, director of the environmental health division at the Michigan Department of Community Health. "Not only do we have it in place, but we have tested it a number of times. And we are one of a number of states that have gone a step further, where we have a potassium iodine distribution program."

Potassium iodine protects the thyroid from cancer in the event of a radiation release and is taken only if needed.

Michigan implemented a plan two years ago to get the tablets to the 78,000 people and 4,000 businesses within 10 miles of the state's four nuclear reactors. The power plants funded the \$65,000 program, and only 5 percent of eligible people used the coupons they were mailed for a free supply of the pills.

There are a number of reasons for the lack of emergency planning nationwide, said Martha Stanbury, a report co-author who is administrative manager in the environmental health division of Michigan's health department.

Radiation response planning for public health involves technical expertise that often stretches across several state departments, Stanbury said.

In Michigan, officials responsible for nuclear emergency planning are split between the state health department and the Department of Environmental Quality.

Additionally, she said, most states have been prepared to respond to communicable diseases, and began preparations for biological events after the Sept. 11, 2001, terrorist attacks.

"The states have since started dealing more with other kinds of public health emergencies, not just terrorism, but natural disasters and chemical events, and they are starting to think more about radiation," Stanbury said.

"It's been a process and we're moving on this, but we still have a ways to go."

Michigan has four nuclear reactors, including DTE Energy's Fermi 2 in Newport, near Monroe; two reactors at Michigan Indiana Power Co.'s Cook Nuclear Plant near Bridgman in Berrien County, and one at Entergy Corp.'s Palisades Power Plant in Covert, near South Haven in Van Buren County.

DTE has an application before the Nuclear Regulatory Commission to obtain a license to build another nuclear plant.

More than 40 years ago, a since-decommissioned nuclear plant caused a scare in Monroe County. About 40 pounds of nuclear fuel melted at Fermi 1 on Oct. 5, 1966, when a metal part in the reactor broke off, blocking the flow of sodium coolant.

A radiation emergency was declared in the plant's primary containment building and the reactor was shut down. Operators and inspectors found no risk to the public, according to The Detroit News archives, but the incident led to the plant's closure in 1972.

Japan is in the midst of a nuclear crisis following a massive earthquake and a tsunami a month ago that crippled the Fukushima Daiichi power plant. Work is under way to the stop leakage of radiation there that has contaminated vegetables and milk near the plant.

Japan's disaster is serving as a wake-up call in the United States, said Jack Herrmann, public health preparedness senior advisor for the National Association of County and City Health Officials in Washington, D.C.

"The incident that occurred in Japan has really galvanized the preparedness community on seriously looking at how we would respond from a local, state and federal level to a similar incident that could occur here domestically," Herrmann said.

The state has an all-hazards plan to address public health issues. It includes sections on communicable diseases and chemicals, but radiation is not included. Michigan is working to address that gap, officials said.

"It's a terrible tragedy over there," Wade said of the Japanese disaster. "But it has shown us a few things that we need to look at and make some improvements on here."

## **TV - Politicians Visit So. Fla. Nuclear Plant (WSVN)**

### **Miami, Florida**

WSVN-TV, April 19, 2011

SOUTH MIAMI-DADE, Fla. (WSVN) – Members of Congress are speaking after they got a firsthand look at a South Florida nuclear plant.

In the wake of the nuclear disaster in Japan, four members of the South Florida Congressional delegation visited the Turkey Point Nuclear Power Plant in South Miami-Dade, Monday.

Democratic Representative Frederica Wilson and Republican Representatives Mario Diaz-Balart, David Rivera and Ileana Ros-Lehtinen toured the power plant during a recess from Congress.

The politicians looked at the plant's two nuclear reactors and expressed concerns about nuclear safety in light of the earthquake and subsequent tsunami that devastated Japan. The natural disasters crippled a nuclear power plant on the island nation and radioactive water spewed into the ocean. As a result, concerns were raised about radioactivity in the water and food supplies in Japan.

The representatives wanted to make sure that if a natural disaster, like a major hurricane, were to hit South Florida, the Turkey Point Nuclear Power Plant would be well-equipped to handle it. "How is this similar or different from the plant in Japan? Could it happen here? How is this different or the same from Three Mile Island? What if there were, not a tsunami, but what if there were a hurricane?" Ros-Lehtinen asked.

Employees at the plant attempted to quell the politicians' concerns. Gregory Laughlin of Florida Power & Light said, "This plant is designed for way beyond anything expected for this area."

After the visit, three of the four representatives were assured by the safety standards at the plant. Diaz-Balart mentioned that in 1992, the plant was able to withstand Hurricane Andrew. "See, we don't have earthquakes, but we do have hurricanes. I'll remind you, though, that this plant was basically hit dead-on by a Category 5 Hurricane Andrew, and it withstood it with no damage whatsoever," said Diaz-Balart. "Having said so, one cannot just sit back and think that that's the worst that can happen."

Rivera said, "The authorities here, I believe, try their best to respond to what many feel are the risks associated with operating a nuclear power plant."

However, one representative still had some doubts. "I am concerned, there are three things, I guess you could say: the security of the plant. How people gain access to the plant," Representative Wilson said.

Wilson's other two concerns included: what can be done with nuclear waste and hurricanes.

## **Rep. Keenan Talks About Nuclear Power, Salem Coal Plant (SNEWS)**

By Garrett Brmger

Salem (MA) News, April 19, 2011

SALEM — Salem Rep. John Keenan is the new chairman for the Joint Committee on Telecommunications, Utilities and Energy, a job that has taken on greater significance with the nuclear disaster in Japan.

The Salem Democrat shared his thoughts this week on nuclear power in Massachusetts.

Your committee is probably getting a lot more work right now after the incident in Japan.

Absolutely. I have to say, I was named chairman of this committee a few weeks before this incident happened. I would imagine, much like the legislators in our committee here in Massachusetts, many of the legislators in the 31 states that have nuclear reactors have probably responded thoroughly, in that they wanted to hold hearings and make sure communities prepare in the event that we have some sort of disaster, natural or other, that causes a problem.

This was not an issue that I felt was going to be a first issue to have for my committee, but it just so happens that was the case.

How safe should state residents feel with three nuclear power plants within or just outside our borders?

I think that was part of our goal for having the hearing last week at the Statehouse — to bring in the two companies, Entergy, who owns both Pilgrim and Yankee Vermont, and then NextEra, which owns Seabrook. ...

I was certainly comfortable with their responses and their talking about their preparedness for any sort of natural disaster or sabotage or those sorts of things, and talking about their backup systems. ...

So I just hope we did reveal that Massachusetts and Massachusetts Emergency Management (MEMA) is prepared in the event something like that does happen, but we also asked some important questions about how the communities communicate with each other.

I think overall the citizens can feel safe. Nuclear power plays a very important role in the region. I think it accounts for almost 30 percent of the baseload here in the New England ISO (independent system operator) region.

What steps are the utilities taking to make sure there won't be a repeat of the catastrophe in Japan?

I don't think you can ever say anything is 100 percent fail-proof, but having two or three systems ready to go and kept in working fashion is critical to the folks who live in the emergency evacuation zone. ...

As a result of the failed effort on behalf of the federal government to build the depository at Yucca Mountain, both companies have explained to us the process and capital planning they're doing to build dry storage facilities on-site. ... But we are encouraging, as did the governor, that the federal government either move forward with that project or another project.

They collected over \$25 billion from ratepayers in nuclear power companies over the last several decades to build this thing, and they haven't done it. So they need to do that, or send the money back to the various facilities so they can build appropriate dry storage on site.

The cost of electricity in Massachusetts is among the highest in the country. Why?

I think one of the reasons is we're sort of at the end of the energy line, if you will. We don't necessarily have natural resources here.

Most of our electricity is generated from fossil fuels, whether gas or coal that's brought into the area. It is getting a little better; the cost of natural gas is starting to go down a little bit and level out over the last year or so. The discovery of shale gas in Pennsylvania, I think, is going to provide ample gas going forward.

Nuclear power plants are very expensive to build, but they are ... a critical component. So I don't know how we could think about replacing the 650 megawatts at Pilgrim and another 650 megawatts at Vermont Yankee. It's a huge part of our energy here in New England.

What are you hearing about the future of the coal-burning plant, Salem Harbor Station?

I asked a sort of similar question because our power plant also has the capacity of about 750 megawatts, which is sort of equal to that of Pilgrim or Vermont Yankee, and has been critical to the reliability of this area for a long, long time.

There are no new plants that I'm aware of, of that magnitude, being planned or being built. The only thing that ISO has talked about is transmission into the region. But that is perhaps more costly than the improvements that need to be done at Salem Harbor, and quite some time before you actually get some study up in terms of transmission lines.

I am hopeful and confident that ISO will determine in May that the plant is still needed for reliability in the grid. In Massachusetts, coal follows nuclear as the biggest baseload. So it's an important piece.

Again, I think we have to diversify. I think nuclear is a part of the solution. Clean coal is perhaps part of the solution. Renewable, I certainly support its development in Massachusetts. So we have to continue to look at all facets, and I think the Salem power plant does play a role.

What steps could the state take to mitigate the tax loss to the city if the plant closes?

Sen. Berry (Fred Berry, D-Peabody) and I took some steps a few years ago in the Green Communities Act, and put a sort of backstop in there in terms of taxes, which is still in effect through Dec. 31. In the event that the tax proceeds go down from the power plant to the city of Salem, the funds from the Regional Greenhouse Gas Initiative auction would fill out that gap.

Right now, we receive about \$4.75 million in taxes from the plant. ... Sen. Berry and I have also filed legislation this term to extend that protection. We're hopeful we can move that along.

