

Hannah said the cables are the suspect in the cause of the new crack.

The second crack formed as facility workers were retightening the cables in preparation of restarting the plant, so "it's plausible the retensioning could have led to the separation," Hannah said.

Jacobs said it was still too early to discuss the nature of repairs needed until more is known about what happened inside the wall.

Sarah Barczak, program director of the Southern Alliance for Clean Energy, said the latest crack in the containment vessel at Crystal River shows the array of potential problems at a nuclear facility.

"It's different than what's going on in Japan," Barczak said, citing the radioactive meltdowns in the Fukushima Daiichi facility, "but it's the same premise, and that is things happen that they didn't plan on. Now they're seeing the reality of that."

One of the problems with nuclear power plants, including the one at Crystal River, is not only the use of radioactive fuel and waste, but also their complexity, said Barczak.

The first crack at the Crystal River plant was the first such incident, Jacobs said, so the repair process is new.

It is also the first known time a crack appeared as the cables were tightened again, Hannah said.

The NRC will want an explanation as to what caused the crack and how it will be fixed, Hannah added.

The plant can generate enough power for 800,000 customers,

As of December 2010, Progress' insurance company, Nuclear Electric Insurance Limited, has paid out \$181 million to the utility because of the original crack. Of that money, \$117 million has gone toward buying replacement power and \$64 million for repairs, Progress officials said last month. Progress has spent \$150 million for repairs and another \$290 million to buy power otherwise generated by the plant.

Progress continues to submit claims to its insurance company. The amount the insurance company doesn't pay will be passed on to consumers.

Costs associated with the new crack are unknown.

Jacobs said in an e-mail that "until the repair is finished and the unit is back in service, we will not have final estimates on replacement power costs and fuel costs."

She also wrote: "We will remain transparent as we learn more."

Barczak said the extended delays should bring the utility customers' attention to the high price of nuclear power.

"If I was a Progress Energy rate payer and saw a fifth delay, I would be angry that my dollars will inevitably go to this (repair) project," Barczak said.

## **Duke, Progress Still Committed To Nuclear (ORS)**

[Orlando Sentinel](#), March 17, 2011

The chief executive of Duke Energy, which is about to acquire Central Florida's largest power provider, Progress Energy, said Tuesday that the company's desire to build more nuclear plants in the wake of catastrophe in Japan is still strong.

"Our commitment hasn't faltered," Duke Energy President and CEO Jim Rogers said according to a report by North Carolina television station WRAL.

The company was in front of regulators in North Carolina on Tuesday setting the stage for a law similar to one passed in Florida that would allow it to charge customers up front for new nuclear plants before they decide whether or not they will actually be built.

In Florida, Progress Energy customers are already paying each month for two new nuclear reactors the utility wants to build in Levy County, but has not yet firmly decided on.

It's only logical that the disaster in Japan will heighten scrutiny on nuclear power in general and especially on new plants. For years the argument in favor of nuclear centered on the idea that any safety risks could be allayed with proper protocol and produced the benefit of a clean power without carbon as a good answer to the nation's energy needs. We have no choice now, but to reconsider and further vet that argument.

## **Duke Energy Won't Postpone Nuclear Plant In Cherokee County (ADERSN)**

[Anderson Independent-Mail](#), March 17, 2011

Duke Energy has no plans to postpone building a nuclear plant in Cherokee County in light of the overheating and explosions at a Japanese nuclear facility after last week's powerful earthquake and tsunami.

Duke Energy spokeswoman Rita Sipe said it's too early to tell what impact the impending disaster will have on the industry, but the company will continue with the US Nuclear Regulatory Commission's process for building the \$11 billion William S. Lee III

plant. The licensing process will likely take two more years, and the plant would come online in 2020 or 2021, according to company plans, Sipe said.

Duke Energy wants to place two Westinghouse Advanced Passive 1000 pressurized water reactors on the 2,000-acre site near the Broad River. The reactors are a new design that combines the "best of the best" of other reactors and incorporates the latest safety features, including "defense in-depth" designs that don't require power to cool reactors in the event of a power failure, she said.

In speaking about the proposed Cherokee County facility, Duke Energy CEO Jim Rogers told the North Carolina Utilities Commission on Tuesday the situation in Japan is going to force regulators to rethink the industry's future, but that it is too early to tell how, the Associated Press reported. The company is seeking approval to spend up to \$459 million through 2013 to develop the South Carolina site.

The Charlotte-based utility has said it won't proceed with the Cherokee County project unless North Carolina changes state law to allow the company to charge customers before the facility is completed, the AP reported. Such legislation hasn't been introduced there.

#### Safety measures

The Southern Alliance for Clean Energy is asking power companies to slow plans to build additional nuclear power plants in light of the potential meltdown in Japan. SACE Executive Director Stephen Smith said the "defense in-depth" system is similar to the safety precautions in place at the Japanese nuclear plants.

"Those reactors broke down, and there's nothing unique about the safety systems Duke is planning to use, so there's an urgent need to slow down those plans," he said.

Smith acknowledged the Westinghouse reactors are different from those at the Japanese facility, but said with a total system breakdown, the implications could be the same.

"We're asking them to slow down and take a hard look at this to change the protocol and technology," Smith said, adding that his organization promotes renewable energy such as solar panels and wind turbines.

Travis Knight, acting director of the University of South Carolina graduate-level nuclear engineering program, said the advanced safety features of the Westinghouse AP 1000 reactor design include a cooling system that doesn't require an active pump.

The reactors at the Fukushima Daiichi nuclear plant in Japan are more than 40 years old, Knight said, and Westinghouse AP 1000 reactors would likely have the same features, but also would have advanced safety designs.

"What we're seeing unfold in Japan is the worst-case scenario," Knight said. "The earthquake was greater than what the reactor was designed for, and the tsunami was greater than it was designed for. And still there's no evidence of large uncontained radioactivity that's being released. That's telling."

Sipe said Westinghouse AP 1000 reactors are designed to withstand an earthquake as strong as the one in Charleston in 1886 — the strongest recorded in the Palmetto State's history, measuring between 6.6 and 7.3 on the Richter scale.

"The possibility of something of this magnitude happening in the US is not conceivable," Knight said. "We don't get tsunamis in South Carolina near the nuclear plants here or tsunamis in Cherokee County. If there's a tsunami in Cherokee County, there are worse circumstances to deal with."

## Exelon Reconsiders Adding Capacity To Nuke Plants In Light Of Japan Crisis (CRCHIBIZ)

By Steve Daniels

[Crain's Chicago Business](#), March 17, 2011

(Crain's) — Exelon Corp., confronting the disquieting questions raised by the unfolding nuclear disaster in Japan, is reconsidering a \$3.7-billion plan to add capacity to the country's largest fleet of nuclear power plants.

CEO John Rowe told Bloomberg News that plans to add a combined 1,500 megawatts of capacity over eight years through improvements to most of its plants were in question, as the Chicago-based power giant awaits safety reviews by the Nuclear Regulatory Commission that are "sure to come."

Mr. Rowe said the NRC was likely to look at backup generators at nukes following the catastrophic power failures at the stricken Japanese plant that disabled cooling systems, leading to overheating, explosions and radioactive releases.

He predicted regulators would review assumptions about natural disasters like earthquakes and tsunamis, as well as the security of onsite waste storage facilities.

Exelon has characterized the capacity expansion plan, which the company dubbed the "uprate" program, as its primary organic growth strategy.

Exelon operates 10 nuclear plants — six in Illinois — containing 17 reactors.

## **Surgeon General Clarifies Position On Potassium Iodide As Protection Against Nuclear Radiation (LAT)**

**LA Now**

By Molly Hennessy-Fiske

[Los Angeles Times](#), March 17, 2011

A spokeswoman for the US surgeon general has clarified her position on whether people should stock up on potassium iodide as protection against nuclear radiation from Japan.

Potassium iodide, or KI, can prevent the thyroid from absorbing radioactive iodine, according to the Centers for Disease Control and Prevention.

During a visit Tuesday to California, US Surgeon General Regina Benjamin appeared to contradict the message from other public health officials that the pills are unnecessary and may have harmful side effects.

"It's a precaution," Benjamin told a Bay Area NBC reporter during a tour of a local hospital.

Benjamin, who rebuilt her Gulf Coast clinic after Hurricane Katrina, framed her comment within the broad context of disaster preparedness.

"We can't be over-prepared -- we learned that with 9/11, we learned that with Katrina and we learned that this week with the tsunami," she said. "Even if it's one life we save by being prepared, it's worth it."

Benjamin told the reporter she had not heard about panicked California residents stocking up on potassium iodide.

Her comments came as state and local health officials attempted to quell Californians' fears after reports of potassium iodide shortages at pharmacies and vitamin stores. Dr. Jonathan E. Fielding, Los Angeles County's public health chief, issued warnings against taking potassium iodide.

"We want to urge you not to take potassium iodide unnecessarily," Fielding said, noting that some people may be allergic and suffer side effects including intestinal upset, nausea and rashes.

"It's definitely not recommended as a precautionary medication," he said.

On Wednesday, a spokeswoman for the federal Department of Health and Human Services clarified Benjamin's position.

"She commented that it is always important to be prepared, however she wouldn't recommend that anyone go out and purchase KI for themselves at this time," said spokeswoman Kate Migliaccio in an e-mail, referring to the compound by its scientific name.

"It's important for residents who have concerns to listen to state and local health authorities," Migliaccio said.

## **Japan Nuclear Crisis Triggers Run On Anti-radiation Pills (WP)**

By Rob Stein, Washington Post Staff Writer

[Washington Post](#), March 17, 2011

The Japanese nuclear power plant crisis is triggering jitters about radioactive fallout hitting the United States, even though authorities say it is highly unlikely significant amounts of dangerous material will travel across the Pacific Ocean.

Fearful residents have flooded health officials in western states such as California, Washington and Oregon with anxious questions, and some authorities have begun issuing updates about air monitoring for radiation.

"We opened a hotline and have fielded hundreds of calls from the worried public," said Michael Sicilia of the California Department of Public Health.

The two US companies that make potassium iodide, which can reduce the risk of thyroid cancer from exposure to iodine-131, are being overwhelmed by demands for the medication from individuals, pharmacies, hospitals, day-care centers and others.

"People are terrified," said Alan Morris, president of Anbex Inc., of Williamsburg, Va. "We're getting calls from people who are crying and saying things like, 'Please. Can't you help me? Can't you send me anything?'"

Both companies, along with state and federal officials and independent radiation experts, have been trying to reassure people that the chances of dangerous amounts of radiation reaching the United States from Japan are negligible, making such precautions unnecessary.

"All of the information available right now indicates there will be no harmful levels of radioactivity in the United States," said Scott Burnell, a spokesman for the Nuclear Regulatory Commission. "There's absolutely no reason for concern."

Nevertheless, as a precaution, the Environmental Protection Agency sent seven mobile air monitoring stations to Hawaii, Alaska and Guam to bolster capabilities to detect any radiation from Japan. The agency already has more than 100 permanent

air monitoring stations around the United States, including in Alaska and Hawaii, but decided to deploy the additional equipment to heighten the early-warning system.

In the meantime, thousands of people are seeking potassium iodide. CVS's online pharmacy sold out of it over the weekend, a spokesperson said.

"I'm very concerned," said Laurie Akey, 58, of Newport Beach, Calif. After studying news reports and weather patterns, Akey ordered enough potassium iodide for her husband, four children, three grandchildren, grandparents and Lizzy, her 5-year-old King Charles Spaniel. "This thing is blowing apart over there. If this thing keeps blowing it could come over in a cloud and land on our shores."

Available without a prescription, potassium iodide blocks radioactive iodine from accumulating in the thyroid gland, where it would boost the risk for thyroid cancer. Thousands of cases of thyroid cancer occurred after the Chernobyl disaster, primarily among those who were children at the time and drank milk from contaminated cows.

People who think they might be exposed to radioactive iodine can start taking doses as soon as they fear they may be at risk for exposure. Potassium iodide is generally safe, although it can pose risks to people who are allergic to iodine and shellfish or have certain skin or other disorders, and can cause heart problems, nausea, vomiting and bleeding.

"It's been a frenzy - that's the only thing I can use to describe it," said Deborah Fleming Wurdack, co-owner of Fleming Pharmaceuticals of St. Louis, which sells a liquid version of the drug in a bottle with a dropper for \$13.25 containing 135 adult doses that can be used by adults, split up for teenagers and children of any age.

The small privately owned company has been "fielding hundreds of calls. People are showing up at the door. We've heard from Singapore. We've heard from Japan. We've heard from Korea. We've heard from states ordering large quantities," Fleming said. "We've heard from mothers wanting to get it in their house to protect their children. We've heard from pharmacies, hospitals, day care centers. It's just been constant."

The company expected to have exhausted its supply of 50,000 bottles by the end of the day Wednesday, but is gearing up to resume production, hiring temporary workers to answer the phone and upgrading its Web site to let people order it directly with a credit card, she said.

"It's crazy," she said. "Some of these people are in a panic mode. The saddest call we got was from a quadriplegic in California who wanted to protect his children because he can't get away from the plume if the plume is coming to California."

Anbex, which sells bottles of 14 tablets for \$10 that adults can take, estimates they have been getting two or three calls a minute for days. The company exhausted its stock of about 10,000 blister packs by Friday night. The company has resumed producing the drug and expects new supplies by the end of March or beginning of April.

"It's been unbelievable. I think I've spoken to three quarters of the population of California. We are trying to tamp down the feeling that the world is falling apart. It's not falling apart," Morris said.

Meanwhile, Rep. Edward Markey (D-Mass.) has asked federal officials to provide potassium iodide, also known as KI, to everyone living within 20 miles of a nuclear power plant in the United States. Currently, the drug is made available to everyone within 10 miles.

"We should not wait for a catastrophic accident or a terrorist attack on a nuclear reactor in this country to occur to implement this common-sense emergency preparedness measure," Markey wrote to John Holdren, director of the White House Office of Science and Technology Policy.

In response, Dori Salcido, a spokeswoman for the Health and Human Services Department, said the "US government will be studying every aspect of the Japanese disaster and the Japanese government's response, with the goal of learning as much as possible from that review. Policy options relating to KI distribution will be among the issues studied."

Aside from taking potassium iodide, people can reduce their risk from radioactive fall-out by staying inside, covering their mouths and noses if they are outside in a contaminated area, immediately washing off any exposed clothes or body parts with soap and water, and avoiding ingesting anything tainted. In some cases, hot areas are evacuated.

But officials stressed that there is no indication that any of those precautions will become necessary in the United States.

"The public does need to pay attention. If the public receives specific instructions from their local government, all of these approaches will be based on the best information available," Burnell said. "But at this time there's no indication that anyone in the United States is going to see harmful levels of radiation."

The only other treatment for radiation exposure is a drug known as Prussian Blue, which binds to cesium so the body can eliminate it through the digestive system.

People exposed to high levels of radioactive material, which is usually confined to first-responders and workers at damaged plants, may need intensive medical care.

"Prevention is really the key," said Fred A. Mettler Jr., a radiation expert and physician at the University of New Mexico. "Whatever us doctors can do afterwards is pretty limited."

Mettler noted, however, that other sources of iodine are available if potassium iodide is not. Seaweed, for example, is rich in iodine.

"You can just go to your local sushi place and order some seaweed and eat it," Mettler said. "But there really isn't any need for that in this country."

## **Fears Cause Run On Pills (POLITCO)**

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By Julie Mason

[Politico](#), March 17, 2011

Will Geiger counters be the new metal detectors on California beaches? The nuclear crisis in Japan has sparked a run on iodine supplements and Geiger counters on the West Coast -- as conflicting messages radiate from the White House about Americans' safety.