Is there anything else you'd like to add about the work you and the Telecommunications, Utilities and Energy Committee are doing right now?

We try to be prepared in the very unfortunate instance that something like this (Japan) were to happen. It made for a very interesting beginning of my tenure as chairman of this committee.

## **EPA To Test Western Pa. Water Wells For Contamination From Long-shuttered Nuclear Plant, Dump :: The Republic (AP)**

Associated Press, April 18, 2011

VANDERGRIFT, Pa. — The federal Environmental Protection Agency plans to test the water wells in a tiny southwestern Pennsylvania village to see if they've been tainted by nuclear waste dumped nearby from a defunct plutonium fuel plant.

Officials tell the Valley News Dispatch in Tarentum that the testing is planned later this year in the village of Kiskimere, which is in Parks Township, about 35 miles northeast of Pittsburgh.

The village has about 50 homes near the former Nuclear Materials and Equipment Corp. plant and a waste dump along Route 66. The plant was torn down in 2002 as part of a cleanup mandated by the Nuclear Regulatory Commission and the Army Corps of Engineers has a contract to excavating the dump and removing waste from it.

Any future EPA cleanup of the surrounding area will depend, in part, on the well tests.

## **Committee To Review Whether Proximity To Nuclear Power Plants Boosts Cancer Risk (STEL)**

By Chuck Quirnbach

Superior (WI) Telegram, April 19, 2011

A national committee looking at cancer risks near nuclear power plants will hold a public meeting in the Midwest today.

The Nuclear Regulatory Commission (NRC) recently asked the National Academy of Sciences to look at the possibility that living near a nuclear power plant boosts the risk of getting cancer. UW-Madison provost and medical physicist Paul DeLuca (DEE-lucah) is on the study committee. He says cancer rates vary across the US and the scientists are looking into whether having a nuclear power plant close by might raise local cancer rates or lower them.

DeLuca says if there's a local nuclear power plant, it's less likely a big polluter like a coal-fired power plant will be nearby. The study committee will hear testimony in suburban Chicago from scientific experts, including on the NRC's mission to keep radiation doses near nuke plants as low as reasonably achievable. The panel started its work before the Fukushima nuclear plant disaster in Japan. Professor DeLuca says he expects those problems to affect the federal study.

The panel will first try to complete a scoping study to identify scientifically sound approaches for carrying out an epidemiological study of cancer risks near nuclear plants. Then phase two will be an actual assessment of those risks.

Tags: news, energy, wisconsin, health, updates

## **Malloy Favors Compromise Electricity Bill (HARTC)**

**Controversial 'Millstone Tax' Will Not Be Approved**

By Christopher Keating

Hartford Courant, April 19, 2011

Gov. Dannel P. Malloy predicted Monday that the highly controversial "Millstone tax" on the state's nuclear power plants will not be approved.

Instead, Malloy said a key legislative committee this week would approve an electricity generation tax that is closer to his idea than the Millstone tax that would charge the two nuclear plants about \$330 million a year.

Malloy's proposed tax for Millstone is much smaller, about \$33 million a year. The nuclear operators originally had been opposed to Malloy's plan when it was unveiled, but that was before the legislature's energy committee voted 12-9 to approve a tax that would be 10 times higher.

Malloy predicts that the legislature's tax-writing finance committee this week will approve a tax plan much closer to his original proposal.

"I don't see that there is the political desire to tax one purveyor of energy by \$300-plus million," Malloy told The Hartford Courant's editorial board Monday. "I think in the coming days, when the appropriate committees act, you're going to see something much closer to the tax that I've proposed than the tax that has been proposed by the energy folks [on the committee]."

In February, Malloy proposed an electric generation tax of two-tenths of a cent per kilowatt hour, which would have generated \$58.4 million in each of the next two years from all generators in the state, including Millstone.

"I think it's possible you'll see a slight uptick in that number as a compromise," Malloy said of his rate of two-tenths of a cent. Regarding the Millstone tax, Malloy said, "I never supported that tax. That didn't come from me."

In a private conversation recently with Millstone officials at his state Capitol office, Malloy told the plant operators that they should open up their books to the general public.

"I'll tell you exactly what I said: 'You ran around here like your hair was on fire when I proposed a two-tenths of one cent tax,' " Malloy said of his talks with Millstone executives. "It somewhat undercut your argument when there was a much larger tax.' My advice to them was to become much more transparent in their dealings with the state."

The two influential Democratic co-chairs of the legislature's energy committee, Sen. John Fonfara of Hartford and Rep. Vickie Nardello of Prospect, both voted in favor of the Millstone tax. Rep. Terry Backer, a Stratford Democrat who is one of the most knowledgeable lawmakers on energy issues, and Sen. Kevin Witkos of Canton, the ranking Senate Republican on the committee, were among those who voted "no."

Nardello agreed that the final decision will be made in the context of the overall budget as legislators craft the two-year, \$40 billion package.

But she disputed statements by opponents that the increased taxes would either be passed along to consumers or that the Millstone operators would shut down the two nuclear plants along Long Island Sound.

"If you're going to pass it on, why would you be worried about it?" Nardello asked. "I wouldn't want to put the plant under. Why would I want to do that?"

Nardello said that Millstone "can't shut down" because it has made a commitment to supply power to ISO New England, which oversees electricity in the region.

Dominion, which operates the Millstone plants, says on its website that the tax would threaten the future of the nuclear plants, and the company urges customers to contact their legislators to block the bill.

"If this bill is passed and enacted into law, your monthly electric bill will increase," the company says. "As with every other tax, this ultimately will be passed on to consumers."

The company added; "Such an onerous tax would make it financially imprudent for Dominion to operate the station. A company representative has testified before the legislature that the company would cease operations at Millstone until economic conditions improve. This is not an easy decision or an idle threat. This proposed tax threatens the economic viability of the facility and the jobs of the 4000+ people the facility supports."

## **North Attleboro News (ATTLBORO)**

By Amy DeMelia

[Attleboro \(MA\) Sun Chronicle](#), April 19, 2011

A tax proposal in Connecticut could have ramifications in North Attleboro and Mansfield.

The Connecticut Legislature is considering enacting a tax on electric generation that would cost North Attleboro Electric Department up to \$339,643 per year because it receives electricity from Connecticut's Millstone nuclear plant.

"It's definitely a concern because it's an added cost that is not included our budget," said James Moynihan, general manager for North Attleboro Electric.

The \$339,643 figure is an estimate of the impact provided by the Massachusetts Municipal Wholesale Electric Company, which owns 4.8 percent of Millstone Unit 3, a nuclear power plant in Connecticut.

The wholesale electric company resells its share of electricity generated at Millstone to 27 municipal utilities, including the North Attleboro and Mansfield electric departments.

Information on the impact of the tax on Mansfield Electric was yet not available.

Through the 27 municipal utilities, Millstone provides electricity to 265,000 customers in Massachusetts. The wholesale company estimates it would cost those utilities a total of \$9.3 million a year.

Moynihan said a determination on how North Attleboro Electric would handle the tax and how it would affect customers has not yet been made. Its impact would depend on when the tax goes into effect.

The proposed tax, which is under consideration by the Connecticut General Assembly, would tax nuclear generation from Millstone at 2 cents per kilowatt hour, raising about \$330 million per year in tax revenue.

"Such a tax is at the very least unfair," said David Tuohey, director of communications and external affairs for the wholesale company. "Massachusetts public entities are not responsible for Connecticut's budget problems and they should not be responsible for paying to correct those problems."

## **Conn. Tax Proposal Could Cost North Attleboro, Mansfield (PBN)**

Providence Business News, April 19, 2011

The Connecticut General Assembly is considering a 2 cent per kilowatt hour tax on nuclear generation from the Millstone power station, which could affect the 27 municipal utilities which receive its electricity, The Sun Chronicle reported on Monday.

The proposed tax would raise about \$330 million per year in revenue for the state but could cost the North Attleboro and Mansfield electric departments.

According to the Massachusetts Municipal Wholesale Electric Company, which owns 4.8 percent of Millstone Unit 3, the tax would cost the North Attleboro Electric Department up to \$339,643 per year; the impact on Mansfield Electric has not been determined.

"It's definitely a concern because it's an added cost that is not included our budget," said James Moynihan, general manager for North Attleboro Electric, to the Sun Chronicle.

"Such a tax is at the very least unfair," said David Tuohey, director of communications and external affairs for Massachusetts Municipal Wholesale Electric Company.

"Massachusetts public entities are not responsible for Connecticut's budget problems and they should not be responsible for paying to correct those problems," said Tuohey, according to The Sun Chronicle.

The wholesale company estimated it would cost the municipal utilities \$9.3 million per year.

## **Expect The Unexpected (SAGHARBR)**

Sag Harbor (NY) Express, April 19, 2011

In the wake of last month's earthquake and tsunami, few of us have to be reminded of the disastrous situation that's still going on over in Japan with the Fukushima Nuclear Power Plant. This week, Japan's Nuclear Safety Commission raised the level of the seriousness of the situation at the plant from 5 to 7. This is only the second time a nuclear event has been raised to that level — the highest possible. The first time was at Chernobyl in 1986.

But one time is still too many. And the news coming out of Japan has prompted many people here to take a look at another reactor — one that has long been operating much closer to home.

If you've arrived in this part of the world fairly recently, you probably don't even realize it's there. Not surprising. After all, it sits in an entirely different state, across several miles of open water off the East End. It's Millstone Nuclear Power Station in Waterford, Connecticut, and 10 years ago or more, it was the focus of a strong local effort to shut it down.

But those efforts never quite had the effect anti-nuke organizers hoped for. Today, Millstone continues to operate less than 20 miles from Sag Harbor, providing about half of Connecticut's total power needs and lots of jobs — for people living in Connecticut. And that has long been at the heart of the argument against Millstone. Given our proximity to the plant, we here on the East End assume much of the risk with none of the benefit.

On Monday, Millstone held a meeting in Waterford to assure 100 plus residents that the disaster now taking place at the nuclear facility in Japan cannot happen here. They say they have thought of everything and Millstone personnel assured the audience that they have taken into account a total loss of power, as well as tornados, earthquakes and hurricanes in their equations on how the plant would hold up if the back up systems needed to kick in.

Famous last words. Two months ago, we are fairly certain officials at the Fukushima plant would have said the same thing to their neighbors. If we've learned anything from this disaster, it's that there are always surprises. Here's one you may not know. The Nuclear Regulatory Commission has found that the Indian Point 3 reactor located on the Hudson River in Westchester

County, carries the highest risk of damage of all nuclear reactors in this country due to the fact that it sits atop a fairly good size fault — and the area is overdue for a significant earthquake.

Talk about the unexpected.

And here's the thing. While in Japan, the official evacuation area around the destroyed Fukushima plant is designated at 12 miles, the common consensus among many experts outside the country, given the scale of the disaster, is that it should be larger — much larger — no less than 50 miles.

Fifty miles from Millstone? That would encompass the entire East End. And that's what has us worried. We're at the end of a very long island. There are only a couple roads in and out of this place. We all know what it's like trying to head west from Sag Harbor at the end of a busy summer weekend. Imagine doing that along with every one of your neighbors in the immediate aftermath of a major accident at Millstone as radioactive gases drift our way over the sound.

It's a frightening scenario, but one Millstone has never had to envision, since the NRC requires them to only put evacuation plans into place for an area within a 10 mile radius of the reactor— which conveniently avoids the East End all together, but just barely.

A number of years ago state assemblyman Fred Thiele and state senator Ken LaValle put forth legislation that would have forced Millstone to expand the evacuation plans to include the East End, knowing full well it would be impossible to do so given the geography of the area. And then, maybe Millstone would be shut down.

But that legislation went nowhere.

Now, with nuclear concerns back on the front page because of Japan, Thiele and LaValle are again taking on the industry. This time, they are introducing legislation that would require New York's State Emergency Management Office to conduct a review of disaster plans for all nukes in the state or those within 50 miles of state borders — which would include Millstone. The feasibility of evacuating an area within 50 miles of a plant is among the items to be considered in the event of severe core damage. If the review shows evacuation is not feasible, the governor would be directed to petition the federal government to close the plant.

We say it's about time and hope this legislation has legs. It's been easy enough for the industry to sit back for years and draw an arbitrary 10 mile ring around their realm of responsibility. But Fukushima has put the issue back on the map and shown that if there's anything we can count on when it comes to nuclear energy, it's the unexpected.

## **PG&E Puts Off Diablo Licensing To Study Faults (ADOBEPR)**

By April Charlton

Adobe Press, April 19, 2011

The San Luis Obispo County Board of Supervisors believes Pacific Gas and Electric Co. should stop relicensing efforts at its nuclear power plant near Avila Beach.

On Tuesday, the supervisors unanimously agreed to send a letter to PG&E requesting the company voluntarily withdraw its relicensing application for Diablo Canyon Power Plant, at least for now.

"It's 13 to 14 years away from the end of the licenses (for the plant)," said Supervisor Jim Patterson. "There's no real hurry here. If PG&E wants to regain the public's trust, they need to withdraw the application."

PG&E has applied to the Nuclear Regulatory Commission to extend the power plant's operating licenses for an additional 20 years. Diablo's two reactor licenses expire in 2024 and 2025.

The relicensing process takes about four years to complete, according to officials.

Diablo Canyon sits on a blufftop 85 feet above the ocean, between Avila Beach and Los Osos, and within three miles of two earthquake faults.

Lawmakers have been pushing the electric company to perform three-dimensional seismic studies of the ocean floor near the plant to assess earthquake risks before new licenses are granted.

On Monday, PG&E announced it would undertake the 3-D seismic studies and has asked the NRC to delay issuing new licenses, if approved, for Diablo Canyon until the studies are completed and reviewed by company scientists (see related story).

However, the Board of Supervisors thinks the utility can and should do more.

"I am not convinced this is the only thing that needs to be done," said Chairman Adam Hill, whose 3rd District includes the nuclear power plant.

Hill and other supervisors believe PG&E needs to go a step further by withdrawing its relicensing application and focusing solely on the seismic studies for the next few years. The studies are expected to take two to three years to complete.

"We still have a little way to go," Hill said. "I want our citizens to trust the (relicensing) process more than anything."

The supervisors also want to see findings of the proposed 3-D study reviewed by individuals not employed by the electric company.

"It's a half-step in the right direction," Supervisor Bruce Gibson said about PG&E's announcement to undertake the advanced seismic studies.

He said an independent peer review would be essential to validating any conclusions that may come from the research.

A PG&E official is expected to make a presentation at a future board meeting to explain what the electric company's request to the NRC means in relation to whether the relicensing process is stopping or will be ongoing.

Pacific Gas and Electric Co. has agreed to undertake advanced 3-D seismic studies of the ocean floor and earthquake faults near Diablo Canyon Power Plant, delaying the relicensing process until completion of those studies.

Officials made the announcement late Monday afternoon, less than 24 hours before the San Luis Obispo County Board of Supervisors held a public hearing on the issue.

Board Chairman Adam Hill, whose 3rd District includes the twin-reactor nuclear plant, said he believes PG&E should completely pull back from the relicensing process and focus all of its efforts on the safety of Diablo Canyon.

"I think it's a step in the right direction," Hill said Monday about PG&E's announcement. "But they could do more."

Supervisors agreed last month to hold a public hearing to discuss sending a letter to PG&E requesting the electric company stop the relicensing process until the 3-D seismic studies are complete (see related story).

PG&E has applied to the NRC to extend the power plant's current operating licenses for an additional 20 years. One reactor's license expires in 2024 and the other in 2025.

Hill said "focusing solely on the seismic studies" is the most credible way for PG&E to move forward in its quest to extend the life of Diablo Canyon and show the public it is committed to safety at the plant.

"It's still about the message that you are sending to your people," Hill said.

PG&E officials have said publicly they want to restore the public's trust in the company.

In a letter to the NRC dated Sunday, PG&E said it would be prudent to complete the studies prior to granting new licenses.

The company said it wanted the NRC to hold off issuing new licenses, even if they are approved by the agency, until the three-dimensional studies are finished.

"We recognize that many in the public have called for this research to be completed before the NRC renews the plant's licenses," John Conway, PG&E's senior vice president of energy supply and chief nuclear officer, said in a statement issued Monday.

"We are being responsive to this concern by seeking to expeditiously complete the 3-D seismic studies and provide those findings to the commission and other interested parties so that they may have added assurance of the plant's seismic integrity," he added.

The county is willing to work with PG&E to expedite the permitting process for the seismic studies, Hill said.

"We want them to move forward," he added.

State Sen. Sam Blakeslee, a Republican whose district includes Diablo Canyon, commended the decision and said in a statement that "it's our duty to learn and apply the lessons of Japan."

NRC spokeswoman Lara Uselding said the agency will consider PG&E's request to see what, if any, impact it would have on the agency's review schedule.

In its letter, the utility company said it wanted to complete the research no later than December 2015.

At issue at Diablo Canyon is not what is known but what is not.

Preliminary research at the site found its twin reactors could withstand a potential earthquake generated by the recently identified Shoreline Fault, just off the coast.

## **Japanese Crisis Raises Doubts On Plan For Plutonium In S.C. (NYTIM)**

By Jo Becker And William J. Broad

New York Times, April 19, 2011

On a tract of government land along the Savannah River in South Carolina, an army of workers is building one of the nation's most ambitious nuclear enterprises in decades: a plant that aims to safeguard at least 43 tons of weapons-grade plutonium by mixing it into fuel for commercial power reactors.

The project grew out of talks with the Russians to shrink nuclear arsenals after the cold war. The plant at the Savannah River Site, once devoted to making plutonium for weapons, would now turn America's lethal surplus to peaceful ends. Blended with uranium, the usual reactor fuel, the plutonium would be transformed into a new fuel called mixed oxide, or mox.

"We are literally turning swords into plowshares," one of the project's biggest boosters, Sen. Lindsey Graham of South Carolina, said at a hearing on Capitol Hill last week.

But 11 years after the government awarded a construction contract, the cost of the project has soared to nearly \$5 billion. The vast concrete and steel structure is a half-finished hulk, and the government has yet to find a single customer, despite offers of lucrative subsidies.

Now, the nuclear crisis in Japan has intensified a long-running conflict over the project's rationale.

One of the stricken Japanese reactors at the Fukushima Daiichi plant uses the mox fuel. And while there has been no evidence of dangerous radiation from plutonium in Japan, the situation there is volatile, and nuclear experts worry that a widespread release of radioactive material could increase cancer deaths.

Against that backdrop, the South Carolina project has been thrown on the defensive, with would-be buyers distancing themselves and critics questioning its health risks and its ability to keep the plutonium out of terrorists' hands.

The most likely customer, the Tennessee Valley Authority, has been in discussions with the federal Department of Energy about using mox to replace a third of the regular uranium fuel in several reactors - a far greater concentration than at the stricken Japanese reactor, Fukushima Daiichi's Unit No. 3, where 6 percent of the core is made out of mox. But the TVA now says it will delay any decision until officials can see how the mox performed at Fukushima Daiichi, including how hot the fuel became and how badly it was damaged.

Duke Energy tested the fuel at its Catawba nuclear plant in York County, S.C., for less than three years before removing the fuel in 2008. Duke's contract to buy the fuel for production use also expired that year.