"I've been assured that it -- any nuclear release dissipates by the time it gets even to Hawaii, much less the mainland of the United States," President Obama told KDKA TV in Pittsburgh.

But wait -- touring the Bay Area yesterday, Surgeon General Regina Benjamin told reporters it was right to be prepared and that stocking up on iodine pills was not an overreaction.

"It's definitely appropriate. We have to be prepared," Benjamin said. "The more you are prepared, the better you can be."

As to whether there is a direct radiation threat to the West Coast, Benjamin said, "I think we need to wait and see, but I don't think we can be over-prepared," adding, "we learned that with 9/11, we learned that with Katrina."

Who to believe? Many experts warn that taking the supplements can do more harm than good, and aren't even necessary. All the same, the EPA is setting up radiation monitors along the coast, reports the San Jose Mercury News.

"The monitors, which detect gamma radiation and radioactive particles, will be set up in 'parts of the Western US and US territories,' the agency said in a statement."

The paper noted, grimly, that, "EPA officials, however, refused to answer questions or make staff members available to explain the exact location and number of monitors, or the levels of radiation, if any, being recorded at existing monitors in California."

## **US Run On Iodide Pills Despite Reassurances (AFP)**

By Michael Thurston

[AFP](#), March 17, 2011

LOS ANGELES — US authorities sought Wednesday to reassure Americans that there is minimal health risk here of radioactivity from Japan, as a US iodide pill maker reported an "enormous" run on the drug.

Demand for potassium iodide, which can protect against the effects of radioactive iodine, was strongest on the US West Coast, where some fear a cloud spewing from Japan's Fukushima nuclear plant could be blown, drug company Anbex said.

The firm, which says it is the only US maker of the pills, was flooded with thousands of orders for its Iosat drug after last Friday's earthquake and tsunami, which has triggered an ongoing nuclear crisis.

"The spike is enormous ... we were out of stock by Friday night," said Alan Morris, president of Anbex, which supplies the drug to individuals and retailers, including online.

"The demand mostly is coming from the West Coast of the US, but there are a significant number of inquiries, requests, orders coming from Japan, Korea, all over the Far East," he told AFP.

A random survey of Los Angeles pharmacies by an AFP photographer found no lines of people trying to buy the drug, although some retailers said they had received some requests, but did not have supplies.

The surge in demand came as the head of the US Nuclear Regulatory Commission warned of "extremely high" radiation levels from the Fukushima plant.

US authorities have repeatedly said there is minimal risk of radioactivity reaching the US mainland, while meteorologists say it is difficult to predict exactly how far a radioactive cloud would spread across the Pacific.

The California Department of Public Health's interim director, Howard Backer, also stressed the risks involved in taking potassium iodide unnecessarily.

"We urge Californians to not take potassium iodide as a precautionary measure," he said.

"It is not necessary given the current circumstances in Japan, it can present a danger to people with allergies to iodine, shellfish or who have thyroid problems, and taken inappropriately it can have serious side effects," Backer added.

In one apparent miscommunication, US Surgeon General Regina Benjamin appeared to contradict the reassuring message during a visit to San Francisco on Tuesday.

"We can't be overprepared -- we learned that with 9/11, we learned that with Katrina and we learned that this week with the tsunami," she told an NBC reporter. "Even if it's one life we save by being prepared, it's worth it."

A spokeswoman clarified her position on Wednesday, saying Benjamin had not heard about panicked California residents stocking up on potassium iodide.

"She commented that it is always important to be prepared. However she wouldn't recommend that anyone go out and purchase (the drug) for themselves at this time," said spokeswoman Kate Migliaccio, according to the Los Angeles Times.

Anbex chief Morris said his drug company, which developed the product after the Three Mile Island nuclear disaster in 1979, hoped to have new stocks of potassium iodide pills ready to ship in two weeks.

His company was the only US manufacturer of potassium in pill form, he said, adding that there was a liquid form available from a company called Fleming Pharmaceuticals.

A statement on the Fleming's website said the firm was "running nearly around the clock as employees ship potassium iodide to Japan."

Radioactive iodine from a nuclear event can pollute the air and contaminate the food supply. Experts believe many cancer cases after the Chernobyl disaster in Ukraine in 1986 were linked to milk from contaminated cows.

Thyroid glands quickly absorb radioactive iodine, causing damage. But iodide pills can block radioactive iodine from being taken into the thyroid gland, according to a fact sheet by the US Centers for Disease Control.

## **Worried Hawaiians Rush For Iodine Supplements (AFP)**

AFP, March 17, 2011

HONOLULU — Hawaiians are rushing to get iodide pills to protect against radioactivity from a quake-crippled Japanese nuclear power plant, according to store owners on the Pacific island US state.

While officials on Hawaii -- 4,000 miles (6,500 kilometers) east of Japan -- warned that taking potassium iodide could have unwanted side effects, health food and other stores said they had sold out of stocks over the weekend.

"As soon as people heard about the first explosion (in Japan), people wiped our shelves clean," said Amber Simone of the Honolulu branch of the Down to Earth health food store chain, which has five branches.

"We've been inundated," she added, saying her store had a waiting list of 184 people, and every few minutes another five to 10 people were being added.

The store usually carries bottles of iodine supplements for people with thyroid issues, but it is being seized upon as a possible way to protect against radiation.

Potassium iodide "is a salt of stable (not radioactive) iodine. Stable iodine is an important chemical needed by the body to make thyroid hormones," a US Centers for Disease Control (CDC) fact sheet explained.

Radioactive iodine from a nuclear event can pollute the air and contaminate the food supply. Experts believe many cancer cases after the Chernobyl disaster in Ukraine in 1986 were linked to milk from contaminated cows.

Thyroid glands quickly absorb radioactive iodine, causing damage. But iodide pills can block radioactive iodine from being taken into the thyroid gland, according to the CDC fact sheet.

Meteorologists say it is impossible to predict the strength or path of radioactivity from Japan's quake-hit Fukushima power plant, although some suggest that the jet stream will blow it eastward toward the US West Coast.

Celestial Natural Foods on the main island of Oahu's north shore sold out of its stock of iodine supplements on Tuesday, said store manager Melody Allen.

Customers have been buying supplements with smaller amounts of iodine such as bladderwrack, red clover burdock, kelp, and several types of dried seaweed, she said. People were calling with inquiries every half hour, she said.

The Hawaii Department of Health is warning Hawaii residents not to take potassium iodide pills as a precaution against radiation exposure unless told to do so, because of the side effects.

"If a need should arise for residents to start taking potassium iodide to guard against effects of radiation exposure, the Hawaii State Department of Health ... will inform the public," said interim health director Loretta Fuddy.

"We do not anticipate this need," she added.

## **Americans Taking Potassium Iodide Pills Taking Unnecessary Risk (CHIST)**

By Sandra Guy And Dave Mckinney, Sguy@suntimes.com/dmckinney@suntimes.com

[Chicago Sun-Times](#), March 17, 2011

Local residents rushed to scoop up potassium iodide supplements to guard against radiation exposure wafting from Japan, despite health officials' warnings that the supplements are needless and could cause adverse side effects.

"Residents who take potassium iodide out of concern of possible radiation exposure from the events in Japan could be putting their health at risk due to side effects," said Dr. Damon Arnold, director of Illinois' Department of Public Health, which recommends against taking the tablets at this time. Health officials also warned against ordering the products online.

Potassium iodide, a non-prescription drug that can be used to protect the thyroid gland from radiation exposure, can be harmful to people with allergies to iodine or shellfish and to those with thyroid problems, renal disease and certain skin disorders and chronic diseases.

Merz Apothecary pharmacist and co-owner Michael Winter said the Lincoln Square store started getting calls about the supplement on Saturday, and so ordered extra supplies. By 4 p.m. Wednesday, the store had sold out of its initial supply and sold all but 12 bottles of a 300-bottle order that had arrived four hours earlier. The supplements come in caplets and in liquid form, with the price ranging from \$7.80 for a 60-capsule supply to \$13 for 120 capsules.

"We have sold at least 400 bottles both in-store and online, in large and small quantities, and we could have sold another 400 to 500 if there had been enough inventory," Winter said.

He said it's impossible to reorder because manufacturers are running out of supplies due to the rush to buy.

The supplements contain far less potassium iodide than anyone who is exposed to radiation would take. Each capsule contains 225 micrograms, so it would take four to equal 1 milligram. People exposed to radiation are typically given doses of 130 milligrams a day, Winter said.

"I'd probably say we've had 30 to 40 people ask for it today," said Katie Speh, general manager of Southtown Health Foods in Beverly. "I'd say some are panicked, some are like, 'Just in case.'"

A spokeswoman at a GNC store downtown said customers are turning to a multi-vitamin that contains 150 micrograms per caplet of the potassium iodide supplement if they cannot find the supplement itself.

Walgreen and CVS drugstores do not sell the supplements.

For more information go to [idph.state.il.us/Bioterrorism/factsheets/Radiation\\_Potassium\\_Iodide.pdf](http://idph.state.il.us/Bioterrorism/factsheets/Radiation_Potassium_Iodide.pdf).

## **Lawmakers Call For Expanded Availability Of Anti-Radiation Medication (CQ)**

By Alan K. Ota

[CQ Today](#), March 17, 2011

Florida Republican Gus Bilirakis is taking the lead in prodding the Obama administration to expand stockpiles of anti-radiation medication for distribution to Americans living near the nation's nuclear power plants.

Growing concern over the crisis at a Japanese plant prompted House members Bilirakis and Edward J. Markey, D-Mass., to renew earlier efforts to get the government to distribute potassium iodide to those living within 20 miles of this country's 104 nuclear plants.

A bioterrorism law (PL 107-188) enacted nine months after the 2001 terrorist attacks called on federal authorities to supply states and local governments with sufficient amounts of the medication for residents living less than 20 miles from a plant. But the law allowed changes to the distribution plan if better alternatives were devised. The George W. Bush and Obama administrations have opted for a plan involving rapid evacuation, the monitoring of food and water supplies, and distribution of potassium iodide to those living within 10 miles of nuclear plants.

Bilirakis, chairman of the Homeland Security Subcommittee on Emergency Preparedness, Response and Communications, has lined up support for his proposal from other Republicans and plans to raise the issue during a Thursday hearing.

"Sometimes you need an incident to wake you up. This is that incident," said Homeland Security Chairman Peter T. King, R-N.Y.

**10-Mile Radius**

Bilirakis is drafting a letter urging the administration to reconsider its decision to limit the distribution program to a 10-mile radius. Markey fired off a similar letter earlier this week.

Implementation of the distribution program has been ensnared in a fight between government officials and proponents of nuclear power who portray the initiative as unnecessary in the absence of a clear threat to residents. Nuclear power opponents say that the program is needed to ensure a ready supply of the drug in an emergency caused by an earthquake or other natural disaster, or by a terrorist attack.

Members of both parties have questioned the propriety of the Bilirakis and Markey effort.

"This is a tactic by opponents of nuclear power. I think it would raise unnecessary public concern," said Sen. Michael B. Enzi of Wyoming, the ranking Republican on the Health, Education, Labor and Pensions Committee.

Henry A. Waxman of California, the top Democrat on the House Energy and Commerce Committee, said he shares Markey and Bilirakis' concerns but fears that the effort could trigger an unwarranted rush to acquire the medication. "We don't want people to buy the drug if they don't have to," he said.

Heavy sales of potassium iodide pills in Japan have stretched supplies of the drug produced by an American manufacturer, Anbex Inc., based in Williamsburg, Va., and by several foreign companies.

## **Japan Quake Puts Spotlight On Aging US Nuclear Reactors, Cost Of Building New Ones (WP)**

By Jia Lynn Yang And Steven Mufson

[Washington Post](#), March 17, 2011

One day before the nightmare began at the Fukushima Daiichi plant in Japan, a reactor in Vermont with the same decades-old design was getting a big thumbs-up from US regulators.

The 38-year-old Vermont Yankee plant, which state lawmakers charge is well past its prime, has an operating license that is set to expire next year. Last Thursday, the Nuclear Regulatory Commission (NRC) agreed to add another 20 years to the life of the plant.

This is the state of nuclear energy in this country, where the average plant was built in 1980 and the cost of launching new reactors - and, industry executives say, safer ones - remains prohibitively high. The United States, which relies on nuclear power for 20 percent of its electricity, is leaning more heavily than ever on the first generation of plants built decades ago, even as critics worry that aging reactors have some dangerous weaknesses.

So far, aging plants are not necessarily failing plants. US nuclear plants have less down time than they did a decade or two ago.

But safety issues have come under scrutiny as workers in Japan try to fend off a nuclear meltdown at the Fukushima Daiichi plant, whose reactors were designed by General Electric in the 1960s. Over the years, some experts have pointed out flaws in two critical components unique to GE's design: the placement of spent fuel rods above the reactor and the strength of the reactor's containment vessel. These issues, some experts worry, could now be creating problems for the Japanese.

GE defends its model, calling the Boiling Water Reactor Mark 1 "the industry's workhorse." Out of 105 reactors in the United States, 23 are BWR Mark 1s. The two oldest - Oyster Creek in New Jersey and Nine Mile Point in New York - began operating in 1969. Utility companies running the reactors with the Mark 1 design insist that they are built to last and that many components have been replaced over the years.

The NRC has renewed licenses for 17 of these reactors and 62 altogether; it has rejected none. All reactors were originally granted 40-year licenses when they began operating, and the renewals are for 20 years.

"There was nothing magic about the 40-year span," said Peter Bradford, a former NRC commissioner. "It wasn't as though somebody said, from an engineering standpoint, 'What's the year after which the plants will start to fall apart?' The 40 years was arbitrary to begin with."

Scott Burnell, a spokesman for the NRC, said that when Congress passed the Atomic Energy Act of 1954, which gave the NRC authority to hand out licenses, lawmakers were less concerned with engineering than with blocking companies from developing monopolies in their markets.

The NRC said regulators are constantly monitoring the plants and that a renewal does not give a reactor free rein to operate more loosely.

"If it's capable of running for 40, we can tack on 20 and then consider things from there," Burnell said.

The NRC said renewal hinges on how a plant affects its surrounding environment and the condition of its aging equipment.

Sometimes it demands costly changes. Exelon has decided to close down the 42-year-old Oyster Creek nuclear plant after regulators requested that it install new cooling towers. The company also cited low electricity demand and the prospect of large capital expenditures. It will close the plant in 2019, 10 years before its license extension runs out.

After the Three Mile Island accident in 1979, regulators examined all reactors for their ability to withstand severe hydrogen gas leaks and required Mark 1 plant operators to add venting stacks to make the reactors safer in case of a severe accident.

Even when Washington gives the green light, state-level support is usually needed.

In Vermont, Entergy, the owner of the Vermont Yankee plant, has faced fierce opposition from state lawmakers and environmental groups as it seeks a license renewal. In February of last year, the Vermont Senate voted to stop the plant from operating past 2012, based on radioactive leaks and the collapse of a cooling tower in 2007.



Vermont Yankee provides one-third of the state's energy, but opponents of the plant argue that there are other energy sources available nearby, including a Canadian utility.

The disagreement between the NRC and the state of Vermont over the license renewal could leave the plant in legal limbo. At any rate, the NRC has said there will be delays in issuing the license for Vermont Yankee because its staff is busy helping Japanese officials.

Entergy, based in New Orleans, announced in November that it was considering putting Vermont Yankee up for sale.

"We continue to believe Vermont Yankee can continue providing the people of Vermont clean, safe, reliable power for another 20 years," said Michael Burns, an Entergy spokesman.