At the same time, opponents of the S.C. project scored a regulatory victory this month when a federal atomic licensing panel, citing "significant public safety and national security issues," ordered new hearings on the plans for tracking and safeguarding the plutonium used at the plant.

Obama administration officials say that mox is safe, and they remain confident that the project will attract customers once it is further along and can guarantee a steady fuel supply. Anne Harrington, who oversees nuclear nonproliferation programs for the Energy Department, noted that six countries besides Japan had licensed the routine use of mox fuel. She accused critics of "an opportunistic attempt" to score political points by seizing on Japan's crisis.

"Mox is nothing new," she said.

Even so, the critics say there is an increasing likelihood that the South Carolina project will fail to go forward and will become what a leading opponent, Edwin Lyman of the Union of Concerned Scientists, calls a "plant to nowhere." That would leave the United States without a clear path for the disposal of its surplus plutonium.

A cheaper alternative, encasing it in glass, was canceled in 2002 by President George W. Bush's administration.

## **More Dangerous Than Japan Radiation (OCR)**

By Charlie Zender

Orange County (CA) Register, April 19, 2011

West Coast inhabitants have learned by now that we live downwind from the crippled nuclear reactors in Fukushima, Japan. The plume of radioactive material poses a real threat near the source, where images include health workers wearing protective "moon suits," infants probed by Geiger counters, and contaminated smoke and steam spewing from the damaged reactor buildings. These emissions are carried our direction in the global wind belt called the prevailing westerlies.

Understandably, Americans worry that the plume crossing the Pacific may expose them to enough radioactivity to endanger our health and way of life. Our health is endangered by a pollution plume, but not the radioactive one from Asia. First, though, let's see why Japan's nuclear accident poses us no immediate threat.

To be sure, the Fukushima reactors have emitted lethal doses of radiation. The International Atomic Energy Agency reported on March 15 that radioactive doses of 400 millisieverts per hour, enough to guarantee incapacitation and death after one day, were measured between two reactors. Fortunately, especially for the brave reactor crew at the site, subsequent measurements are much lower, though still too dangerous for prolonged exposure near the plant itself. The constantly fluctuating readings unnerve residents of the US West Coast where some of the radioactivity may fall.

Instruments designed to enforce the Comprehensive Test Ban Treaty have already measured radioactivity from the plume here in California. What does this mean for public health? These measurements have no public health implications because they are millions of times lower than necessary to cause any measureable health effects. Such trace measurements of radiation make nuclear weapons tests difficult to conceal (and so support nuclear non-proliferation efforts), yet they fan the anxiety of a public who associate radioactivity, at any level, with mushroom clouds and mortal illness.

Nuclear safety and weather experts quickly reassured US residents that the radioactive fallout from Fukushima poses no threat to us. Weather disperses and scavenges the dangerous particles during their journey across the vast Pacific and dilutes the fearsome plume to safe levels before landfall. Most of us consider acceptable the much higher doses we receive as "background radiation" from natural and benign man-made sources. These pervasive sources include cosmic rays, radon seepage from uranium decay in Earth's interior, and highly dispersed uranium and thorium from coal combustion. Watt-for-watt, a coal-fired electricity plant emits into the environment fly ash particles that carry about one hundred times more radioactivity than emitted by a nuclear plant. A non-malfunctioning nuclear plant, that is.

Of course people are not enthusiastic to learn that background radiation exists, is unavoidable, and causes more cancer than nuclear power. Risk-averse people naturally want to minimize their exposure.

Since background radiation comes from all directions in amounts much greater than the Fukushima plume, it makes no sense to flee eastward, seal our windows, or ingest (non-radioactive) iodine pills. Indeed the greater sources of our annual radiation exposure are the granite beneath and concrete around us, jet travel, and diagnostic medical X-rays. While we cannot reduce our exposure beneath background levels, we can reduce our health risks from more menacing pollution than the Fukushima plume.

Soot particles, primarily emitted by diesel engines, open burning, and coal combustion, constitute a known, and increasingly preventable, public health threat. Plumes of soot (co-emitted with ozone, also harmful) flow downwind from shipping, transportation, and industrial centers such as freeways and ports. Our lungs trap some of the microscopic soot we inhale, much like cigarette smoke.

Over time, the accumulated soot in our bodies impairs cardiovascular, cognitive, and respiratory functioning. Living closer to freeways and ports (dominant soot sources in Southern California) increases our risk of heart attacks and heart disease. It reduces attention, memory, and ultimately lifespan. The California Air Resources Board estimates that diesel soot alone is associated with about 18,000 premature deaths statewide annually.

Our health risk from ongoing local soot emissions dwarfs our risk from radioactivity released in Japan. Fortunately, reducing exposure to soot is an effective means of protecting public health while maintaining our energy and transportation infrastructure. We can fit diesel exhausts with particulate traps, shift to cleaner burning fuels and battery-powered vehicles, and utilize shore-side electricity (rather than idling) for ships at port.

Recognizing the public health threat from soot, our national, state, and regional air resources agencies have been phasing-in policies to mitigate soot. As a result, soot emissions in the US have leveled-off in recent decades. Strengthening restrictions on soot would accrue benefits to all, especially those who live or work in and downwind of the (often economically disadvantaged) neighborhoods near heavy shipping, traffic, and industry.

Citizens informed about the health hazards of soot are likely to support maintaining and extending policies that mitigate it, and to resist rolling them back in short-sighted budgetary measures. Despite its attention in the media, the trace amount of radioactivity wafting here from the Fukushima plant poses us no threat compared to our chronic exposure to locally generated soot. Let's clear the air about that.

own home.

## **Lab Halts Web Access After Cyber Attack (KNOXNS)**

By Frank Munger

Knoxville News Sentinel (TN), April 19, 2011

OAK RIDGE — A highly sophisticated cyber attack — known as Advanced Persistent Threat — forced Oak Ridge National Laboratory to shut down all Internet access and email systems over the weekend.

Those restrictions will remain in place until lab officials and others investigating the attack are sure the situation is well controlled and manageable, ORNL Director Thom Mason said Monday.

Mason said he expects that email functions may be restored today on a limited basis, with no attachments allowed and restrictions on length.

“We made the decision (at about midnight Friday) to close down the connection to the Internet to make sure there was no data exfiltrated from the lab while we got the system cleaned up,” he said.

The lab’s cyber specialists had been monitoring the attack and recommended further action after it looked like efforts were under way to remove data from ORNL systems, Mason said.

Mason said the APT threat at ORNL is similar to attacks in recent times on Google, a security company known as RSA and other government institutions and corporations.

“In this case, it was initiated with phishing email, which led to the download of some software that took advantage of a zero day exploit, a vulnerability for which there is no patch yet issued,” he said. The vulnerability involved Internet Explorer, he said.

Mason said the lab has not, to this point, detected any large-scale exfiltration of data, and the decision to shut down Internet access was made to prevent that or anything similar to a 2007 cyber attack at ORNL in which large amounts of data were stolen. Following that event, the lab sent 12,000 letters to former lab visitors, informing them that their Social Security numbers may have been compromised (although there were no subsequent reports of identity thefts or major problems).

“We haven’t really completed the post-mortem on what happened, so it would be foolish to kind of speculate on where things were going,” Mason said, when asked about a report that the attack may have originated in China.

“There was no significant exfiltration of data that we detected,” he said. “There were attempts and small volumes of things that were suspicious in terms of Internet traffic.”

ORNL has solicited help from throughout government, including other Department of Energy labs. He confirmed that some outside experts had arrived in Oak Ridge to participate in the investigation.

In addition, he said virtually all of the lab’s information technology staff (about 200 people) was involved, either in the investigation or maintaining the functionality of internal systems.

Mason confirmed that some computers were confiscated and quarantined. He also confirmed that the phishing email messages in this case were disguised as coming from the lab’s human resource department.

He said that some lessons learned from the 2007 attack helped lab officials with the current situation, but he said this is a much more advanced attack than the event four years ago.

“Well, if you look at this APT, it is much more sophisticated than what was being used a few years ago,” he said. “Certainly what we’ve seen is very consistent with the RSA attack. Whoever is doing this attempts to get a foothold in the network system, works patiently and relatively quietly to try to expand that and is looking for specific types of information.”

Without email or Internet access, thousands of ORNL employees weren’t able to do business as usual on Monday.

“It hampered our normal communications,” said Mason, who was out of town and could not check his email. “It means we’re dusting off some fax machines.”

Senior writer Frank Munger may be reached at 865-342-6329.

## **INTERNATIONAL NUCLEAR NEWS:**

### **Radiation Poses Barrier To Repair Work At Plant (NYT)**

By Hiroko Tabuchi

New York Times, April 19, 2011

TOKYO — Robots deployed inside two reactors at the Japanese nuclear plant overrun by last month’s devastating tsunami have detected radiation levels too high for workers to enter, posing immediate challenges for a new plan to bring the ravaged complex under control by year’s end.

Workers have not been able to enter four of the reactors at the Fukushima Daiichi Nuclear Power Plant since the days immediately after the earthquake and tsunami struck on March 11. Vital cooling systems at the plant were knocked out, and the ensuing hydrogen explosions at four of the plant’s six reactors blew off their roofs and littered the site with radioactive debris.

On Sunday, two robots made their way into two of the reactor units, opening doors and navigating radioactive debris and puddles of water to return with temperature, pressure and radioactivity readings. The readings, released Monday, showed continued high radiation levels.

At Unit 1, robots detected up to 49 millisieverts per hour; at Unit 3, the reading was 57 millisieverts per hour. In recent weeks far higher readings have come from areas where contaminated water has accumulated, like the turbine building at Unit 2, where experts say the reactor pressure vessel may be cracked and leaking nuclear material.

Still, exposure for emergency workers in Japan is currently capped at 250 millisieverts of radiation annually. So the current levels effectively limit a worker to just a few hours of labor.

“It is a harsh environment for humans to work in,” said Hidehiko Nishiyama, deputy director general at the Nuclear and Industrial Safety Agency.

He said the levels would require the plant’s operator, the Tokyo Electric Power Company, to be “creative” in bringing the plant to a stable state known as a cold shutdown within six to nine months, as the company laid out in a timetable on Sunday.

The Japanese government continues to face severe challenges, both technical and political, in the aftermath of a multifaceted disaster that has left 13,800 people dead and 14,000 missing. At least 137,000 people remain in evacuation centers, some driven from their homes by radiation leaks from the Fukushima plant.

Japan's Finance Ministry has said the damage from the earthquake and tsunami alone could reach \$300 billion, making it the world's most costly natural disaster. The toll from the nuclear disaster — which has disrupted farming and fishing, curtailed power supplies across eastern Japan, and inflicted other wounds on the economy — is yet to be tallied.

Prime Minister Naoto Kan came under fire on Monday from opposition lawmakers who accused him of bungling the initial response to the nuclear crisis.

"Many Japanese feel that Prime Minister Kan has no leadership," Masashi Waki, a lawmaker of the main opposition, the Liberal Democratic Party, said at an unusually heated parliamentary session. Sadakazu Tanigaki, the leader of the Liberal Democratic Party, last week called on Mr. Kan to resign.

"I do not think that my response has been inadequate, as many say," a flustered-looking Mr. Kan said, amid heckling. "Nonsense!"

A poll released Monday by The Nikkei, Japan's largest business daily, appeared to back the opposition's claims. Sixty-nine percent of respondents said Mr. Kan should be replaced, while 70 percent said the government's response to the nuclear crisis was unacceptable. The Nikkei said it surveyed 983 people across the country from April 15 to 17, excluding some areas where phone lines remained down.

Tokyo Electric's ambitious plan for bringing the reactors to a cold shutdown has also been criticized. The plan, drawn up at the government's order, is meant to give residents evacuated from the area around the plant an idea of when they might be able to return home.

But experts question the viability of the plan, which calls for swiftly building critical new cooling systems. Tokyo Electric faces "substantial barriers" in following the timetable, said Haruki Madarame, chairman of the Nuclear Safety Commission, an independent panel of experts appointed by the government to oversee the nuclear industry.

Mr. Madarame, a former professor in nuclear engineering at Tokyo University, told reporters Monday that the presence of highly radioactive water at Unit 2 posed a particular challenge. There and at other units, workers have been cooling nuclear fuel at the reactor's core and in storage pools by pumping in hundreds of tons of water a day, producing dangerous amounts of runoff.

"We must make sure that the tight schedule does not lead to a neglect of safety," Mr. Madarame said.

Robots could help tackle some of the challenges. The remote-controlled PackBots used Sunday, built by the iRobot company of Bedford, Mass., are 60-pound contraptions with steel arms and caterpillar tracks. They can lift about 30 pounds, go up and down steps, send images back to an operator and carry a hazardous materials kit that senses radiation.

iRobot, which also makes the popular Roomba vacuum, has delivered over 3,800 PackBots, primarily to the government and military, according to Tim Trainer, an iRobot vice president.

After arriving in mid-March, the robots were programmed to open reactor doors and navigate narrow passageways, said Mr. Nishiyama of the nuclear safety agency.

Robots, along with remote-controlled hovering drone aircraft made by Honeywell called T-Hawks, have let engineers survey and take measurements at the plant while minimizing workers' exposure to harmful radiation. A PackBot entered a third reactor building late Sunday.

## **Radiation Near Japan Nuke Plants Too High For Workers (USAT/AP)**

Associated Press, April 19, 2011

TOKYO (AP) — A pair of thin robots on treads sent to explore buildings inside Japan's crippled nuclear reactor came back Monday with disheartening news: Radiation levels are far too high for repair crews to go inside.

Nevertheless, officials remained hopeful they can stick to their freshly minted "roadmap" for cleaning up the radiation leak and stabilizing the Fukushima Dai-ichi plant by year's end so they can begin returning tens of thousands of evacuees to their homes.

"Even I had expected high radioactivity in those areas. I'm sure (plant operator Tokyo Electric Power Co.) and other experts have factored in those figures when they compiled the roadmap," Chief Cabinet Secretary Yukio Edano said.

Officials said Monday that radiation had spiked in a water tank in Unit 2 and contaminated water was discovered in other areas of the plant, underscoring the growing list of challenges facing TEPCO in cleaning up and containing the radiation. They also described in more detail the damage to fuel in three troubled reactors, saying pellets had melted.

Angry at the slow response to the nuclear crisis and to the catastrophic earthquake and tsunami that caused it, lawmakers tore into Prime Minister Naoto Kan.

"You should be bowing your head in apology. You clearly have no leadership at all," Masashi Waki, a lawmaker from the opposition Liberal Democratic Party, shouted at Kan.

"I am sincerely apologizing for what has happened," Kan said, stressing the government was doing all it could to handle the unprecedented disasters.

TEPCO's president, Masataka Shimizu, appeared ill at ease as lawmakers heckled and taunted him.

Workers have not been able to enter the reactor buildings at the stricken plant since the first days after the cooling systems were wrecked by the March 11 earthquake and tsunami that left more than 27,000 people dead or missing. Hydrogen explosions in both buildings in the first few days destroyed their roofs and scattered radioactive debris.

On Sunday, a plant worker opened an outer door to one of the buildings and two Packbots, which resemble drafting lamps on tank-like treads, entered. After the worker closed the door, one robot opened an inner door and both rolled inside to take readings for temperature, pressure and radioactivity. They later entered a second building.

The robots reported radioactivity readings of up to 49 millisieverts per hour inside Unit 1 and up to 57 inside Unit 3, levels too high for workers to realistically enter.

"It's a harsh environment for humans to work inside," said Hidehiko Nishiyama of Japan's Nuclear and Industrial Safety Agency.

Japanese authorities more than doubled the legal limit for nuclear workers since the crisis began to 250 millisieverts a year. Workers in the US nuclear industry are allowed an upper limit of 50 millisieverts per year. Doctors say radiation sickness sets in at 1,000 millisieverts and includes nausea and vomiting.

The robots, made by Bedford, Massachusetts, company iRobot, which also makes the Roomba vacuum cleaner, explored Unit 2 on Monday, but TEPCO officials had yet to analyze that data.

The radioactivity must be reduced, possibly with the removal of contaminated debris and stagnant water, before repair crews would be allowed inside, said NISA official Masataka Yoshizawa.

Sturdier robots can remove some of the debris, but workers are needed to test the integrity of the equipment and carry out electrical repairs needed to restore the cooling systems as called for in the road map, Yoshizawa said.

"What robots can do is limited, so eventually, people must enter the buildings," TEPCO official Takeshi Makigami said.

The robots, along with remote-controlled miniature drones, have enabled TEPCO to photograph and take measurements of conditions in and around the plant while minimizing workers' exposure to radiation and other hazards.

Separately, readings from a water tank attached to the spent fuel pool in Unit 2 showed a severe spike in radiation that NISA officials said might have been caused by the escape of radioactive vapor from a nearby containment vessel. They said, however, the possibility of damage to spent fuel rods could not be ruled out.

NISA also sent a report to the government watchdog Nuclear Safety Commission, saying that some fuel pellets and rods in the reactors in Units 1, 2 and 3 had become overheated and melted, the first time it had provided details of the damage to the fuel. Nishiyama, said the agency can only say "more than 3 percent" of the fuel rods have melted.

A pool of stagnant radioactive water was also discovered in the basement of Unit 4.

With evacuees' ordeal stretching into the long-term, some began moving out of school gymnasiums into temporary housing. Hundreds who have not found apartments or relatives to take them in began filling up inns at hot springs.

"The government has asked us to be ready to take in as many as 200 evacuees for the next four months at least," said Masaki Hata, whose family has run the Yoshikawayama Hot Springs Inn on the outskirts of Fukushima for seven generations.

Michiaki Niitsuma, a 27-year-old office worker, said he was glad to have a comfortable place to stay while he waited to go home.

"My kids got sick in the shelter. It was cold. It's much better here. It's a relief," he said.

## **Robots Find High Radiation As Tepco Lays Out Plan To End Crisis (BLOOM)**

By Yuji Okada

Bloomberg News, April 19, 2011

Robots sent into two buildings at Japan's crippled Fukushima Dai-Ichi nuclear station detected radiation still too toxic for humans as the plant operator set out a plan to end the crisis in six to nine months.

Measurements show one hour inside the No. 3 reactor building would expose humans to more than one-fifth of the radiation Japan has said is the most workers can endure in a year, the atomic safety agency said yesterday. People haven't been

in the buildings since a 15-meter (49-foot) surge following a magnitude-9 quake on March 11 knocked out cooling equipment, sparking the worst disaster since Chernobyl in 1986.

A sustained drop in radiation at the tsunami-damaged plant could be achieved within three months, Tokyo Electric Power Co. said in a statement laying out its plans. Following that, a cold shutdown, where core reactor temperatures fall below 100 degrees Celsius (212 degrees Fahrenheit), may be achieved within six months, it said.

The six-to-nine month timeframe "seems mindbogglingly long given the urgency," said Michael Friedlander, a former US nuclear engineer based in Hong Kong. The utility should aim to have the crisis in hand in two to three months, he said. "They're managing expectations and don't want to make a commitment they can't deliver on."