Japan's crisis is giving people pause far beyond Vermont, threatening the effort by utilities to build new projects.

Just a week ago, Duke Energy was optimistic about getting the North Carolina legislature to approve a measure that would have sharply reduced the financial risks of its plan to build a nuclear plant in Lee, S.C. The measure would allow Duke to charge customers for building costs before completing the project.

But Tuesday, Duke chief executive James Rogers got a grilling from the North Carolina Utilities Commission and the legislation was put on hold.

A similar bill in Indiana also hit a snag this week. A report in a Platts newsletter said that state Senate President David Long (R) urged his colleagues to "take a deep breath" and watch events in Japan before proceeding with the measure.

In Texas, a San Antonio municipal utility on Tuesday suspended talks with NRG Energy over a deal to purchase future electricity supplies from a proposed nuclear power plant in south Texas. NRG, considered a leading candidate for the next chunk of federal loan guarantees for nuclear plants, wants to expand its nuclear capacity at a facility about 90 miles southwest of Houston.

Last year NRG signed a deal that made Tokyo Electric Power Co., owner of the stricken Japanese plants, a minority partner in the project. Tokyo Electric, burdened with costs at Fukushima Daiichi, could face difficulty following through on its pledge to invest as much as \$280 million.

Just a month ago, President Obama proposed expanding the government's loan guarantee program from the \$18.5 billion allocated in 2005 to \$54.5 billion. Earlier he announced conditional approval for a loan to a Southern Co. plant in Georgia.

Even before the Japanese crisis, the much ballyhooed "nuclear renaissance" ran the danger of being stillborn. The discovery of economic ways to tap into vast reserves of natural gas locked in shale rock has lowered the price of natural gas.

Exelon, the nation's biggest nuclear utility, with 17 plants, estimates that new nuclear plants are more expensive than any other energy source except photovoltaic cells.

"Neither new nuclear, coal with carbon capture and sequestration, wind nor solar are economic," John Rowe, chief executive of Exelon, said in a speech last week. "They are not economic because of energy prices, an excess of generating capacity and very low load growth."

Aneesh Prabhu, an analyst at Standard & Poor's, estimates that natural gas would have to be more than 50 percent more expensive than it is today before building a new nuclear power plant would make clear economic sense.

The Japanese crisis just adds another degree of difficulty. A lot of utility executives are asking: If the United States isn't building new nuclear plants and nervous about extending old ones, how will the country generate enough electricity?

"Clearly costs are going to rise, and what we're focusing on is the licensing renewals for existing plants and costs for existing plants," said Steven J. Dreyer, managing director of US utilities, power and project finance at Standard & Poor's. "This may be the final nail in the coffin for new nuclear development at least in the near term."

## **Lobbyists Step Up Efforts To Reassure On Nuclear Energy (BOS)**

By Theo Emery And Donovan Slack

[Boston Globe](#), March 17, 2011

WASHINGTON — The nuclear power industry has mounted a concerted lobbying push on Capitol Hill this week to reassure members of Congress who are concerned about the Japanese nuclear plant disaster and potential for a similar incident in the United States.

The effort is part of the industry's response to a crisis that has spurred calls for a moratorium on nuclear power permits and raised questions about financial incentives the industry has secured during the quest for energy sources that do not contribute to global climate change.

The industry's success at explaining the technical issues and addressing concerns of elected officials and the American public could prove pivotal to the future of nuclear power, which is beginning to enjoy renewed support more than three decades after the Three Mile Island accident essentially killed new plant construction in the United States.

The industry boosted its campaign donations and lobbying activities in recent years and has enjoyed greater influence in Washington, muscle that has been on display since last week's earthquake and tsunami threw reactors on the Japanese coast into a state of emergency.

"They have a very powerful lobbying force, which is being felt on the Hill right now," said Representative Edward J. Markey, a Massachusetts Democrat and a longtime critic of the industry who has called for a timeout on permits for plants in earthquake zones, one of the few members of Congress calling for a halt.

Since the weekend, the Nuclear Energy Institute, the industry's trade organization, and its members have dispatched representatives to conduct large-scale briefings and have prepared fact sheets for lawmakers about safety threats in Japan. The group has been firing off e-mail updates, some countering the most foreboding elements of news coverage.

A representative sat in a hearing room yesterday as lawmakers peppered federal officials with questions about nuclear safety.

Leslie Kass, the institute's senior director of business policy and programs, confirmed that the organization is undertaking an "above average" information blitz to answer questions and help lawmakers wade through the torrent of news — some conflicting — coming out of Japan.

"It's obvious that people need information. Some of them are seeking us out. We're making it convenient for them to come and get the information, because it's important for policy makers to have facts," she said.

The effort has appeared to help the industry avoid sharp political shifts in Washington. The Obama administration and most Republicans and Democrats in Congress have refrained from calling for a slowdown on permits. In Germany, Switzerland, and China, by contrast, officials have suspended new approvals.

In recent years, the industry's representatives have been regular visitors to members of Congress and their staffs, as are lobbyists for other energy interests seeking to protect or win new profits as the nation debates its energy future. There are 104 commercial reactors operating at 64 plants across the United States, according to the Nuclear Regulatory Commission. They generate roughly 20 percent of the country's electricity. The NRC has not issued a license for a new reactor in more than 30 years, but there are 18 applications for new reactors pending.

The Nuclear Energy Institute's political action committee has more than doubled its campaign contributions during the past decade, from \$157,000 in 2001 and 2002, to \$470,000 in 2009 and 2010, spreading its money among Democrats and Republicans alike. Separately, political action committees associated with the 14 companies seeking to build the new reactors have spent \$8 million on political contributions and related expenses since 2008, according to a Globe analysis of data compiled by the Center for Responsive Politics.

The nuclear energy industry's contributions represent a fraction of the contributions by the electric utilities sector overall, which gave a total of \$18.9 million to campaigns since 2008. The oil and gas industry contributed \$27.6 million since 2008.

In addition, the Nuclear Energy Institute also spent more on lobbyists in recent years, with costs rising from an average of \$1.1 million annually between 2000 and 2005 to an annual average of \$1.76 million between 2006 and 2010.

Kass said that the group's more aggressive agenda coincided with increased attention to energy on Capitol Hill. "I think as energy policy has come to the forefront, obviously we're right there in the mix. Much of the Democrats' energy policy was based on clean energy in the last Congress, and many of the Democrats looked at the analysis and were suddenly far more interested in nuclear energy, whereas maybe before they had been agnostic or unaware," she said.

Few Democrats have joined Markey in his calls for a moratorium on permits. Senator John F. Kerry, who proposed a climate change bill last year that contained incentives for nuclear power, said this week: "I don't think we should be rushing to judgment" on nuclear power.

President Obama said Tuesday he is still confident in the safety of nuclear energy, although he has directed a review of the country's approach to regulation and oversight.

Energy Secretary Steven Chu said during a House Energy and Commerce Committee hearing yesterday that the administration is pushing forward with proposals for loan guarantees for construction of nuclear power plants.

US Representative Joe Barton, a Texas Republican who questioned Chu about the program, said incentives for nuclear power construction are important, to protect private investors.

The GOP budget bill cutting some \$61 billion in spending that passed in the House last month, but which died in the Senate, stripped out loan guarantees to develop renewable energy sources but left in place \$18.5 billion in such guarantees for the nuclear industry.

"It's a clear indication that the nuclear industry is very powerful in D.C., and that the renewable industry — which is smaller companies that aren't as politically savvy — has a very hard time holding on to what they have gotten," said Richard Caperton, an energy policy analyst at the liberal Center for American Progress.

Barton, who sent staff to the institute's briefings, said it's a "myth" that the industry's power can sway lawmakers.

"It's more that we each come with certain preconceived philosophies and ideas, and the industry groups tend to reinforce what we already believe," he said.

## **US Nuclear Output Rises As NextEra Boosts Turkey Point Plant (BLOOM)**

By Colin McClelland

[Bloomberg News](#), March 17, 2011

US nuclear-power output rose 0.3 percent after power increased at the Calvert Cliffs 2 reactor in Maryland and NextEra Energy Inc. boosted the Turkey Point Unit 3 in Florida, the Nuclear Regulatory Commission said.

Production nationwide increased by 251 megawatts from yesterday to 86,542 megawatts, or 85 percent of capacity, according to a report today from the NRC and data compiled by Bloomberg. Fifteen of the nation's 104 reactors were offline.

Constellation Nuclear Energy Group LLC, a joint venture of Constellation Energy Group Inc. (CEG) with Electricite de France SA, boosted its 867-megawatt Calvert Cliffs 2 reactor to 56 percent of capacity from 10 percent yesterday.

Another reactor at the plant, the 867-megawatt Calvert Cliffs 1, is operating at full power. The plant is located 38 miles (61 kilometers) south of Annapolis.

NextEra Energy Inc. (NEE) boosted the 693-megawatt Turkey Point 3 reactor to full power from 60 percent of capacity yesterday. Another 693-megawatt reactor at the site, Turkey Point 4, is operating at 100 percent. The plant is 20 miles south of Miami.

Entergy Corp. (ETR) slowed its 778-megawatt Palisades reactor on Lake Michigan to 52 percent of capacity from 100 percent yesterday. The plant is located 37 miles west of Kalamazoo, Michigan.

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.

## **Indiana's Interest In Nuclear Power Is Dampened (INDYSTAR)**

**Lawmakers want to 'step back' from idea of an Indiana plant**

By John Russell

[Indianapolis Star](#), March 17, 2011

As Japan scrambles to control fires and radiation at its crippled nuclear power reactors, Indiana leaders are backing away from an effort to promote nuclear power here, and nuclear critics are stepping up their opposition.

Indiana, which has long relied on the state's abundant coal reserves for energy, has no nuclear plants. Neighboring states have 17 nuclear power plants, many of them more than 30 years old and approaching the end of their licensed life.

Just last month, the Indiana Senate passed legislation that would encourage the construction of the state's first nuclear plant or perhaps a small, modular nuclear plant. The bill would provide financial incentives to companies to build a nuclear plant, allowing them to pass along construction costs to customers years before the plant goes into operation.

That has all changed in a hurry in recent days, as news from Japan grows bleaker. More than 100,000 Japanese have been ordered inside to avoid radiation contamination after cooling systems at a nuclear complex were knocked out by an earthquake and a tsunami.

On Wednesday, US Nuclear Regulatory Commission Chairman Gregory Jaczko said the damage at one reactor was much more serious than Japanese officials had acknowledged and radiation levels were extremely high.

Indiana officials say it's time to pause and reassess the benefits and risks of nuclear power.

"With the events in Japan, I think you really need to take a step back," said Sen. Beverly Gard, R-Greenfield, one of the bill's authors. "I think it's going to take months, if not years, for an investigation to get to the source of the problem."

She said nuclear power should be put on the back burner until the crisis in Japan is under control, and nuclear incentives should be removed from a bill that is now awaiting action in the House.

Senate President David Long, R-Fort Wayne, agreed. "We need to take a step back, try to understand how this happened, what the circumstances were, was it human error, was it all caused by the natural disaster? If so, what part of it, was it the tsunami, was it the earthquake? We don't have the answers to that right now, and we need to have some answers."

Nuclear critics have ramped up opposition in recent days, calling nuclear power risky, dangerous, dirty and expensive. They say the state should focus more on cleaner energy, such as solar, hydro and wind power, which make up a small percentage of Indiana's energy generation.

"I really hope we hit the pause button on nuclear energy," said Steve Francis, chair of the Sierra Club's Hoosier chapter. "What happened in Japan is a tragedy, and I don't want to take advantage of that, but everyone needs to understand the risks."

State Sen. Jean Breaux, D-Indianapolis, said the potential danger posed by nuclear plants "has certainly escalated the situation" and said the state should focus on clean energy options, such as wind and solar power.

But some Indiana lawmakers say they continue to support nuclear energy, despite the problems in Japan. They say the technology has improved in recent decades, and the safety record is good overall.

"Nuclear energy is an alternative we need to consider," said Rep. Robert Behning, R-Indianapolis. "For us to stick our heads in the sand is not responsible. . . . The truth is, we are faced with a dilemma. How do we meet the growing needs of electricity?"

Around the globe, governments are probing the safety of operating reactors and delaying steps to keep them going. German Chancellor Angela Merkel on Monday suspended plans to prolong the use of the 17 nuclear plants in Europe's largest economy, while Switzerland suspended efforts to renew three of the country's five power stations. China, India and Britain also paused new plant development pending a review of Japan's events.

In Washington, officials indicated no official change in energy policy has been made because of the crisis in Japan. President Barack Obama's energy plan relies heavily on nuclear power to reduce carbon-dioxide emissions from other energy sources. The president has proposed tripling federal loan guarantees to \$54.5 billion to help build new reactors in the 2012 budget plan he sent to Congress.

Nuclear power "remains a part of the president's overall energy plan," Jay Carney, the White House press secretary, told reporters at a briefing.

Regulators have been asked to extend the operating licenses of 13 plants with 20 reactors, according to government figures. Companies run 104 nuclear power stations to supply about 20 percent of US electricity.

The Midwest is awash in aging nuclear plants, some built in the mid-1970s. Illinois has 11 nuclear plants. Michigan has four and Ohio has two.

Nuclear energy has been touted for its lack of smokestack pollution. By contrast, coal, long considered a cheap source of energy, is coming under harsher federal mandates to clean its emissions.

On Wednesday, the US Environmental Protection Agency proposed rules that would for the first time regulate toxic air emissions from coal-fired power plants, including limiting mercury, lead, arsenic and acid gas pollution.

Some industry leaders said it would cost billions of dollars annually to comply, but environmentalists praised the move.

The Indiana Energy Association said there are no nuclear plants planned for Indiana, nor were there before the Japanese disaster. The association represents five investor-owned utilities, including Duke Energy and Indiana Michigan Power.

There hasn't been a new nuclear plant built in the US since the Three Mile Island accident near Harrisburg, Pa., in 1979, when a partial core meltdown ignited widespread opposition to nuclear power. Two separate efforts in Indiana to build nuclear power plants here in the 1980s were scrapped in the face of rising opposition and high costs.

The Northern Indiana Public Service Co. had proposed a 644-megawatt Bailly Nuclear Power Plant at a site near the Indiana Dunes National Lakeshore in 1967. It was never built. And Public Service Indiana proposed the Marble Hill Nuclear Power Station, with two nuclear reactors, in southeast Indiana in 1973. The company halted the project in 1984 when it was half-built. PSI was nearly bankrupted by the effort and was later bought by Cinergy, now part of Duke Energy.

"Both projects fell down under the weight of economics of building nuclear reactors. It's just too expensive," said Kerwin Olson, program director at Citizens Action of Indiana, which opposes nuclear energy.

But Indiana does receive electricity from a nuclear plant in southern Michigan, less than an hour north of South Bend.

Most of the output from the Cook Nuclear Power Plant, operated by the Indiana Michigan Power Co., goes to power homes and businesses in Northern Indiana. The plant, with two reactors, went online in the mid-1970s, and is licensed to operate for at least another two decades.

## **Are Nuclear Reactors Vulnerable To Solar Storms? (WP)**

By Steve Tracton

[Washington Post](#), March 17, 2011

The subject of nuclear power plants and solar storms was not what I planned for the second part of the series: Space Weather: Are we ready for a solar strike (Part I)? But, in light of the nuclear disaster in Japan, caused by loss of external and backup electrical power needed for the reactors' cooling system, it occurred to me that renewed discussion on the safety of nuclear power ought to include concern about the prospects of widespread and long-lasting outages from solar storms.

The radioactive core of a nuclear reactor generates intense heat and must be cooled by continuously pumping water through the system. Otherwise the water surrounding the nuclear core would boil off, and the exposed nuclear core begin to melt. Should the build up of steam pressure or hydrogen gas released in the process explode (as in Japan) the containment structure built over the reactor might be compromised allowing dangerous amounts of the core's radioactive material to escape into the environment.

A basic feature of US nuclear power plants is that they are not self-powered, i.e., the electricity to run the plant relies on the same power grid that runs the country at large. If this external power is lost, the plant must shut down. But, the nuclear core remains intensely hot for anywhere from several days to weeks or more. If not continuously cooled, a meltdown is likely.

As discussed in the earlier posts on space weather, intense solar storms could damage the nation's electric power grids beyond repair for several months to years according to a report from the National Research Council (further explanation forthcoming in what was meant initially to be Part 2). Moreover, as noted, the consequences could be devastating for commerce, transportation, agriculture and food stocks, fuel and water supplies, human health and medical facilities, national security, and daily life in general.

In many, but not all nuclear power generators (explained shortly) the essential cooling system pumps are electrically driven. And, here's the nub of the issue:

Those nuclear plants requiring external electric power to maintain the cooling system most assuredly have backup diesel generators and batteries to run the plant's vital command and control system. The issue is whether diesels and their onsite fuel supply would last long enough to keep the core from melting given that resupply would be a challenging proposition given the societal and infrastructure disruptions caused by effects of a possible catastrophic solar storm.

Even if diesel power was not a problem, some nuclear plants, such as the Vermont Yankee reactor on the Connecticut River in southern Vermont, rely on eight hour batteries as backup to run the command and control system - as did the Japanese plants. Without the command and control system it is not possible to monitor vital sensors and operate required pumps, valves, etc. Are there contingency plans or is there even the capability to divert power from generators, if running, to keep the command and control system operative should replenishing the supply of batteries not be possible? In some nuclear plants the cooling system is self-contained, i.e., steam produced in the reactor turns a turbine to generate the electricity for pumping the cooling water. In principle (I say in principle because this same type of reactor is experiencing the current difficulties in Japan), when the plant shuts down the heat of the core continues to keep the steam for the turbine. But even if the cooling system does not fail (like it has in Japan), there remains the problem of maintaining battery power for command and control.

It is not clear to what extent - if at all - these issues have been raised or considered, but clearly now ought to be where they haven't been.

Let me say that I support expanding nuclear power - even if it is quite literally in my own backyard, almost in the shadow of the Lake Anna Nuclear Facility in north central Virginia where I have a second home. However, my support as should generally be true, is contingent on answers to the questions I've raised here, as well as the many others being asked concerning nuclear power in the wake of the catastrophe in Japan.

Keep in mind, however, that even now a disastrous nuclear accident is highly improbable. But, it is possible and it is imperative to further minimize the risks given the dire consequences should it occur.

P.S. As a concerned citizen, I have expressed the safety issues raised here to the US Nuclear Regulatory Commission and Va. Department of Environmental Quality (DEQ) in a communication through the "Friends of Lake Anna" civic group. The NRC and Va. DEQ are considering whether to permit construction of an additional nuclear reactor within the site of the two existing plants at the Lake Anna facility

## **Exclusive Investigation Reveals Government Aware Of Possible Radiation Exposure And Failed To Act (WEWS)**

[WEWS-TV Cleveland, OH](#), March 16, 2011

Exclusive investigation reveals government aware of possible radiation exposure and failed to act

Ron Regan

An exclusive 5 On Your Side investigation reveals the federal government was aware of possible radiation exposure and failed to act., Visit [Newsnet5.com](#) for breaking news in Cleveland, Ohio from WEWS. Get updated news, weather and sports for the Cleveland & Akron local area online from ABC TV's local affiliate in Cleveland, Ohio, WEWS

An exclusive 5 On Your Side investigation reveals the federal government was aware of possible radiation exposure and failed to act.

The new information was contained within a 2004 disability claim filed with Department of Veterans Affairs' that describes possible radiation exposure from a leaking nuclear power plant that supplied power to a US Navy base in Antarctica.

The new revelation comes on the heels of a request by Sen. Sherrod Brown to Defense Secretary Robert Gates for a full investigation into the extent of radiation exposure for an estimated 15,000 Navy personnel who served at McMurdo Station, Antarctica during the 1960s and 70s.

"The more I see of what Channel Five has done and the more we explore what's happened at McMurdo and talked to the Defense Department and the Veterans Administration, the more troubled I am," Brown said.

Brown asked for a Defense Department investigation following a March 2 report by the investigative unit at NewsChannel5.

Navy veterans, who suspect the nuclear plant caused their cancer, described repeated, failed efforts over the last 15 years to obtain disability benefits from the Veterans Administration.

Yet while the VA had knowledge of possible radiation exposure, it not only failed to launch its own investigation, it repeatedly denied claims of veterans who served at McMurdo and who had cancer.

"That's why I wrote to Secretary Gates, that's why I worked with NewsChannel5 on this and why we have been talking to General Shinseki, Secretary of the VA, to make sure that number one--this doesn't happen again, number two--we get to the bottom of it and number three--we make whole people that we can in any way possible," Brown said.

Meanwhile, the Veterans Administration issued this statement:

"This is an important issue for Veterans who served at McMurdo Station. The Department of Veterans Affairs' is working to provide the information you requested. VA shares your concern for all McMurdo veterans and we are committed to ensuring that all Veterans receive the maximum amount of care and benefits they are entitled to under the law. We will provide you with the information you requested soon."

## **TSA Defends Airports Privacy Policy (WT)**

**Says scanner images are protected, radiation doses low**

The Washington Times

[Washington Times](#), March 17, 2011

The Transportation Security Administration on Wednesday defended its privacy policy at airports and the safety of an advanced-imaging machine that transmits low radiation doses.

Testifying before skeptical House members, two TSA officials said imaging machines used for passenger screening have software that prevents the full-body images from being retained, stored or transmitted.

The officials, Robin Kane and Lee Kair, also said a single screening from a "backscatter" imaging machine produces radiation similar to a dose from about two minutes of flying at 30,000 feet.

The chairman of a House Oversight and Government Reform subcommittee, Republican Rep. Jason Chaffetz of Utah, said he isn't convinced privacy is being protected.

"Nobody has to look at my grandmother naked to secure an airplane," said Mr. Chaffetz, a frequent critic of the TSA.

A Columbia University radiology researcher, David Brenner, testified that despite a low individual risk, it's possible that radiation from backscatter machines could cause cancer in 100 people a year.

Mr. Brenner, director of Columbia's Center for Radiological Research, called the number "a best estimate," but acknowledged "this number is quite uncertain." He added that the cancer risk to each individual is as low as one in 10 million.

When TSA officials testified they were unaware of TSA ever retaining full body images of passengers, Mr. Chaffetz demanded to know why the answer wasn't an unequivocal "no."

"I'm frustrated by the lack of candor," Mr. Chaffetz said.

The TSA has installed two types of explosive-detecting machines that produce full body images: the "backscatter" that emits radiation and millimeter wave machines that do not. The agency says that, with no concerns about radiation exposure, it uses both types to foster competition between manufacturers.

TSA also said it is testing a new type of imaging that will only show anomalies rather than a full body image.

Marc Rotenberg, executive director of the Electronic Privacy Information Center, expressed doubt about TSA's contention that it does not save images — which are viewed in a separate area away from public security lines.

"We've obtained from the US Marshals Service more than 100 images" from a marshals' scanner at the US Courthouse in Orlando, Fla., Mr. Rotenberg said. They were among 35,000 images that the marshals acknowledged — in a Freedom of Information response — that they retained from the Orlando screenings.

He added that TSA has acknowledged, in a Freedom of Information Act response, storing and recording images while testing the machines.

"TSA has 2,000 images. They don't want the public to see this," he said. The TSA has refused to turn over the images.

The center has filed a lawsuit to stop the TSA from using scans that show a naked image of a passenger's body. The group contends the machines violate privacy laws, religious freedom and the Fourth Amendment protections against unreasonable searches and seizures.

The TSA officials, who refused to sit on the same panel as Mr. Rotenberg because of the lawsuit, said the advanced imaging machines are vital to keep up with terrorist tactics.

"We have witnessed the evolution of this threat from checked baggage, to carry-on baggage, and now to air cargo and non-metallic explosives hidden on the body," Mr. Kane and Mr. Kair said in a joint statement.

## **TSA Defends Safety Of Scanners (USAT)**

By Alison Young, Usa Today

[USA Today](#), March 17, 2011

A national expert on radiation safety questioned why the Transportation Security Administration is opting to use a type of airport X-ray scanner that exposes travelers to low doses of radiation when the agency already has another type of scanner that poses no known safety risks.

David Brenner, director of Columbia University's Center for Radiological Research, noted that the TSA uses the full-body X-ray scanners at some airports but allows passengers at other airports to pass through millimeter wave scanners, which do not use ionizing radiation. There are no known health risks of the millimeter wave machines, Brenner told lawmakers during a congressional oversight hearing Wednesday. "X-rays," he said, "are a carcinogen."

TSA officials defended the use of both types of scanners during a sometimes contentious hearing before a homeland defense panel of the House Oversight and Government Reform Committee.

"This technology is safe," said Robin Kane, a TSA assistant administrator for technology. Kane emphasized that the machines are necessary to protect the public from terrorists and that they have been thoroughly tested by independent experts.

Eliminating backscatter X-ray scanners in favor of millimeter wave machines would "have a significant cost" because it would give the other supplier a monopoly, testified Stewart Baker, a former official in the Department of Homeland Security during the Bush administration.

The TSA says its full-body X-ray scanners deliver a dose of radiation equivalent to what a passenger gets during two minutes of a typical flight. The TSA has installed almost 500 full-body scanners at airports; about half use X-rays.

After requests by USA TODAY to review radiation safety reports on airport X-ray machines, the agency disclosed last week that many of the full-body X-ray machines had not been properly inspected by the manufacturer, Rapiscan Systems. TSA spokesman Nicholas Kimball says the agency decided in late January to retest all 247 full-body X-ray scanners at 38 airports out of an "abundance of caution" and began the new inspections this month.

Rapiscan informed the agency Dec. 15 of numerous errors in the inspection records, but the TSA waited almost three months before releasing that information publicly. Records on some of the devices documented radiation levels 10 times higher than expected, but Rapiscan and the TSA say those numbers reflect math mistakes and that all the machines are safe.

Rep. Jason Chaffetz, R-Utah, the subcommittee chairman, was troubled by the errors.

"We can't make mistakes with pregnant women" going through the scanners, Chaffetz said.

Rep. Elijah Cummings, D-Md., said he sympathized with the TSA's "tough job" of balancing security needs with passenger concerns.

"There is a very significant shadow hanging over TSA," said Cummings, the top Democrat on the full committee. "It goes to a five-letter word: Trust."

## **OPM's John Berry Calls For New Performance-review System For Federal Workers (WP)**

By Joe Davidson

[Washington Post](#), March 17, 2011

John Berry's call for a new federal performance-management system represents an evolution in the Obama administration's approach to the General Schedule and perhaps a reprieve for that classification system covering most federal workers.

In prepared remarks to the Interagency Resources Management Conference at Gallaudet University's Kellogg Conference Hotel on Wednesday, the Office of Personnel Management director spoke of a new system that would replace the current methods of performance reviews, which he said are "infrequent and rote."

The current review process "seems to take place in Garrison Keillor's Lake Wobegon, where everyone is above average," said Berry, who prefers to be called the government's "chief people person." "If that doesn't make our performance ratings suspect, I don't know what would."

Despite his criticism of the system, Berry made it clear that he is not talking about the end of the 60-year-old General Schedule, as he had previously. That change in thinking will please federal labor leaders who strongly defend the GS against attempts to replace it with "pay for performance" systems.

"We have flexibility under current law to encourage and reward excellence and eliminate mediocrity," Berry said in the speech. He offered "a basic blueprint for changing the way we manage personnel performance, and ultimately organizational performance, without changing the law or the pay system."

The push for a new system within the confines of current law is a change from the approach Berry advocated in the months after taking office two years ago.

In a November 2009 speech at his alma mater, the Maxwell School of public affairs at Syracuse University, Berry urged "comprehensive reform of our civil service system."

"We could limp along for a few more years in the current GS system," he said then, "or we can seize this moment to build something new."

The moment apparently passed. And not a moment too soon for union leaders.

The General Schedule "has both merit and market-based components," Colleen M. Kelley, president of the National Treasury Employees Union, said last week as she defended the GS before a House federal workforce subcommittee. "Within-grade and career-ladder promotions are subject to merit standards. There is limited ability for favoritism, discrimination or other nonmerit determinations to come into play. But there is also flexibility. Non-performers can be denied merit pay increases, and outstanding performers can be given many rewards, including quality step increases, annual leave, as well as retention and recruitment bonuses."

While defending the GS system, organized labor also is willing to make changes in it.

"I think we can . . . really make some very creative changes" to things such as within-grade pay raises, often called step increases, said John Gage, president of the American Federation of Government Employees. Gage said federal workers would not object to having those increases more directly linked to performance. Currently, the increases are largely based on longevity.

During a phone interview after his Gallaudet speech, Berry acknowledged that his thoughts had evolved after talking to "a lot of folks who are good thinkers on this topic" and after learning lessons from the Pentagon's crashed National Security Personnel System. Congress eliminated the NSPS after it failed to win the trust of employees.

Berry said the consensus among the "good thinkers" is that the performance equation can be solved separately, and should be solved first, before attempting to tackle the hornet's nest that is federal pay.

Any attempt to change the pay system now would force a confrontation with congressional Republicans who want further limits on the benefits and salaries of federal workers, whose pay already is frozen for two years. A report by the Congressional Budget Office last week offered several options for reducing personnel costs, including having employees pay more for health insurance, reducing the cost-of-living adjustment for retirees by changing the way it is calculated and cutting the across-the-board adjustment for federal civilian pay.

Berry's willingness to hold off on remaking civil service doesn't mean he's totally happy with the way the system works. In fact, he told the conference that "there is a need to consider reforms of the white-collar federal pay systems," including the Senior Executive Service.

Berry's blueprint includes setting performance standards that would be "detailed, objective, aligned to agency mission and goals, and [have] employee buy-in," and not just be "dictated from on high."

He outlined how good workers, top performers and slackers would be treated under a new system:

I The "well over 80 percent . . . who are doing a good job" would get three things — "a pat on the back, frequent feedback about how they might improve further and the training they need to get there. If we can give them something on the spot when warranted, like a gift card to take their family out to dinner, even better."

I Instead of cash, top performers would get "increased public recognition and greater opportunities to innovate."

I That "very small group of employees" who aren't performing would get "a clear, appropriate rating, and a consistent organizational commitment to get rid of them quickly, but fairly. Failing to remove poor performers disrespects and demotivates the entire team. And what's more, we don't have a position to waste."

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## INTERNATIONAL NUCLEAR NEWS:

### Japan Launches New Efforts To Avert Nuclear Meltdown (LAT)

As survivors of last week's earthquake and tsunami criticize Japan's relief efforts, authorities desperately try to complete a new power line that could restore cooling systems at the Fukushima Daiichi nuclear plant. Police plan to use a water cannon truck

By Mark Magnier, Laura King And Kenji Hall, Los Angeles Times

[Los Angeles Times](#), March 17, 2011

Japanese authorities embarked Thursday on a series of desperate new measures to try to avert full reactor meltdowns at a stricken nuclear complex. At the same time, survivors of last week's earthquake and tsunami said shortages of food, water, medicine and other essentials were becoming extreme and called government relief efforts woefully inadequate.