In the next three months, Tepco, as the utility is known, plans to fill the reactor containment vessels at the No. 1 and No. 3 units with water, the company said in its April 17 statement. The utility will seal the vessel of the No. 2 reactor, which is likely damaged, before flooding it.

"If we flood the damaged vessel, the leak of contaminated water will increase," Tepco Vice President Sakae Muto told reporters in Tokyo April 17. "We will continue injecting water with care and monitor the volume of water leaked."

The water pumped so far has overflowed into basements and trenches, with some of it leaking into the ocean.

"It is vitally important that Tepco succeeds in shifting the cooling process to a closed loop system," said Philip White, international liaison officer at the Citizens' Nuclear Information Center in Tokyo. "In the current situation, where water poured in one end leaks out the other, there is the constant danger that highly radioactive water will run off into the sea."

Tepco completed preparations of a waste water treatment facility at the plant yesterday, NHK reported on its website. The company will begin moving highly contaminated water to the treatment unit from other areas of the plant after reporting the method and safety measures to nuclear regulators, the public broadcaster said.

Two iRobot Corp. (IRBT) robots sent April 17 to check whether humans can reenter the site found radiation levels as high as 49 millisieverts per hour in the No. 1 reactor building, and up to 57 millisieverts in the No. 3 building, the Nuclear and Industrial Safety Agency said.

The cumulative maximum level for nuclear workers was raised to 250 millisieverts from 100 millisieverts by Japan's health ministry on March 15. Exposure totaling 100 millisieverts over a year is the lowest level at which any increase in cancer is evident, according to the World Nuclear Association in London.

Another robot spent almost an hour in the main building of reactor No. 2 yesterday, NISA said in a press release. It didn't give readings for the building. Tepco officials are analyzing the data taken by the robot, spokesman Akitsuka Kobayashi said today.

Tepco shares fell as much as 5.4 percent to 442 yen in Tokyo today and traded at 446 yen at 9:57 a.m. The stock is down almost 80 percent since the quake and tsunami, which left about 28,000 people dead or missing.

Tepco plans to inject nitrogen into the containment vessels of the No. 2 and No. 3 reactors by the end of April, Muto said. The utility injected the inert gas into the No. 1 unit this month to prevent hydrogen explosions.

"Injecting nitrogen doesn't hurt, but it makes no sense -- it just makes it look like you're doing something," said Friedlander, who spent 13 years working in nuclear plant management in the US "It's a question of resources and the people; those people could be better utilized."

Three to six months after the initial phase of its plan, Tepco will attempt a cold shutdown of reactors No. 1, 2 and 3, the company said. Reactors 4, 5 and 6 were shut at the time of the disaster. The utility will also cover the No. 1, 3 and 4 reactor buildings as a temporary measure to reduce radiation emissions after the structures were damaged by hydrogen blasts last month, according to the statement.

Japan's government plans to tell families evacuated from the area within ninth months whether they can return home, Trade Minister Banri Kaieda said in a briefing in Tokyo.

The government this month widened a 20-kilometer evacuation zone to include the towns of Iitate, Katsurao and Namie. Radiation no longer poses "significant" health risks beyond an 80-kilometer radius, the US State Department said.

Seventy percent of people in Japan disapprove of the way Prime Minister Naoto Kan's government has handled the nuclear crisis, the Nikkei newspaper said yesterday, citing a telephone survey it carried out with TV Tokyo Corp.

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## **Robots Throw Doubt On 'Road Map' To Control Fukushima Crisis (CSM)**

Christian Science Monitor, April 19, 2011

Robots prowling inside debris-strewn reactor buildings at the heavily damaged Fukushima Daiichi nuclear power plant detected levels of radiation that throw doubt on whether workers will be able to enter the plant for any extended period of time. Skip to next paragraph

The announcement came Monday, just one day after officials unveiled a six-month "road map" for bringing radioactivity under control. Many experts call the road map a necessary step, but optimistic.

Exploring the first floor of the No.1 reactor building for about an hour, a robot provided by a Massachusetts-based company rolled through doors it opened with

its manipulator arms, detecting radiation leaking at a rate of 49 millisieverts per hour. That means a worker could stay in the building for no more than five hours before reaching the lawful annual limit for nuclear workers of 250 millisieverts.

Later, in a two-hour prowl through the No. 3 reactor, one of the robots ran into debris roadblocks and recorded readings of 57 millisieverts per hour, Japanese broadcaster NHK World reported.

While the readings were not completely unexpected, they confirm the difficulty of the task ahead if the plant's operator is going to bring the damaged reactors, their spent fuel pools, and radioactive releases under control within six months. Two-pronged plan

The first part of that plan is to bring down radiation levels at the site, in part by restoring steady cooling for the reactors and setting up storage facilities for radioactive water. The second step would be to achieve a "cold shutdown" at the reactor site and vastly lower the amount of contaminated water on site by the six-to-nine-month mark.

At that point, Japan's industry minister Banri Kaieda said Sunday, the government might be able to tell evacuees when they can return home, NHK World reported.

But nuclear experts were wary. "The three-month target is a best-possible scenario," Kazuhiko Kudo, a nuclear expert at Kyushu University, told the Mainichi Daily News newspaper. "It is imperative to install an external system to recycle cooling water as soon as possible."

That's exactly what company officials are trying to do. But the high levels of radiation could delay efforts to set up a replacement for cooling system that shut after the 9.0 earthquake. So could the large quantity of radioactive water on site, which came both from leaks in the containment vessels and water that was sprayed from above when the crisis was at its height.

Officials said Monday that the water was more than 40 feet deep in the basement of the No. 4 reactor building and about 3 feet deep in several other buildings. Potential dangers of plan

There are other gaps in the plan as written, says nuclear engineer David Lochbaum.

Adding water to the reactor vessels to further cool the damaged uranium fuel rods could have negative consequences, says Dr. Lochbaum, who spent years working in power plants with the same design as the Daiichi plant's reactors. First, it could allow a nuclear reaction to take place again. Second, it would add more water to a structure already carrying a huge load of water in the basement.

To guard against a renewed nuclear reaction, adding boron – a chemical not mentioned in the road map – would be vital, he adds.

And engineers will have to revisit the seismic analysis to see how much water they can add safely.

"The containment was designed to withstand earthquake forces up to a certain level" but may not be able to deal with an aftershock or quake if too much water is added back, Lochbaum writes. "The added weight, coupled with the potential for sloshing during an earthquake, could compromise the structural integrity of the containment."

## **Analysis: Japan Nuclear Crisis Could Drag On Long Past Timetable (REU)**

By Mayumi Negishi

Reuters, April 19, 2011

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

## **Japan Nuke Plants Starts Pumping Radioactive Water (AP)**

Associated Press, April 19, 2011

TOKYO (AP) — The operator of Japan's crippled nuclear plant began pumping highly radioactive water Tuesday from the basement of one of its buildings to a makeshift storage area in a crucial step toward easing the nuclear crisis.

Removing the 25,000 tons of contaminated water that has collected in the basement of a turbine building at Unit 2 of the Fukushima Dai-ichi plant will help allow access for workers trying to restore vital cooling systems that were knocked out in the March 11 tsunami.

It is but one of many steps in a lengthy process to resolve the crisis. Tokyo Electric Power Co. projected in a road map released over the weekend that it would take up to nine months to reach a cold shutdown of the plant. But government officials acknowledge that setbacks could slow the timeline.

The water will be removed in stages, with the first third of it to be handled over the coming 20 days, said Hidehiko Nishiyama of Japan's Nuclear and Industrial Safety Agency. In all, there are 70,000 tons of contaminated water to be removed from the plant's reactor and turbine buildings and nearby trenches, and the entire process could take months.

TEPCO is bringing the water to a storage building that was flooded during the tsunami with lightly contaminated water that was later pumped into the ocean to make room for the highly contaminated water. The operator also is trying to develop a system to decontaminate the incoming water so that it can be reused to cool the plant's reactors, Nishiyama said.

"We hope to gradually reduce contaminated water through that process," he said, adding that it would take "several months" to ready this system.

Once the contaminated water in the plant buildings is safely removed and radioactivity levels decline, workers can begin repairing the cooling systems for the reactors of Units 1, 2 and 3, which were in operation at the time of the tsunami. Workers must also restore cooling functions at the plant's five spent fuel pools, one each for Units 1-4 and a joint pool for Units 5 and 6, which were in a cold shutdown on March 11.

Cold shutdown is when a reactor's core is stable at temperatures below 100 Celsius.

With Japan's nuclear crisis dragging on, some residents who were evacuated from around the Fukushima plant, about 140 miles (225 kilometers) northeast of Tokyo, began moving out of school gymnasiums into temporary housing. Hundreds who have not found apartments or relatives to take them in began filling up inns at hot springs.

"The government has asked us to be ready to take in as many as 200 evacuees for the next four months at least," said Masaki Hata, whose family has run the Yoshikawayama Hot Springs Inn on the outskirts of Fukushima for seven generations.

Michiaki Niitsuma, a 27-year-old office worker, said he was glad to have a comfortable place to stay while he waited to go home.

"My kids got sick in the shelter. It was cold. It's much better here. It's a relief," he said.

In TEPCO's blueprint for stabilizing the reactors, the utility aims to cool the reactors and spent fuel pools and reduce radiation leaks over the next three months. Within 6-9 months, the goal is achieve a cold shutdown of the reactors and cover the buildings, possibly with a form of industrial cloth, to further tamp down any possible radiation leaks.

Two remote-controlled robots sent into the reactor buildings of Unit 1 and Unit 3 on Sunday showed that radiation levels inside — up to 57 millisieverts per hour — were still too high for humans to realistically enter.