As US and Japanese officials disagreed on how to characterize the seriousness of the nuclear crisis, police planned to use a water cannon truck — normally used for crowd control — to try to cool an overheated and possibly dry spent-fuel pool, one of an escalating series of malfunctions at the Daiichi plant in Fukushima prefecture, 150 miles north of Tokyo. Without cooling, the spent rods could emit radioactive material.

The plant's operator, the Tokyo Electric Power Co., was also trying to complete a new power line to the complex to aid in cooling efforts. Failure of primary power systems and backup generators swamped by the tsunami six days earlier have contributed to many of the escalating problems at the plant.

Photos: Earthquake and nuclear crisis in Japan

Confusion persisted as to what was actually happening inside the six reactors in the Fukushima Daiichi complex. Japan's Kyodo News Service, citing government sources, reported that the US military would send unmanned, high-altitude reconnaissance aircraft to take images of the inside of the building housing the No. 4 reactor and ascertain the status of the spent-fuel pool.

Since the quake, the situation inside the complex has spiraled rapidly. Fires broke out for two days running in the building housing reactor No. 4, and temperatures have been rising in reactors No. 5 and 6. The units housing reactors 1, 2 and 3 have all been hit by explosions, and their cores have begun to melt down at least partly, authorities have acknowledged.

In Washington, US Nuclear Regulatory Commission Chairman Gregory Jaczko said at a congressional hearing that all the water has evaporated from the spent fuel storage pool at the complex's No. 4 reactor. Japanese officials have not confirmed that.

Acting on Jaczko's advice, the White House recommended Wednesday that US citizens stay 50 miles away from the stricken plant, not the 12-mile evacuation radius recommended by the Japanese government.

Japanese officials have also instructed those living within about a 20-mile radius to stay indoors to avoid radiation exposure.

Jaczko told lawmakers that the wider evacuation radius was based largely on US concerns about the spent fuel pool, which is believed to be significantly damaged and responsible for "very significant radiation levels likely around the site."

If the backup cooling system attempting to stabilize the reactors on the site were to fail, "It would be very difficult for the emergency workers to get near the reactors. The doses they could experience would potentially be lethal doses in a very short period of time," Jaczko said. "That is a very significant development."

Frustrated by the lack of information, Yukiya Amano, chief of the U.N.'s International Atomic Energy Agency, planned to arrive in Japan on Thursday to carry out an assessment.

The nuclear crisis is affecting relief efforts, including those involving the American military.

US forces in Japan are not allowed within 50 miles of the damaged Fukushima plant, the Pentagon said Wednesday. The larger no-go zone for the US military is a precaution, Pentagon spokesman Col. Dave Lapan said, and exceptions can be made with proper authorization.

"We train and equip all of our people to operate in all kinds of environments. So we know how to measure [radiation], we know how to test. We know how to respond. We know how to take precautions," Lapan said.

At the battered nuclear plant, emergency workers, wearing protective gear and doing short shifts to limit radiation exposure, have been pumping seawater into the overheating reactors to cool them.

The nuclear crisis has threatened to overshadow the massive humanitarian needs in the wake of the quake, and officials of the hardest-hit communities are beginning to make unusually harsh public statements about the government's lack of effective relief efforts.

The governor of Fukushima prefecture, Yuhei Sato, told public broadcaster NHK that anger and anxiety had reached a "boiling point."

Meanwhile, Britain became the latest foreign government to urge that its nationals leave not only the quake zone, but Tokyo as well.

British officials planned to send buses north to the quake- and tsunami-affected area to bring out any British citizens, and they also said British nationals in the capital should consider leaving — not necessarily for health reasons, but because of "potential disruptions to the supply of goods, transport, communications, power and other infrastructure."

Photos: Earthquake and nuclear crisis in Japan

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Magnier reported from Sendai and King from Tokyo. Hall, a special correspondent, reported from Tokyo.

## Japan Begins Air Drop On Stricken Reactor (USAT/AP)

[USA Today](#), March 17, 2011

ZAO, Japan (AP) — Japanese military helicopters dumped loads of seawater onto a stricken nuclear reactor Thursday, trying to avoid full meltdowns as plant operators said they were close to finishing a new power line that could restore cooling systems and ease the crisis.

US officials in Washington, meanwhile, warned that the Fukushima Dai-ichi plant in northeastern Japan may be on the verge of spewing more radioactive material because water was gone from a storage pool that keeps spent nuclear fuel rods from overheating.

The troubles at several of the plant's reactors were set off when last week's earthquake and tsunami knocked out power and ruined backup generators needed for their cooling systems, adding a major nuclear crisis for Japan as it dealt with twin natural disasters that killed more than 10,000 people and left hundreds of thousands homeless.

A Japanese military CH-47 Chinook helicopter began dumping seawater on the damaged reactor of Unit 3 at the Fukushima complex at 9:48 a.m., said defense ministry spokeswoman Kazumi Toyama. The aircraft dumped at least four loads on the reactor, though much of the water appeared to be dispersed in the wind.

At least a dozen more loads were planned in the 40 minutes that each crew can operate before switching to limit radiation exposure, the ministry said.

The dumping was intended both to help cool the reactor and to replenish water in a pool holding spent fuel rods, Toyama said. The plant's owner, Tokyo Electric Power Co., said earlier that the pool was nearly empty, which might cause the rods to overheat.

The comments from US officials indicated there were similar problems at another unit of the Dai-ichi complex.

US Nuclear Regulatory Commission Chairman Gregory Jaczko said at a congressional hearing in Washington that all the water was gone from a separate spent fuel pool at the plant's Unit 4. Japanese officials expressed similar worries about that unit, but that it was impossible to be sure of its status.

Emergency workers were forced to retreat from the plant Wednesday when radiation levels soared, losing precious time. They resumed work after radiation levels dropped, but much of the monitoring equipment in the plant is inoperable, complicating efforts to assess the situation.

"We are afraid that the water level at unit 4 is the lowest," said Hikaru Kuroda, facilities management official at Tokyo Electric Power Co. But he added, "Because we cannot get near it, the only way to monitor the situation is visually from far away."

The storage pools need a constant source of cooling water. Even when removed from reactors, the rods retain radioactivity and must be cooled for months, possibly longer, to prevent them from posing a threat of meltdown.

Japanese officials raised hopes of easing the crisis earlier Thursday, saying that they may be close to bringing power back to the plant and restoring the reactors' cooling systems.

The new power line would revive electric-powered pumps, allowing the company to control the rising temperatures and pressure that have led to at least partial meltdowns in three reactors. The company is also trying to repair its existing disabled power line.

Tokyo Electric Power spokesman Naoki Tsunoda said the new power line to the plant is almost finished and that officials plan to try it "as soon as possible," but he could not say exactly when.

Reflecting the state of alarm over the issue, Japan's 77-year-old emperor expressed deep concern in a rare unexpected television broadcast on Wednesday, saying "I hope things will not get worse."

He urged the Japanese to care for each other and not give up hope. Millions of lives were disrupted by the magnitude 9 earthquake and subsequent tsunami, which are believed to have killed more than 10,000 people.

Nearly a week after the disaster, police said more than 452,000 were staying in schools and other shelters, as supplies of fuel, medicine and other necessities ran short. Both victims and aid workers appealed for more help.

More than 4,300 people are officially listed as dead, but officials believe the toll will climb to well over 10,000.

"There is enough food, but no fuel or gasoline," said Yuko Niima, 46, as she stood looking out over Ofunato harbor, where trawlers were flipped on their sides.

The threat of nuclear disaster only added to Japanese misery and frustration.

"The anxiety and anger being felt by people in Fukushima have reached a boiling point," the governor of Fukushima prefecture, Yuhei Sato, fumed in an interview with the Japanese television network NHK. He said evacuation preparations were inadequate, saying centers lacked enough hot meals and basic necessities.

Tens of thousands of people have been evacuated from a 20 kilometer (13 mile) radius around Fukushima Dai-ichi.

A Cabinet spokesman, Noriyuki Shikata, said the government had no plans to expand the evacuation plan. But the US Embassy issued an advisory urging all Americans living within 50 miles (80 kilometers) of the plant to leave the area or at least remain indoors.

The chief of the U.N. nuclear agency, Yukiya Amano, said he would go to Japan to assess what he called a "very serious" situation and urged Tokyo to provide better information to his organization.

Other countries have complained that Japan has been too slow and vague in releasing details about its rapidly evolving crisis at the complex of six reactors along Japan's northeastern coast.

The 180 emergency workers who were working in shifts to manually pump seawater into the overheating reactors to cool them and stave off complete meltdowns were emerging as heroes as they persevered in circumstances in which no radiation suit could completely protect them.

Japan's health ministry made what it called an "unavoidable" change Wednesday, more than doubling the amount of radiation to which the workers can be legally exposed.

"I don't know any other way to say it, but this is like suicide fighters in a war," said Keiichi Nakagawa, associate professor of the Department of Radiology at University of Tokyo Hospital.

The government asked special police units to bring in water cannons — usually used to quell rioters — to spray onto the spent fuel storage pool at unit 4.

"By deploying defense personnel and riot police, we're doing our best to tackle the situation by spraying water to cool down the reactors. We sincerely hope that this mission will go well," Shikata said.

Elevated levels of radiation were detected well outside the 20-mile (30-kilometer) emergency area around the plants. In Ibaraki prefecture, just south of Fukushima, officials said radiation levels were about 300 times normal levels by late Wednesday morning. It would take three years of constant exposure to these higher levels to raise a person's risk of cancer.

A little radiation has also been detected in Tokyo, triggering panic buying of food and water.

## **Isolated And Angry Amid Fukushima Nuclear Crisis (LAT)**

**An awful reality is setting in for those trapped near the stricken nuclear plant: People are afraid to help them.**

By Barbara Demick, Los Angeles Times, 5:18 Pm Pdt, March 16, 2011

[Los Angeles Times](#), March 17, 2011

An awful realization is setting in for those trapped in the vicinity of the crippled Fukushima nuclear complex: People are afraid to help them.

Residents describe spooky scenes of municipal cars driving down near-empty streets telling people to stay indoors, but they've seen few other signs of outside help.

Aid agencies are reluctant to get too close to the plant. Shelters set up in the greater Fukushima area for "radiation refugees" have little food, in part because nobody wants to deliver to an area that might be contaminated. And with little or no gasoline available, not everyone who wants to leave can get out.

Photos: Earthquake and nuclear crisis in Japan

Radiation fears mingled with a sickening sense of abandonment Wednesday.

"People who don't have family nearby, who are old or sick in bed, or couldn't get gasoline, they haven't been able to get away from the radiation," said Emi Shinkawa, who feels doubly vulnerable. Her house was swept away by the tsunami.

Her daughter, Tomoko Monma, knows she's lucky: At 9 a.m. Wednesday, she piled her family into the car, thankful for her husband's foresight in setting aside enough gasoline for them to make their escape.

But she's angry that people living outside the 12-mile evacuation zone around the nuclear plant weren't given help finding public transportation or the gasoline to drive away in their own cars. Monma lives 21 miles from the plant.

"We've gotten no help. We've gotten no information," said Monma, 28, who sat cradling her thumb-sucking 2-year-old daughter on the tatami mats that had been laid out in a sports center in Yamagata, 100 miles inland, which now serves as a shelter for people fleeing Fukushima.

"The government is demanding that we don't go out, but it isn't bringing us anything," Katsunobu Sakurai, the mayor of a city close to the exclusion zone, complained in an interview with the national NHK television network. "Truck drivers don't want to enter the city. They're afraid of being exposed to radiation.... If the government says we're in a dangerous area, it should take more care of us!"

The US Nuclear Regulatory Commission warned American citizens Wednesday that they should move at least 50 miles away from the Fukushima plant, which is leaking significant amounts of radioactivity. That warning is significantly stronger than the Japanese government's warning to keep 12 miles away.

Foreign aid workers in the area have been assessing the radiation risks, but many chose to remain just outside the 12-mile zone Thursday morning.

Casey Calamusa, a communications officer with Federal Way, Wash.-based World Vision who is coordinating the operation in Tokyo, said a three-member team went to Fukushima on Wednesday to distribute supplies such as water, blankets and diapers at an evacuation center. The team was equipped with protective masks and suits and stayed outside the exclusion zone, he said.

"They were playing it pretty safe. They were talking to local authorities and letting them know we wanted to help the evacuees," Calamusa said. "There is an imperative to help those people — they've had to leave their belongings behind and they're staying in shelters in near-freezing weather."

Officials at Westport, Conn.-based Save the Children were still trying to decide Wednesday whether to dispatch staff to Fukushima, weighing information from the Japanese government and their member group, Save the Children Japan, said spokesman Lane Hartill. The group already has staff responding in Tokyo and the northern city of Sendai.

"This is a first for us. We are a humanitarian organization — we don't know this. We're not nuclear physicists. We want to be able to protect our staff and to help people and their children," Hartill said.

The Fukushima No. 1 (Daiichi) plant, which opened in 1971, had been a good neighbor in many ways, providing jobs and subsidizing kindergartens, parks and community centers to gain residents' acceptance. Increasingly, those same neighbors are feeling betrayed.

Naoki Nanno, 30, who spent two years as a construction worker on the plant's reactors, complained that Tokyo Electric Power Co., the plant's operator, had been too slow in disclosing the problems that have mounted over the last few days. When one of the explosions occurred Monday, at the No. 3 reactor, Nanno was on the telephone with his brother.

"I heard a loud bang and I suspected it was an explosion at the nuclear plant, but they didn't announce it for another 20 minutes or so. There was radioactive material leaking after that explosion — we should have known about it right away," said Nanno, who lives 25 miles from the plant.

Takahiro Kori, 30, lost his house to the tsunami and barely escaped with his life: He could see the giant wave in his rear-view mirror as he sped away. After moving from shelter to shelter in Fukushima, each one with barely any food, he arrived Wednesday in Yamagata.

"I'm disgusted by the whole thing," Kori said.

"We were told our whole lives that the nuclear plant was safe," he said. "They told us even if there is a big earthquake or tsunami, it will never collapse. It all turned out to be lies."

For Japanese, the desperation has an added dimension: Already the name "Fukushima" is laden with something beyond the fear of damaged health.

The Japanese survivors of the 1945 atomic bombings of Hiroshima and Nagasaki lived the rest of their lives with the stigma of having been exposed to radiation, a stain that years never erased. Known as Hibakushas, they are formally recognized by the government if they lived within proximity of the blasts, and receive a special medical allowance.

But the designation also led to them being ostracized by other Japanese, who feared wrongly that the contamination was contagious or could be hereditary. The result was that many survivors of the bombings, and even their children, lived ghettoized lives because of their exposure to radiation.

The prospect of a similar stigma now worries some of those in and around the Fukushima plant.

"I am worried about the future," said a 65-year-old retired engineer from Sugagawa City, 30 miles from the plant, who was interviewed by phone and didn't want his name used:

"There could be some rumors that the people from this area are contaminated by radiation, and that people should not get close to us."

Photos: Earthquake and nuclear crisis in Japan

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Times staff writers Ralph Vartabedian and Molly Hennessy-Fiske in Los Angeles contributed to this report.

## Hope In Japan Mixes With Fear As Reality Rolls In (USAT)

By Elizabeth Weise, Usa Today

[USA Today](#), March 17, 2011

KESENNUMA, Japan — The Kesennuma highway winds through the snowy mountains in northern Japan and along the way are road signs pointing drivers to recreation spots for sailing or motorboating.

As the road emerges from the foothills at Kesennuma, the illusion of normalcy is shattered.

The first indication that something is amiss is the absence of lighting, then a few broken windows. Few people are outside.

As the valley opens up, an apocalyptic scene appears.

Where once there were clearly homes, stores and businesses is a plain of jagged wood and metal. A few concrete hulks, once buildings, are scattered throughout.

Millions of people struggled for a sixth day with inadequate food, heat and no water service. Temperatures hovered in the mid-30s, with biting winds and snow flurries. Police say more than 452,000 people are staying in temporary shelters, some sleeping on the floor in school gymnasiums.

Several thousand people are listed as missing.

The debris spreads over this small valley from the sea to the hillsides above. A clear line of debris runs 15 to 20 feet into the pine forest that cloaks the hillsides, showing how far the wall of water reached.

More than a dozen pine trees that faced the harbor, perhaps 100 feet tall, lay flattened like a line of toothpicks.

Lines of Japanese army trucks and jeeps head in and out. The Japanese army has set up a headquarters in the mountain town of Ichinoseki, which was untouched by the tsunami that roared into the coast here six days ago. The soldiers are coordinating recovery efforts, driving daily down into towns below.

Convoys of firetrucks, their lights flashing in the growing dusk, moved slowly out along the roadway back toward Ichinoseki for the night. Bulldozers have cleared the roads of wreckage, leaving block upon block of ruined buildings pristine in the freezing wind.

There did not appear to be recovery efforts taking place. It is so cold that it is unlikely anyone survived trapped so long. Winds of 15 mph to 30 mph and unusual low temperatures along with flurries throughout the day are making life harder on survivors, many of whom are without heat or have it only certain times of the day because of power blackouts.

The tsunami swept up homes and cars and then churned them into pieces like a giant sheet of sandpaper scrubbing everything in its wake. Concrete pads of buildings are surrounded by stacks of twisted metal and broken wood.

Clinging to the piles are streamers of plastic and cloth caught in jagged edges, flapping in the wind like obscene prayer flags.

The town's hospital still stands, its doors and windows blown out by the water. Patients' clothes are caught in the ceiling. A small boat is perched on what once was a third-story balcony. On the upper stories, fishing nets and floats hang from the roof.

There are no bodies. It was not known whether patients here were taken to safety in the time between the earthquake and when the tsunami hit.

Nearby, a cement platform and the gaping barrels of four heavy-duty washing machines are all that remain of what must have been a laundromat.

At the edge of one stack of timber is a squared piece of wood with a hand-cut mortise and tenon, the traditional joint used in many Japanese buildings. Next to it is a single drawer from a wooden desk or dresser, about the size of a telephone book, its silver pull still shiny.

Inside is a thin layer of sand and water deposited by an ocean that is now back a half-mile away.

In Natori, a list on the wall of City Hall reveals the dead. Some are named. Others are identified by short descriptions.

Female. About 50. Peanuts in left chest pocket. Large mole. Seiko watch.

Male. Seventy to 80 years old. Wearing an apron that says "Rentacom."

One set catches the eye of Hideki Kano, a man who appears to be in his 30s.

"I think that's my mom!" he says. Kano rushes out into the snow, headed for a makeshift morgue.

In the industrial town of Kamaishi, 70 British firefighters in bright orange uniforms clamber over piles of upturned cars to search a narrow row of pulverized homes.

One woman's body is found wedged beneath a refrigerator in a two-story home pushed onto its side.

"Today and tomorrow there is still hope that we will find survivors," says Pete Stevenson, head of the British rescue crews.

Those seeking loved ones have posted hopeful notes in temporary shelters and other public places. They cover the front windows of Natori City Hall, blocking the view inside:

"I'm looking for an old man, 75 years old, please call if you find him."

"Kento Shibayama is in the health center in front of the public gym."

"To Miyuki Nakayama: Everyone in your family is OK!"

Kesen is virtually a ghost town.

Miyuki Kanno, who lives a few miles away, rode his bicycle down a mud- and water-choked section of road looking for information about missing relatives.

"I don't know if the young people will come back, but they'll rebuild," he says.

Farther north in Ofunato, 72-year-old Keiichi Nagai is less sure.

He stands on the edge of a wasteland that used to be the low-lying part of the city. He shakes his head. "There's nothing left, there's nothing left."

He points at a fishing boat that he said destroyed his house.

"There's nothing left of this place," he says. "It's scary to live here now. There's a chance another tsunami will come. I won't live here. Maybe on the hill, but not here."

## **More Governments Advising Citizens To Leave Tokyo (AP)**

By Tomoko A. Hosaka, Associated Press

[Associated Press](#), March 17, 2011

TOKYO – Australia, Britain and Germany advised their citizens in Japan to consider leaving Tokyo and earthquake-affected areas, joining a growing number of governments and businesses telling their people it may be safer elsewhere.

The advisories came as the crisis at Japan's Fukushima Dai-ichi nuclear plant in the northeast deepened in the wake of last week's earthquake and ensuing tsunami.

Australia's Department of Foreign Affairs and Trade, however, said its advice to Australians had nothing to do with the threat of nuclear contamination from the damaged plant.

"We are providing this advice because of the continuing disruption to major infrastructure, its impact on the welfare of people on the ground and continuing aftershocks," its notice said.

Tokyo, which is about 140 miles (220 kilometers) south of the stricken nuclear complex, reported slightly elevated radiation levels Tuesday. Officials said the increase was too small to threaten the 39 million people in and around the capital, but some countries have relocated their embassies or suggested their citizens leave the area.

Germany's Foreign Ministry advised its citizens living near the nuclear plant or in the capital region to either leave the country or move to the Osaka area west of Tokyo.

Ministry spokesman Andreas Peschke said an estimated 5,000 Germans were in Japan before the earthquake, but now only about 1,000 are believed to remain in and around the capital. Germany's embassy in Tokyo also has been "partly relocated" to the consulate general in Osaka, Peschke said.

Britain's Foreign & Commonwealth Office advised against all nonessential travel to Tokyo and northeastern Japan, and urged British citizens within that zone to consider leaving.

France has urged its citizens with no reason to stay in Tokyo return to France or head to southern Japan. The government has asked Air France to mobilize aircraft in Asia to assist with departures.

Serbia and Croatia advised their citizens to leave Japan, while Croatia said it was moving its embassy from Tokyo to Osaka because of the nuclear crisis.

More than 3,000 Chinese have already been evacuated from Japan's northeast to Niigata on Japan's western coast, according to Xinhua News Agency. On Tuesday, Beijing became the first government to organize a mass evacuation of its citizens from the quake-affected area.

Other governments, including the US, are taking a more measured approach.

The White House recommended Wednesday that US citizens stay 50 miles (80 kilometers) away from the stricken nuclear plant, not the 20-mile (32 kilometer) radius recommended by the Japanese.

The order came after President Barack Obama met with top advisers and the chairman of the Nuclear Regulatory Commission. As late as Tuesday, the US had not issued its own recommendations, advising citizens instead to follow the recommendations of the Japanese.

The Philippine Embassy in Tokyo told its citizens to follow advisories issued by Japanese authorities. It added, however, that Filipinos who are concerned about possible radiation exposure "may wish to voluntarily relocate to areas further away, or depart voluntarily from the country using their own means."

If relocation and repatriation become necessary, the Philippine government will defray the costs involved, the Department of Foreign Affairs said in a statement.

An Indian software services company, L&T Infotech, on Wednesday ordered the temporary evacuation of 185 employees and their family members from Japan. It said in a release that it had chartered a special Kingfisher Airlines flight that will depart Friday to Chennai, India.

Cirque du Soleil has also decided to move its performers and staff working in Japan to Macau, spokeswoman Chantal Cote said in an e-mail. Its show "ZED" is based at Tokyo Disneyland, and the touring "KOOZA" show was performing at the Fuji Dome in Tokyo.

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Associated Press writers Rod McGuirk in Canberra, Australia, Erika Kinetz in Mumbai, Camille Rustici in Paris, Juergen Baetz in Berlin, and Joe McDonald in Tokyo contributed to this report.

## **Helicopters Dump Water On Nuclear Plant In Japan (CNN)**

CNN, March 17, 2011

Helicopters dumped water Thursday on and near the Nos. 3 and 4 units at Japan's Fukushima Daiichi nuclear plant in the latest attempt to halt the nuclear accident that appeared to be spinning out of control. The helicopters belong to the nation's self-defense forces, public broadcaster NHK reported.

Initially, just a few drops were carried out before the operation was suspended. An NHK commentator said about 100 would be needed for the operation to succeed.

During the afternoon, engineers were planning to begin the process of restoring power to the stricken nuclear complex, a government official said. The complex lost its power Friday, when a 9.0 earthquake followed by a tsunami hammered northeastern Japan.

"Today, we are trying to restore the power supply using the power lines from outside," said the official with the Nuclear and Industrial Safety Agency. "This is one of the high-priority issues that we have to address."

Once the power supply has been re-established, the cooling system will be operated using seawater, he said. But he warned that the process will not be immediate.

"It will take time to restore the function of the main part of the facilities, because the pumps were contaminated by seawater and must be repaired before reuse," he said, adding that temporary pumps would be used initially.

The move came a few hours after the head of the US Nuclear Regulatory Commission testified that spent fuel rods in Unit 4 of Japan's stricken Fukushima Daiichi nuclear plant had been exposed, resulting in the emission of "extremely high" levels of radiation.

"What we believe at this time is that there has been a hydrogen explosion in this unit due to an uncovering of the fuel in the fuel pool," Gregory Jaczko told a House energy and commerce subcommittee hearing Wednesday. "We believe that secondary containment has been destroyed and there is no water in the spent fuel pool, and we believe that radiation levels are extremely high, which could possibly impact the ability to take corrective measures."

A Japanese government spokesman, Noriyuki Shikata, said he saw Jaczko's testimony, but could not confirm it. "I cannot comment on the basis of the testimony itself," he told CNN.

Asked about the report of a high level of radioactivity near the plants, he said, "We have not seen the level that is, for example, dangerous to human bodies beyond the very close vicinity of the reactors."

In addition, he said, "we have not seen a major breach of containment."

The water served to both cool the uranium fuel and shield it. But once the uranium fuel was no longer covered by water, the zirconium cladding that encases the fuel rods heated, generating hydrogen, said Robert Alvarez, senior scholar at the Institute for Policy Studies and a former official with the Department of Energy.

That caught fire, resulting in a situation that is "very, very serious," he told CNN. He said the next step may involve nuclear plant workers taking heroic acts. Asked to be more specific, he said, "This is a situation where people may be called in to sacrifice their lives. ... It's very difficult for me to contemplate that but it's, it may have reached that point."

Photographs of the building released Wednesday by the power company showed a hole in a wall and deterioration of the roof.

A Japanese Self-Defense Force helicopter aborted its mission Wednesday to drop water over the reactor because of the high radiation levels in the area, Japanese public broadcaster NHK reported Wednesday.

Officials have been working to resolve cooling problems at four of Fukushima Daiichi's six reactors in the wake of the 9.0-magnitude earthquake and tsunami that devastated northeast Japan Friday.

The International Atomic Energy Agency said the temperature of water in spent fuel pools is typically kept below 25 degrees Celsius (77 degrees Fahrenheit). That requires a constant cooling source, which requires a constant power source, something not available at the plant in the aftermath of Friday's earthquake and tsunami.

"The concern about the spent fuel pools at Fukushima Daiichi is that sources of power to cool the pools may have been compromised," IAEA said in a statement. It listed the temperatures at the spent fuel pools Tuesday as 84.0 degrees C (183 F) at Unit 4; 60.4 degrees C (141 F) at Unit 5 and 58.5 degrees C (137 F) at Unit 6.

By Wednesday, it was reporting "no data" for Unit 4 and worrying trends for the other two: Unit 5 had risen to 62.7 degrees C (145 F) and Unit 6 had risen to 60.0 degrees C (140 F).

Three of the reactors were operating at the time of Friday's 9.0 earthquake and were shut down following their normal procedures, Jaczko said. All of them, he said, appeared to have suffered "some degree of core damage from insufficient cooling caused ultimately by the loss of off-site power and the inability of the on-site diesel generators to operate successfully following the tsunami."

Three reactors were being cooled with seawater and their primary containment vessels were described as "functional," he said.

But core cooling was "not stable" for unit No. 2, he said. Though the primary containment appeared to be functioning, "we believe that the spent fuel pool level is decreasing."

At unit No. 3, he said, the integrity of the spent fuel pool appeared to have been compromised and there may have been a reaction between the zirconium cladding and the water.

Jaczko's grim announcement confirmed fears that the nuclear crisis would worsen. They had already heightened earlier in the day, when officials observed white vapor rising from the Fukushima Daiichi nuclear plant's reactor No. 3.

Tests on tap water in Fukushima city, 80 kilometers (50 miles) away, found radiation, though at levels not harmful to the human body, and later tests showed no radiation in the water, government officials said.

IAEA Director General Yukiya Amano said Wednesday he will travel to Japan "as soon as possible, hopefully (Thursday)" to get the latest on the situation and to see how the U.N.'s nuclear watchdog agency can best help Japanese authorities, he said. He will stay one night, he added.

In Washington, military officials said Wednesday they had deployed an atmospheric detection aircraft, the WC-135W Constant Phoenix, to assist in detecting radioactive materials in the atmosphere around Japan.

The plane, normally based at Offutt Air Force Base in Nebraska, was moved Tuesday to Eielson Air Force Base in Alaska to prepare for its first sortie, the officials said.

The aircraft can "detect radioactive 'clouds' in real time," according to the Air Force.

Japan's chief cabinet secretary, Yukio Edano, initially said a breach in the containment vessel -- the steel and concrete shell that insulates radioactive material inside the reactor -- may have been the cause of Wednesday's white vapor. But he said later it was unlikely that the vessel suffered severe damage, the Kyodo news agency reported.

Officials told workers at the plant to evacuate Wednesday after the vapor rose above the plant and radiation levels spiked. Radiation levels later fell, and authorities allowed the workers to return, the Tokyo Electric Power Company said.

The number of nuclear workers remaining on site was slashed Tuesday from 800 to 50 but had grown to 180 by Wednesday afternoon, the power company said.

About 200,000 people living within a 20-kilometer radius of the plant have been evacuated; those living 20 to 30 kilometers from the site have been told to remain inside. Authorities also have banned flights over the area.

But the Japanese precautions were not universally embraced. Britain's foreign ministry joined the US Embassy in Tokyo late Wednesday in asking their respective citizens to evacuate or take shelter indoors if they live within 50 miles (80 kilometers) of the Fukushima Daiichi plant, both nations said in separate statements.

"Their standards are different from ours based on how far you should evacuate," White House spokesman Jay Carney said Wednesday. He called the situation "very fluid."

That view was confirmed by NRC's Jaczko. "For a comparable situation in the United States, we would recommend an evacuation to a much larger radius than has currently been provided in Japan," he said.



The US military also said it will not allow troops within 50 miles of the plant, Col. David Lapan, a Pentagon spokesman, said Wednesday.

US President Barack Obama was briefed Wednesday by the chairman of the US Nuclear Regulatory Commission on the "deteriorating situation" of the damaged nuclear reactors, Carney said.

The weather has emerged as a key concern, but on Wednesday afternoon, winds were blowing out to sea, CNN International Meteorologist Jennifer Delgado said.

As a result of the monitoring of about 150 people from around the Daiichi site, 23 have been decontaminated, IAEA said.

"Their situation is not great," said David Brenner, director of the Center for Radiological Research at Columbia University. "It's pretty clear that they will be getting very high doses of radiation. There's certainly the potential for lethal doses of radiation. They know it, and I think you have to call these people heroes."

A meltdown occurs when nuclear fuel rods cannot be cooled and the nuclear core melts. In the worst-case scenario, the fuel can spill out of the containment unit and spread radioactivity through the air and water. That, public health officials say, can cause both immediate and long-term health problems, including radiation poisoning and cancer.