The US-made Packbots, which resemble drafting lamps on tank-like treads, also were briefly sent into Unit 2 on Monday, officials said, and the radiation level was found to be a much lower 4.1 millisieverts per hour.

But the high level of humidity inside the reactor building fogged up the robot's camera lens, making it difficult to see conditions inside. They were pulled out after less than an hour, officials said.

"We didn't want to lose sight of where the robot was and then not be able to retrieve it," TEPCO manager Hikaru Kuroda said.

The reason for the higher humidity wasn't clear, but it suggests that workers — if they were to go inside — also would have difficulty seeing through their masks, Kuroda said.

Associated Press writers Eric Talmadge in Fukushima and Noriko Kitano in Tokyo contributed to this report.

## **Workers At Japan Nuclear Plant Pump Out Toxic Water (AFP)**

AFP, April 19, 2011

TOKYO — Workers at a quake-hit nuclear plant in Japan on Tuesday began removing highly radioactive water from a reactor turbine building, a key step towards restoring cooling systems, the government said.

The 9.0-magnitude earthquake and tsunami that hit the northeast coast of Japan on March 11 knocked out power systems at the Fukushima Daiichi plant, causing cooling systems to fail and triggering a series of explosions.

To prevent a nuclear catastrophe, crews have pumped thousands of tonnes of seawater and later freshwater into the reactors and pools, creating a massive amount of radioactive runoff, some of which has leaked into the ocean.

About 10,000 tonnes of highly radioactive water will be transferred from the turbine building of reactor no. 2 to a treatment facility inside the plant for processing, Japan's Nuclear and Industrial Safety Agency (NISA) said.

NISA spokesman Hidehiko Nishiyama said the operation would allow emergency crews battling to stabilise the plant to "pour more water into the reactor in order to gradually decrease the amount of water dousing".

"We expect to purify and remove salt from water transferred to the waste treatment facility so that it can be poured into the reactor core again."

The move is necessary in order to start work to restore cooling functions at the nuclear plant, where workers have found turbine buildings, trenches and shafts submerged in highly radioactive water.

Tens of thousands of people living near the 1970s-era plant have been forced to evacuate their homes as radiation has leaked into the air, soil and sea.

Embattled operator Tokyo Electric Power Company said Sunday it hopes to reduce radiation leaking from the plant in three months and to achieve "cold shutdowns" of all reactors within six to nine months.

## **US Robots Help Japanese Crews Monitor Radiation During Nuclear Reactor Cleanup (WP/AP)**

Washington Post, April 19, 2011

TOKYO — In this country of break-dancing androids and artificially intelligent pets, nuclear cleanup crews on the tsunami-ravaged northern coast are depending on US-made robots to enter damaged reactor units where it is still too dangerous for humans to tread.

Utility workers seeking to regain control of the troubled Fukushima Daiichi nuclear power plant are deploying robots from Bedford, Mass.-based iRobot Corp. to measure radiation levels, temperatures and other conditions inside the reactors.

With its tractor-like base and wiry frame topped by cameras and sensors, the so-called PackBot robot vaguely resembles the metallic protagonist of the 1986 film "Short Circuit" — minus the wisecracks. An earlier version of the PackBot was used a decade ago in the aftermath of the 9-11 terrorist attacks.

Takeshi Makigami, an official with Tokyo Electric Power Co., which is the operator of the crippled nuclear plant, said humans must still do the sophisticated engineering needed to stem the radiation, but robots can go in first to monitor when it will be safe for people to enter.

"We have to check where to go and what to do," he said.

TEPCO spokesman Shogo Fukuda said the company has only now begun using the robots because it took several weeks for crews to learn how to operate the complex devices.

Although Japan has a sophisticated robotics capability, most of its development is in household applications rather than disaster recovery.

So far, just one of the two provided PackBots has been used, said Minoru Ogoda, an official with Japan's Nuclear and Industrial Safety Agency, which is monitoring TEPCO's remediation efforts.

The robot's foray this week into several damaged reactor units was the deepest entry yet by man or machine since the first of several explosions rocked the plant the day after the March 11 earthquake and tsunami.

The PackBot is already a veteran of several other disaster zones.

After the Sept. 11, 2001 terrorist attacks in New York City, the robot was sent to search through the rubble of the collapsed World Trade Center.

Another of the company's robots has disarmed roadside bombs and sussed out buildings and caves in Iraq and Afghanistan.

iRobot also helps out with disasters of a more domestic nature: it's the manufacturer of the disc-shaped Roomba vacuum cleaner robot.

TEPCO spokesman Shogo Fukuda said the company hadn't anticipated using robots in the power plant until they were offered by iRobot.

The company was lending the two PackBots for free, so Fukuda did not know how much the company charges for the use of the units.

A TEPCO employee in a different building with a remote controller was able to make the robot open a set of double-layered doors Sunday and move some 130 feet into a passageway in the complex's reactor Unit 1, officials said.

The robot attempted to enter reactor Unit 3, but was impeded by broken chunks of ceiling and walls blown off during hydrogen blasts, officials said.

The PackBot spent about an hour in Unit 2 on Monday, but officials had no immediate details about what it found there.

iRobot is offering up two additional robots of a heavier-duty type — the Warrior — which workers are being trained how to use.

British defense contractor QinetiQ Group PLC has also provided four robots, which are not yet being used, Fukuda said.

Applied physics professor Shuji Hashimoto, who directs the Humanoid Robotics Institute at Tokyo's Waseda University, said he was not surprised to see Japan depending on robots from abroad, despite the sophistication of his country's robotics research.

He said countries such as the United States have developed robots for use in disaster situations because their militaries fund the development of the devices for war zones. Japan's military is restricted by the country's post World War II constitution to self defense and activities such as U.N.-led peacekeeping missions.

In Japan, best known for robots such as Sony Corp.'s robotic Aibo dog and Honda Motor Co.'s chummy Asimo, development tends to foster domestic uses.

"In Japan, there are many people who think the market for robots are in the family or the house," he said. "Researchers do research to develop robots that can be used by children or the grandfather or grandmother."

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Associated Press writers Noriko Kitano and Mari Yamaguchi contributed to this report.

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## **AP IMPACT: Asia Nuclear Reactors Face Tsunami Risk (AP)**

By Robin McDowell And Margie Mason, Associated Press

Associated Press, April 19, 2011

JAKARTA, Indonesia – The skeleton of what will soon be one of the world's biggest nuclear plants is slowly taking shape along China's southeastern coast — right on the doorstep of Hong Kong's bustling metropolis. Three other facilities nearby are up and running or under construction.

Like Japan's Fukushima Dai-ichi plant they lie within a few hundred miles of the type of fault known to unleash the largest tsunami-spawning earthquakes.

Called subduction zones, these happen when one tectonic plate is lodged beneath another. And because the so-called Manila Trench hasn't been the source of a huge quake in at least 440 years, some experts say tremendous stresses are building, increasing the chances of a major rupture.

Should that happen, the four plants in southern China, and a fifth perched on Taiwan's southern tip, could be in the path of a towering wave like the one that struck Fukushima.

"We have to assume they'll be hit," said David Yuen, a University of Minnesota professor who has modeled seismic probabilities for the fault. "Maybe not in the next 10 years, but in 50 or 100 years."

Asia, the world's most seismically charged region, is undergoing a nuclear renaissance as it struggles to harness enough power for its huge populations and booming economies.

But China, Taiwan, India and several other countries frantically building coastal facilities have made little use of new science to determine whether these areas are safe. At least 32 plants in operation or under construction in Asia are at risk of one day being hit by a tsunami, nuclear experts and geologists warn.

And even when nations have conducted appropriate seismic hazard assessments, in many cases they have not shared the findings with the U.N. International Atomic Energy Agency, leaving experts frustrated and in the dark.

"It's pretty astonishing to a lot of us that so little priority is placed on the work we do," said Kerry Sieh of the Earth Observatory of Singapore, who has studied and written about the Manila Trench, where pressure has been building for millions of years.

He is among those who say it is only a matter of time before it snaps.

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In assessing the tsunami risks to nuclear power stations, scientists focus on their proximity to subduction faults, volcanoes and areas frequently hit by underwater landslides — all of which can trigger seismic waves. Because giant tsunamis recur, they also look at historic and scientific records, going back up to 4,000 years if possible.

The greatest threat comes from the subduction faults crisscrossing the globe, some far from the minds of policymakers, nuclear industry officials and the public because it has been so long since they exploded.

In places where tectonic plates that form these faults are "coupled," or stuck together, the stresses are the biggest, especially if centuries have passed without a major energy-releasing earthquake.

When the strain eventually forces one plate to pop up or dive under the other, the resulting temblor can spawn mammoth waves like the one that struck off Japan's northeast coast on March 11, triggering the nuclear crisis that has carried on for more than a month.

While there is some "coupling" at the Manila Trench, there is debate about just how much. Scientists say more research needs to be done to determine if pressure is building and along which segments.

A computerized simulation by Yuen's students shows a magnitude-9.0 quake along the Manila Trench sending waves racing along the South China Sea, before slamming Taiwan's southern shore 15 minutes later. The tsunami reaches China's southeast coast in around two hours. It also strikes Hong Kong, which sits just 30 miles from the nearest nuclear plant — close enough to see increased radiation levels if a plant were to be damaged by a Fukushima-like event.

Scientists paint a worst-case scenario in which waves 15 to 24 feet high (5 to 8 meters) could strike the plants in China and Taiwan.

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Science has come a long way since the first nuclear plant was built in the 1950s.

By carbon dating the ash, pollen or other organic material attached to tsunami sand deposits swept inland with the giant walls of water, geologists can determine to the decade, and sometimes even the year, when the wave hit and how big it was when it roared ashore.

That's important because some tsunamis only strike once a millennium.

"This is the smoking gun, the calling card of the tsunami, and when you find it, especially far inland, you know that this is an area that has been hit with a large tsunami in the past," said Bruce Jaffe, an oceanographer and tsunami expert at the US Geological Survey.

Such research is considered essential in deciding where to locate nuclear power stations because most are built along seashores, rivers and lakes to supply the massive amounts of water needed to keep their reactors from overheating. Even plants perched on hills or cliffs may be in danger because the pipes used to carry up water used for cooling could be damaged in a powerful tsunami.

Japan, which sits atop three highly active tectonic plates with 54 reactors dotting its coastlines, has probably done the most when it comes to looking back in history.

Even so, Tokyo Electric Power Co., which runs the hobbled Fukushima plant, did not factor geologic evidence of the giant Jogan tsunami of 869 A.D. into its preparedness. When the tsunami hit last month, it unleashed waves up to 42 feet (14 meters) high, swamping the backup generators needed for cooling.

The same region was also walloped twice before, once around 140 B.C. and again sometime between 600 B.C. and 900 B.C., scientific studies revealed.

Experts hope Japan has taught the world an important lesson: When it comes to nuclear safety, it's essential to imagine the unimaginable. Looking back 50 years, or even 500, is not enough.

"When you're talking about radioactivity and possibilities of explosions ... you have to look at what is within the realm of possibility," said Jody Bourgeois, a tsunami expert at the University of Washington who was doing research in Japan when the disaster struck. "You should be building it with factors of safety for the maximum possible events."

It's not the first time a tsunami has threatened nuclear reactors.

The 2004 earthquake off Indonesia's subduction fault spawned the monster tsunami that killed 230,000 people in a dozen nations.

It also sent waves slamming into a nuclear plant in the southern Indian township of Kalpakkam, the country's center of atomic research, nearly a thousand miles from the quake's epicenter.

Though the reactors automatically shut down and no radioactive material was released, it showed that even facilities far from dangerous faults need to prepare for the worst.

While the near miss in India raised awareness, it did not prompt major changes to the safety design at the Madras Atomic Power Station, said its director, K. Ramamurthy. Last week, however, a top government official said India would revamp the safety features at all its nuclear plants to try to prevent a Japan-style crisis.

The Madras plant is among the scores that have yet to ask the IAEA for an independent review to determine if their tsunami preparedness assessments meet international standards.

The same holds for Pakistan, which built a plant along a coastline near Karachi that was hit by a tsunami in 1945, as well as for China, Taiwan and the US

Though the reports aren't mandatory, Antonio Godoy, the IAEA's recently retired top seismic safety expert, said many countries have held up efforts to build a comprehensive database identifying the plants vulnerable to tsunamis based on such reviews.

The Fukushima crisis does seem to have jolted some governments into action.

Tsunami expert Tso-Ren Wu of Taiwan's National Central University, warns that "we are long overdue" for a similar quake on the Manila Trench. He was recently commissioned by Taiwan to model worst-case scenarios for all three of the island's nuclear plants and a fourth under construction. His findings will be used to help redesign the facilities or raise their seawalls, if necessary.

His studies indicate two plates that form the subduction zone are pushing against each other at a relatively fast 8.7 centimeters (3.4 inches) per year, forcing extreme amounts of energy to build up. A fault slip from the two plates would be up to 38 meters, comparable to what occurred during the 1960 magnitude-9.5 Chile earthquake, the largest on record. By comparison, the slips in Indonesia and Japan were estimated at around 20 meters. The greater the slip, the more water is heaved up to create bigger tsunami waves.

It's not yet clear, however, if the Japan disaster was a wake-up call for energy-starved China, which has the world's most ambitious nuclear power expansion.

China's nuclear regulators declined to answer questions submitted by The Associated Press, but have said in the past that plants along their southeastern coast have been fitted with the most modern technology and are able to withstand huge storm surges from typhoons, which hit with far less force than tsunamis.

As for the likelihood of a mammoth tsunami, Li Zhong-Cheng of the National Energy Center told the state-run China Daily newspaper after last month's disaster that coastal areas are protected by a wide, shallow continental shelf that is not conducive to the formation of big seismically triggered waves.

Other scientists say there isn't enough research to make such a declaration.

Some historical records, though inconsistent, indicate a 30-foot (10-meter) tsunami in 1782 from the South China Sea killed as many as 40,000 people after hitting southern Taiwan. Records also point to a 27-foot wave in 1765 that swept as many as 10,000 people out to sea in the same province where the Chinese plants are located.

But experts say China needs to look much further back in time.

Unlike Japan, sand deposit studies have just begun there and have not yet yielded evidence of ancient tsunamis. More research is needed along the coast and in the Philippines — which would have been within reach of the same waves.

If that data, along with predictions about future earthquake-spawned tsunamis are not taken into account, some fear disaster could strike again some day.

Plants in the Mediterranean and along the Atlantic and Persian Gulf also need to be prepared.

The only candidate for a large tsunami in the continental US is the Cascadian subduction zone, more than 200 miles off the West coast. Experts say neither the Diablo Canyon nor San Onofre stations in California are considered in the path of destruction, though they may still be vulnerable to local tsunamis generated by other faults or submarine landslides. Both have recently promised to carry out more advanced seismic testing to guarantee safety.

"What happened in Japan was not a surprise," said Godoy, who remains an IAEA consultant and has spent much of the past 20 years warning governments to prepare for worst-case scenarios. "Maybe now they'll wake up, listen and act."

## **New North-South Dialogue Key Ahead Of Talks: US (AFP)**

AFP, April 19, 2011

WASHINGTON (AFP) – Restarting a dialogue between North Korea and South Korea is an "essential first step" to returning to multinational talks on ending North Korea's nuclear program, State Department spokesman Mark Toner said on Monday.

"A successful rapprochement between North and South Korea is an essential first step before we can consider getting involved diplomatically again or even talk about six-party talks," Toner said.

Multinational talks on ending North Korea's nuclear programs have been stalled since December 2008. One month after the talks ended among the six countries -- the two Koreas, the United States, Russia, China and Japan -- North Korea launched a second nuclear test.

In March, 2010, North Korea was accused of sinking the South Korean navy ship, the Cheonan, and later that year, the bombardment of the South Korean island of Yeonpyeong.

"We've seen a steady pattern of belligerent behavior on the part of North Korea," noted Toner.

"So we need to see a clear and decisive move in the opposite direction. ... The other side of this coin is a pattern where we reward bad behavior on the part of North Korea and we hold talks that don't lead anywhere," Toner added. "And we've said very consistently that we're not going to have talks for talks' sake."

## **Iran Central Banker: Lift Sanctions Or Face Spike In Oil Prices (WT)**

## **Senator says US policy should be to bankrupt Iran's central bank**

By Ben Birnbaum And Eli Lake

Washington Times, April 19, 2011

The head of Iran's central bank warned that oil prices will rise above \$150 a barrel if economic sanctions against the Islamic theocracy are not lifted soon.

"Iran can have an effect on world energy and fuel. Fuel prices will go up dramatically," Mahmoud Bahmani said in a recent interview with The Washington Times at a meeting of the International Monetary Fund in Washington.

"If sanctions are not removed, particularly sanctions against banks and other economic sanctions, the price of oil will go above \$150 a barrel."

A top Federal Reserve official predicted last month that such a price could drive gasoline above \$4 a gallon and throw the US economy into another recession. The last time oil came close to that price was in the global recession that began in 2008, when a barrel of crude hit more than \$147 in July of that year.

Mr. Bahmani's veiled threat prompted a leading Republican senator to compare the country's central bank officials to "bankers to the Nazis."

"It should be the policy of the United States to bankrupt the central bank of Iran," said Sen. Mark Kirk of Illinois.

Mr. Kirk — a member of the Senate Banking, Housing and Urban Affairs subcommittee on security, international trade and finance — said he is urging the Obama administration to investigate the bank's suspected links to "terrorism and human rights abuses."

Iran's central bank is the "21st-century equivalent of the bankers to the Nazis," said Mr. Kirk, who earlier served five terms in the House as a member of the Appropriations subcommittee on homeland security.

Iran is the world's third-leading oil exporter, but it lacks the capacity to refine crude petroleum into gasoline. It is a member of the Organization of the Petroleum Exporting Countries, a cartel that sets production limits for most oil exporters. The country also has the world's second-largest known reserves of natural gas.

Congress last year passed the Comprehensive Iran Sanctions, Accountability and Divestment Act, a law that slapped severe sanctions on companies that aid Iran's petroleum sector.

The legislation came after a fourth round of U.N. Security Council sanctions and was followed by the European Union's own supplementary sanctions package. Last week, the EU imposed an asset-freeze and travel ban on 32 Iranian officials accused of severe human rights abuses.

The US Treasury Department also sought to isolate Iran's banking sector from the international economy. It cited major Iranian banks, like Bank Melli, for supporting terrorism and aiding the country's nuclear program, although Iran's central bank has escaped sanction.

Mr. Bahmani dismissed US threats of designating the Iranian central bank as a financier of terrorism.

"Iran has the highest standards in fighting money laundering and terrorism," he said.

But the Financial Action Task Force, an international watchdog group, last year ranked Iran at the top of a list of nations financing terrorism and laundering money.

Mr. Bahmani also claimed that the current financial sanctions against other Iranian banks have had "no effect" on the country's cash flow.

"We are stronger than before," he said of the Iranian economy.

However, Suzanne Maloney, an Iran specialist at the Washington-based Brookings Institution, reported that sanctions have taken a bite out of a nation already beset with a "wide range of economic problems."

"Sanctions have raised the cost, time and inconvenience of almost all international transactions [for Iran]," she reported in February.