## Teams At Reactor Hold Back Crisis (USAT)

By Dan Vergano

[USA Today](#), March 17, 2011

Emergency workers shuffled into and out of Japan's Fukushima Dai-ichi nuclear plant today as they scrambled to contain melting nuclear cores and even wider releases of dangerous radiation.

After temporarily evacuating the plant for five hours in the face of high radiation, the 180 workers, in shifts of 50 at a time, resumed pumping seawater into the plant's three damaged reactors.

The workers were hailed as heroes in Japan.

"I don't know any other way to say it, but this is like suicide fighters in a war," said Keiichi Nakagawa, associate professor of the Department of Radiology at University of Tokyo Hospital.

Meanwhile, concerns shifted to the spent nuclear fuel rods in pools above the reactors, which remain radioactive for years.

"Essentially they are open to the air," said physicist Edwin Lyman of the Union of Concerned Scientists.

If water in the pools drains off or is boiled away, exposing the rods, they will heat, crack and release radioactive elements.

"We could have significant releases of radioactive products," Lyman said.

That's a worry, because in the past two days, fires at two of those fuel rod pools have led to spikes in radiation that exceeded worker safety limits and triggered evacuations.

High radiation makes it too dangerous for workers to manually use hoses. Instead, Tokyo Electric Power Co. spokesman Naoki Tsunoda said that high-pressure firetruck hoses will spray water into the pools from a safe distance.

Government officials said they asked special police units to bring in water cannons — normally used to quell rioters — to spray water onto one of the fuel storage pools.

The cannons are thought to be strong enough to allow emergency workers to remain a safe distance from the complex, said Minoru Ogoda of Japan's nuclear safety agency.

Warning of the danger to workers within the reactor areas, US Nuclear Regulatory Commission chairman Gregory Jaczko, told the Senate that one pool has likely been depleted of water, though the power company denied the report.

Tsunoda also reported that a new outside power line would be connected to the plant. The electrical cooling systems were knocked out by Friday's magnitude-9.0 earthquake and tsunami, at the coast-hugging facility.

The reactors at the plant have numerous problems:

- Three reactors have partly-melted fuel rods. Two may have radiation leaks.
- Pumped seawater has not fully covered the damaged rods, keeping temperatures high and increasing hydrogen levels.
- Venting of the hydrogen has led to explosions that have so far, damaged two of the reactors.

Unlike the reactor fuel rods, the spent ones in the pools should contain very little radioactive iodine, the element linked to most of the cancers caused by the 1986 Chernobyl disaster, said radiation safety expert Henry Royal of Washington University School of Medicine in St. Louis and co-leader of a Chernobyl health study.

"The workers face a real exposure risk," Royal said. "But I don't think the general population really faces a significant one."

On Wednesday, Japan's Ministry of Health Labor and Welfare raised the maximum level of radiation exposure allowed for nuclear workers over the course of a year, calling the move "unavoidable due to the circumstances."

## US Nuke Chief: No Water Left In Spent Fuel Pool At No. 4 Reactor (USAT)

By Michael Winter

[USA Today](#), March 17, 2011

Update at 6:39 p.m. ET: The International Atomic Energy Agency has released temperature readings for the spent fuel pools at reactors 4, 5 and 6.

Normally, the pools are kept at 25 degrees Celsius (77 degrees Fahrenheit) or cooler. On Tuesday and Wednesday, the No. 4 reactor pool measured 84 degrees C (183 degrees F) but the agency had no reading for today.

Earlier today in Washington, US NRC Chairman Gregory Jaczko told a congressional panel that all the water had boiled out of the No. 4 pool and that "extremely high" levels of radiation might thwart emergency efforts to prevent a disaster. Water boils at 100 degrees C (212 degrees F).

At Unit 5, today's temperature reading was 62.7 degrees C (144.8 degrees F), up about 2 degrees from Tuesday. Today, the Unit 6 pool measured 60 degrees C (140 degrees F), up 1.5 degrees from Tuesday.

The head of the IAEA, Yukiya Amano, plans to visit Japan on Thursday "to see the situation for myself."

Update at 6:09 p.m. ET: Among the emergency efforts at the Fukushima plant, Tokyo Electric Co. says it is trying to install new power lines to restart the cooling systems that failed after Friday's magnitude 9 earthquake and resulting tsunami.

NHK TV says the plant operator hopes to run the new lines from another power plant through a makeshift switchboard Thursday, essentially creating giant jumper cables. High radiation thwarted work Wednesday.

NHK writes that TEPCO wants to finish the installation "as soon as possible after reviewing the procedures in order to keep the workers' radiation exposure to a minimum."

Update at 4:42 p.m. ET: A special police water cannon truck arrived early Thursday to spray the spent fuel rods in hopes of cooling them, Kyodo News says.

An official with Japan's Nuclear and Industrial Safety Agency said that the spent-fuel pool at the No. 3 reactor is also apparently boiling and that if cooling operations do not proceed well, the situation will "reach a critical stage in a couple of days."

ABC News is quoting a US official as saying that if the reactors and spent fuel rods aren't controlled in 24 to 48 hours, the results "could be deadly for decades."

US officials are urging Japanese officials to stop withdrawing workers because of radiation exposure and "get more people back in there."

"There is a recognition this is a suicide mission," one official said.

Japanese government sources said the US military will send a high-altitude, unmanned Global Hawk reconnaissance aircraft to take images of the inside of the No. 4 reactor building. That could happen Thursday.

The building's outer walls were damaged Tuesday by what appeared to be a hydrogen explosion.

Original post: There's no more water in the pool holding spent fuel rods at the No. 4 reactor of the Fukushima Dai-ichi nuclear plant, says the head of the US Nuclear Regulatory Commission, according to the Associated Press.

If all water is gone from the cooling pool, the exposed fuel rods will overheat and could possibly melt or even explode, spreading highly radioactive material.

NRC Chairman Gregory Jaczko did not say how he obtained that information.

The Japanese nuclear safety agency and the plant operator, Tokyo Electric Power Co., have denied the claim. A utility spokesman said the "condition is stable" at Unit 4.

The Union of Concerned Scientists has background on the pools. It also explains what happens if cooling in the spent fuel pools is stopped:

The radioactive particles in the fuel will continue to decay and produce additional heat. If the spent fuel cooling stops, this heat will raise the temperature of the spent fuel rods. At a high enough temperature the cladding of the rods will start to burn and produce hydrogen, which can explode.

The burning of the fuel rod will damage the cladding, allowing the release of radioactive gasses that were produced by the fission reactions when the fuel was in the reactor. Further heating can cause the fuel pellets within the cladding to begin to melt, which will release larger amounts of radioactive gases into the air.

The announcement comes on the heels of the US Embassy's advisory that Americans within 50 miles of the plant should evacuate as a precaution.

## **Japanese Military Helicopters Dump Water On Fukushima Nuclear Power Plant (NYPOST)**

[New York Post](#), March 17, 2011

Japanese military helicopters dumped water Thursday from huge buckets onto the stricken Fukushima nuclear power plant, NHK reported.

Three twin-rotor CH-47 Chinooks from the Japanese Self-Defense Forces (SDF) were used in the operation.

Two loads of seawater were dumped on the plant's damaged No. 3 reactor, with the third load dropped on the No. 4 reactor.

The helicopters have the capacity to dump 7.5 tons (6.8 tonnes) of water, but it was unknown how much water they were carrying.

Eleven water cannon trucks were also en route to the plant to spray water from the ground onto the No. 3 reactor.

Tokyo Electric Power Co. (TEPCO) said it was concerned about overheating at the No. 3 reactor's cooling pool, which was damaged in last Friday's 9.0-magnitude earthquake and following tsunami.

The SDF had planned to conduct the operation on Wednesday but was forced to abandon the mission due to high radiation levels.

Overheating has caused four hydrogen explosions and two fires at the plant as well as a partial meltdown at the No. 1, No. 2 and No. 3 reactors of the six-reactor facility, located about 155 miles (250km) northeast of Tokyo.

## **Japan Nuclear Crisis: NRC Says Spent Fuel Pool At Unit Four Has Lost Its Water (ABC)**

By David Muir, Jessica Hopper, Leezel Tanglao, Ben Forer

[ABC News](#), March 16, 2011

America's top nuclear official told Congress today that the pool cooling spent fuel rods at the crippled Japanese nuclear complex had lost most of its water or all of its water, a potentially catastrophic situation.

The Japanese quickly challenged that statement, but gave few details saying only that the situation at the holding pool was "stable."

Nuclear Regulatory Commission Chairman Gregory Jaczko said that the fuel pool at unit 4 at the the Fukushima Daiichi nuclear power plant had lost massive amounts of water.

"We believe at this point that unit 4 may have lost a significant inventory, if not lost all of its water," Jaczko told a hearing before the House Energy and Commerce Committee. "What we know at unit three, and again our information is limited, what we believe is that there is a crack in the spent fuel pool for unit three as well, which could lead to a loss of water in that pool."

The spent fuel rods are kept in pools of water to prevent them from overheating and ultimately melting down. The outer shell of the rods could also ignite with enough force to propel the radioactive fuel inside over a wide area.

Japan's nuclear safety agency and Tokyo Electric Power Co., which operates the complex, deny water is gone from the pool. Utility spokesman Hajime Motojuku told the Associated Press the "condition is stable" at unit 4.

Radiation levels have risen rapidly at the plant and there is a fear that the situation is heading for the worst. If levels continue to rise the doses emergency workers experience near the reactors could be lethal. One US Official told ABC News that "it would be hard to describe how alarming this is right now" and that a suicide mission might not even be enough to avert disaster.

Jaczko recommends that American citizens living within 50 miles of the Fukushima nuclear power plant evacuate the area.

"For a comparable situation in the United States we would recommend an evacuation to a much larger radius than has been provided in Japan," he said. "As a result of this recommendation, the Ambassador in Japan has issued a statement to American citizens that we believe it is appropriate to evacuate to a larger distance, up to approximately 50 miles."

Japan's current evacuation zone is 12 to 19 miles.

The recommendation comes as the Tokyo Electric Power Co. announced that the power line to the plant is almost complete and that the company plans to try it "as soon as possible." The line would revive electric-powered pumps, enabling a steady water supply to be maintained at the troubled reactors and spent fuel storage ponds, keeping them cool.

Surging radiation levels temporarily halted work to cool the troubled reactors at the plant earlier today, raising worries that officials are running out of options to stabilize the escalating catastrophe.

"We're very close now to the point of no return," Dr. Michio Kaku, a theoretical physicist, said. "It's gotten worse. We're talking about workers coming into the reactor perhaps as a suicide mission and we may have to abandon ship."

A group of 180 workers rotate shifts working at the plant in teams of 50 men. The men have been nicknamed the "Fukushima Fifty."

When radiation levels surged following a fire at Unit 4 and a rising cloud of radioactive vapor from unit 3, officials deemed it too risky for the plant workers to continue their critical work of pumping sea water on the damaged reactors and fuel ponds.

"The workers cannot carry out even minimal work at the plant now," Chief Cabinet Secretary Yukio Edano told the Associated Press. "Because of the radiation risk we are on standby."

Radiation levels were as high as 10 millisieverts per hour today, the equivalent of getting a CT scan for every hour of exposure. Radiation levels have since dropped and the plant workers are planning to return to work, officials said.

The Japanese government has actually amended its national safety standard on how much radiation workers can be exposed to so that workers can return to the plant. The limit is now 250 millisieverts, 2.5 times the previous limit.

In the aftermath of the 9.0 magnitude earthquake and tsunami, the growing fear of a nuclear meltdown has spread throughout Japan.

Emperor Akihito, a figure deeply respected in Japan, spoke for the first time since the Mar. 11 earthquake that has left at least 4,340 people dead. He tried to ease worries about the country's nuclear crisis.

"With the help of those involved I hope things will not get worse," Akihito, 77, said.

He offered his condolences to a grieving nation where at least 9,083 people are still missing and 434,00 are homeless.

"It is important that each of us shares the difficult days that lie ahead," Akihito said. "I pray that we will all take care of each other and overcome this tragedy."

In another sign of escalating nuclear danger, Cabinet Secretary Edano acknowledged that the containment vessels of some of the reactors are likely damaged. The Japan Atomic Industrial Forum confirmed damage to Units 2 and 3.

The last step in a nuclear meltdown is the breaching of the containment vessels. The fact that at least two containment vessels are damaged makes nuclear experts nervous.

"We have cracks now, cracks in the containment vessels...and if those cracks grow or if there's an explosion, we're talking a full blown Chernobyl, something beyond Chernobyl," Kaku said.

Some scientists believe that the accident level at the troubled plant should be escalated to a level 6, just one level lower than Chernobyl and two levels higher than the accident at Three Mile Island.

"I think the last ace in the hole is the Japanese Air Force, the military at some point may have to take over, may have to bury these reactors in concrete just like we did at Chernobyl, sandbagging the reactor with 5,000 tons of concrete, boric acid and sand," Kaku said.

Earlier today, government officials called off a plan for helicopters to dump seawater on the troubled reactors because of the heightened radiation levels.

The Japanese government has asked for the United States' help in the crisis.

Already, seven additional experts from the US Nuclear Regulatory Commission arrived in Japan today.

The United States government may be sending in a special nuclear team, made up of hundreds of US military personnel trained specifically for nuclear emergencies. They would be help respond to the disaster and offer aid to the local population if they suffered decontamination.

At least 140,000 people in the 12 mile radius around the plant have been evacuated. Those in a 12 to 19 mile radius of the plant have been ordered to stay indoors.

The mayor of Minami Soma, a town within that radius, said that residents are being stigmatized, Japanese broadcaster NHK reported.

"We are being labeled as contaminated lepers," he said.

The mayor said that drivers are refusing to transport supplies to them, NHK reported.

As Japan continues its rescue efforts, strong aftershocks continue to jolt the nation. Two aftershocks of magnitude 6.0 have hit Japan in the last 24 hours.

The Japanese are also bracing for a cold snap. Rain and snow is expected in the north. The worry for some is whether the snow will be radioactive.

## **Pools Storing Spent Fuel May Present Biggest Risk At Fukushima (BLOOM)**

By Kari Lundgren And Mehul Srivastava

[Bloomberg News](#), March 17, 2011

The greatest danger at the damaged Fukushima nuclear plant may come from the pools of water holding spent fuel that sit on top of the plant's six reactors.

Water pools used to keep spent rods have been heating up at three of the plant's six reactors, officials said. Left unchecked, that risks fire and possibly a nuclear reaction that spews radiation into the atmosphere, said Robert Kelley, an engineer in Vienna who used to lead the Nuclear Emergency Response at Los Alamos National Laboratory in New Mexico.

As water evaporates and exposes the fuel, the uranium in the rods can burn through a protective sheath emitting heat and radioactive Cesium. After that, the uranium could mix with any remaining water to start an uncontrolled nuclear reaction that sends radiation into the atmosphere, scientists said. Unlike the plant's reactors, the pools aren't encased in steel and concrete.

"Dissolving uranium in water is the way to make a certain kind of nuclear reactor," Kelley said in an e-mailed response to questions. "In this uncontrolled situation, the 'reactor' will have no human control and begin fissioning."

Water in the spent fuel pool at the No. 4 reactor may be boiling, Japan's Nuclear and Industrial Safety Agency said on March 15. Temperatures in the rod cooling pools of the shuttered No. 5 and No. 6 reactors rose to as high as 63 degrees Celsius (145 degrees Fahrenheit) at 2 p.m. yesterday from 60 degrees Celsius at 7 a.m., a Tokyo electric official said.

Japanese authorities are concerned about the condition of the pools of units 3 and 4, the International Atomic Energy Agency said yesterday. Military helicopters may be used to drop water on reactor No. 3 and workers are planning to spray water into unit 4, according to the IAEA.

The crisis at Fukushima worsened yesterday when Tokyo Electric said the containment chamber at the No. 2 reactor may have been breached because pressure dropped suddenly. Clouds of steam were seen rising from the reactor building after a fire at the No. 4 Reactor. The 50 workers remaining at the plant were pulled out yesterday after radiation temporarily rose to unsafe levels. They later returned.

Japan seems to be worried about the balance between the health of the workers and the safety of the site," said Tony Roulstone, an atomic engineer who directs University of Cambridge's master's program in nuclear energy. "Higher radiation on the plant makes it harder for the workers to stay there and do what they need to cool it."

The way to stop the spent rods from reaching this critical heat and mass is to flood their pools with water and large quantities of boric acid, similar to the mixture being used to cool the reactors, scientists said. Getting water into the fuel ponds on the roofs of the building is complicated, said Kelley.

"If you just drop water on there you don't know where it's going to land, if it will disturb ponds or the reactor," Cambridge's Roulstone said. "It's much better to observe what's going on and add water; shows a level of desperation and brings in uncertainty."

The risk of the fuel ponds getting hot enough to start a nuclear reaction remains remote, said Geoff Parks, a nuclear engineer, also at the University of Cambridge. The pond would need to reach about 2,200 degrees Celsius (4,000 degrees Fahrenheit), he said.

Tokyo Electric is building a cable to supply power to the plant's cooling systems, a spokesman said. The systems were knocked out by the March 11 earthquake and tsunami and the company has been pumping seawater into the reactors to keep them from melting down.

The highest measurement of radiation so far taken at the plant was 400 millisieverts, 20 times the annual limit for nuclear industry employees and uranium miners, according to the World Nuclear Association.

"I see this as an all or nothing situation," said Kelley. "If any one of the three cores in danger, or any of the six spent fuel ponds has a massive failure then the workers will have to leave as they did last night and then it will be a domino effect that the whole site will be out of control and spewing contamination."

## **US Nuclear Official Calls Radiation Level 'Extremely High' (FT)**

By Stephanie Kirchgaessner And Richard McGregor

[Financial Times](#), March 17, 2011

Full-text stories from the Financial Times are available to FT subscribers by clicking the link.

## **US Official: 'Partial Meltdown' At Japanese Plant (WSJ)**

By Tennille Tracy

[Wall Street Journal](#), March 17, 2011

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

## **Bigger Evacuation Area Needed For Japan Reactors: NRC (REU)**

By Tom Doggett

[Reuters](#), March 17, 2011

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

## **Mixed Signs Coming Out Of Japan's Nuclear Reactors (AP)**

By Eric Talmadge And Mari Yamaguchi

[Associated Press](#), March 17, 2011

FUKUSHIMA, JAPAN—Nuclear plant operators trying to avoid complete reactor meltdowns said Thursday that they were close to completing a new power line that might end Japan's crisis, but several ominous signs have also emerged: a surge in radiation levels, unexplained white smoke and spent fuel rods that US officials said could be on the verge of spewing radioactive material.

US Nuclear Regulatory Commission Chairman Gregory Jaczko said in Washington on Wednesday that all the water was gone from the spent fuel pools at Unit 4 of the Fukushima Daiichi complex, but Japanese officials denied it. Hajime Motojuku, spokesman for plant operator Tokyo Electric Power Co., said the "condition is stable" at Unit 4.

If Jaczko is correct, it would mean there's nothing to stop the fuel rods from getting hotter and ultimately melting down. The outer shells of the rods could also ignite with enough force to propel the radioactive fuel inside over a wide area.

Jaczko did not say how the information was obtained, but the NRC and US Department of Energy both have experts at the complex of six reactors along Japan's northeastern coast, which was ravaged by last week's magnitude-9.0 earthquake and subsequent tsunami.

The conditions at the plant appeared to worsen, with white smoke pouring from the complex and a surge in radiation levels forcing workers to retreat for hours Wednesday from their struggle to cool the overheating reactors.

As international concern mounted, the chief of the U.N. nuclear agency said he would go to Japan to assess what he called a "serious" situation and urged Tokyo to provide better information to his organization.

Japanese officials raised hopes of easing the crisis, saying early Thursday that they were close to completing a new power line that could restore the reactors' cooling systems.

Naoki Tsunoda, a spokesman for Tokyo Electric Power Co., or TEPCO, said the new power line to the Fukushima Daiichi plant was almost finished and that officials planned to try it "as soon as possible," but he could not say exactly when.

The new line could revive electric-powered pumps, allowing the company to maintain a steady water supply to troubled reactors and spent fuel storage ponds, keeping them cool. The company is also trying to repair its existing disabled power line.

Late Wednesday, government officials said they'd asked special police units to bring in water cannons — normally used to quell rioters — to spray water onto the spent fuel storage pool at Unit 4.

The cannons are thought to be strong enough to allow emergency workers to remain a safe distance from the complex while still able to get water into the pool, said Minoru Ogoda of Japan's nuclear safety agency.

TEPCO said it was also considering using military helicopters to douse the reactors with water, after giving up on such a plan because of high radiation levels in the atmosphere.

Wednesday's pullback by workers who have been pumping seawater into the reactors cost valuable time in the fight to prevent a nuclear meltdown, a nightmare scenario following the horrific earthquake and tsunami. The disasters last Friday pulverized Japan's northeastern coast and are feared to have killed more than 10,000 people.

The tsunami destroyed the complex's backup power system and left operators unable to properly cool nuclear fuel. The 180 emergency workers have been working in shifts to manually pump seawater into the reactors.

Japan's emperor, in an unprecedented made-for-TV speech, called on the country to work together.

"It is important that each of us shares the difficult days that lie ahead," said Akihito, 77. "I pray that we will all take care of each other and overcome this tragedy."

He also expressed his worries over the nuclear crisis, saying: "With the help of those involved I hope things will not get worse."

But officials are also taking increasing criticism for poor communication about efforts at the complex. There has been growing unease at the U.N.'s International Atomic Energy Agency's 35 board member nations, who have complained that information coming from Japan on the rapidly evolving nuclear disaster is too slow and vague.

IAEA head Yukiya Amano spoke of a "very serious" situation and said he would leave for Tokyo within a day.

He said it was "difficult to say" if events were out of control, but added, "I will certainly have contact with those people who are working there who tackled the accident, and I will be able to have firsthand information."

The nuclear crisis has partly overshadowed the human tragedy caused by Friday's 9.0-magnitude earthquake, one of the strongest recorded in history.

Millions of Japanese have been with little food and water in heavy snow and rain since Friday. In some towns, long lines of cars waited outside the few open gas stations, with others lined up at rice-vending machines.

National broadcaster NHK showed mammoth military helicopters lifting off Friday afternoon to survey radiation levels above the nuclear complex, preparing to dump water onto the most troubled reactors in an effort to cool them down.

The defence ministry later said those flights were a drill — then later said it had decided against making an airborne drop because of the high radiation levels.

"The anxiety and anger being felt by people in Fukushima have reached a boiling point," the governor of Fukushima prefecture, Yuhei Sato, fumed in an interview with NHK. He criticized preparations for an evacuation if conditions worsen, and said centres do not have enough hot meals and basic necessities.

More than 4,300 people are officially listed as dead, but officials believe the toll will climb to well over 10,000. Police say more than 452,000 people are staying in temporary shelters such as school gymnasiums.

Wednesday's radiation spike was believed to have come from the complex's Unit 3. But officials also acknowledged that they were far from sure what was going on at the four most troubled reactors, including Unit 3, in part because high radiation levels made it difficult to get very close.

While white smoke was seen rising Wednesday above Unit 3, officials could not ascertain the source. They said it could be spewing from the reactor's spent fuel pool — cooling tanks for used nuclear rods — or may have been from damage to the reactor's containment vessel, the protective shell of thick concrete.

Masahisa Otsuki, an official with TEPCO, said officials are most concerned about the spent fuel pools, which are not encased in protective shells.

"We haven't been able to get any of the latest data at any spent fuel pools. We don't have the latest water levels, temperatures, none of the latest information for any of the four reactors," he said.

In the city of Fukushima, meanwhile, about 40 miles (60 kilometres) inland from the nuclear complex, hundreds of harried government workers, police officers and others struggled to stay on top of the situation in a makeshift command centre.

An entire floor of one of the prefecture's office buildings had been taken over by people tracking evacuations, power needs, death tolls and food supplies.

Elevated levels of radiation were detected well outside the 20-mile (30-kilometre) emergency area around the plants. In Ibaraki prefecture, just south of Fukushima, officials said radiation levels were about 300 times normal levels by late morning. It would take three years of constant exposure to these higher levels to raise a person's risk of cancer.

A little radiation was also detected in Tokyo, triggering panic buying of food and water.

Given the reported radiation levels, John Price, an Australian-based nuclear safety expert, said he saw few health risks for the general public so far. But he said he was surprised by how little information the Japanese were sharing.

"We don't know even the fundamentals of what's happening, what's wrong, what isn't working. We're all guessing," he said. "I would have thought they would put on a panel of experts every two hours."

Chief Cabinet Secretary Yukio Edano said the government expects to ask the US military for help, though he did not elaborate. He said the government is still considering whether to accept offers of help from other countries.

There are six reactors at the plant. Units 1, 2 and 3, which were operating last week, shut down automatically when the quake hit. Since then, all three have been rocked by explosions. Compounding the problems, on Tuesday a fire broke out in Unit 4's fuel storage pond, an area where used nuclear fuel is kept cool, causing radioactivity to be released into the atmosphere.

Units 4, 5 and 6 were shut at the time of the quake, but even offline reactors have nuclear fuel — either inside the reactors or in storage ponds — that need to be kept cool.

Meanwhile, Japan's Nuclear and Industrial Safety Agency estimated that 70 per cent of the rods have been damaged at the No. 1 reactor.

Japan's national news agency, Kyodo, said that 33 per cent of the fuel rods at the No. 2 reactor were damaged and that the cores of both reactors were believed to have partially melted.

## **No Water In Spent Fuel Pool Of Japan Nuclear Plant, Says NRC (AP)**

[Associated Press](#), March 17, 2011

FUKUSHIMA, Japan - Nuclear plant operators in Japan trying to avoid complete reactor meltdowns say they're close to completing a new power line that might end the crisis.

But several ominous signs have also emerged: a surge in radiation levels, unexplained white smoke and spent fuel rods that US officials say could be on the verge of spewing radioactive material.

US Nuclear Regulatory Commission Chairman Gregory Jaczko said in Washington that all the water was gone from the spent fuel pools at Unit 4 of the Fukushima Dai-ichi complex.

Japanese officials denied it.

If Jaczko is correct, it would mean there's nothing to stop the fuel rods from getting hotter and ultimately melting down.

The outer shell of the rods could also ignite with enough force to propel the radioactive fuel inside over a wide area.

Gregory Jaczko did not say Wednesday how the information was obtained, but the NRC and US Department of Energy both have experts on site at the Fukushima Dai-ichi complex of six reactors.

He says officials believe radiation levels are extremely high, and that could affect workers' ability to stop temperatures from escalating.

Tokyo Electric Power Co. spokesman Naoki Tsunoda said early Thursday the power line to Fukushima Dai-ichi is almost complete. Officials plan to try it "as soon as possible" but he could not say when.

The new line would revive electric-powered pumps, allowing the company to maintain a steady water supply to troubled reactors and spent fuel storage ponds, keeping them cool.

US breaks with Japan over power plant warnings

The White House is recommending US citizens stay 50 miles away from the Fukushima-Daiichi nuclear power plant, not the 20-mile radius recommended by the Japanese.

The order comes after President Obama met Wednesday with top advisers and NRC's Jaczko.

As late as Tuesday, the US had not issued its own recommendations, advising citizens instead to follow the recommendations of the Japanese.

White House spokesman Jay Carney said the move does not signal a lack of confidence in Japan. He says the NRC is using its own data and making its recommendation on how it would handle the incident if it happened in the US

Carney said the White House consulted with the Japanese government before making the recommendation.

## **Japan Nuclear Reactor Cores May Have Been Damaged (BLOOM)**

By Tsuyoshi Inajima, Shigeru Sato

[Bloomberg News](#), March 16, 2011

March 16 (Bloomberg) -- Tokyo Electric Power Co. can't rule out the possibility of damage to the cores of the No. 1 and No. 2 reactors at its crippled Fukushima Dai-ichi nuclear power complex, company spokesman Daisuke Hirose said.

Streams of white smoke or steam could be seen rising from the reactor buildings starting at 10:15 a.m. and moving west toward land. Seventy percent of the uranium-plutonium fuel rods at the plant's No. 1 reactor may be damaged as of 3:30 p.m. yesterday. About one-third of the No. 2 reactor's fuel may have been damaged, Hirose said. Temperatures in the spent fuel rod cooling pools of the shuttered No. 5 and No. 6 reactors were rising as of 7 a.m., said Tsuyoshi Makigami, head of nuclear maintenance at Tepco.

A fire broke out at the No. 4 reactor of the plant today, where engineers are battling to contain the spread of radiation. The blaze, at the same place as one yesterday, was reported at 5:45 a.m. local time. The company couldn't confirm if the fire was extinguished as radiation levels prevented workers from approaching the fire, Hirose said.

Prime Minister Naoto Kan, facing a nation reeling from its strongest earthquake on record, said yesterday the danger of further radiation leaks increased at the nuclear complex, 135 miles north of Tokyo. That sent the nation's Topix stock index to its biggest two-day drop since 1987 as concern grew about the government's ability to contain the crisis.

The wind at the stricken plant is forecast to blow this morning to the south at 2 to 5 meters a second, Japan's Meteorological Agency said. Later in the day, it's expected to blow to the southeast at speeds of as much as 12 meters a second. The forecast, posted on the agency's website, is as of 6 a.m. local time.

Tokyo Electric engineers restored water levels at the plant yesterday, helping drive down radiation after residents within 30 kilometers (19 miles) were ordered inside to avoid contamination.

Water supply at the No. 1 and No. 3 reactors stabilized, and radiation readings at the front gate of the plant dropped to a level that isn't "harmful to the human body," Chief Cabinet Secretary Yukio Edano said yesterday in Tokyo.

Asia's biggest utility reported yesterday that the containment chamber of the No. 2 reactor may be damaged after an explosion in the morning, and radiation leakage was possible.

The building that houses the inactive No. 4 reactor at the nuclear plant has two holes in it and water in the spent fuel pool may be boiling, Hidehiko Nishiyama, deputy director-general of Japan's Nuclear and Industrial Safety Agency, said in Tokyo yesterday.

Exposed to air, the fuel bundles could chemically react with moisture, catch fire and spread radiation, said Edwin Lyman, a physicist with the Union of Concerned Scientists.

Conditions would become deadly for any worker trying to refill the pool with a fire hose, the standard solution, said David Lochbaum, director of nuclear safety for the Cambridge, Massachusetts-based watchdog group and a former staffer at the US Nuclear Regulatory Commission.

A Tokyo Electric worker at the Fukushima nuclear plant is being treated for radiation exposure, said Toshiro Bannai, director of international affairs for the Tokyo-based agency. Tokyo Electric said it hadn't decided whether to bring workers back after the utility evacuated 750 of its 800 employees following yesterday morning's blast.



About 50 workers remained at the plant to manage the reactors, Hikaru Kuroda, head of nuclear maintenance at the Japanese utility, said yesterday.

The latest incidents follow a blast at the No. 3 reactor March 14 after a buildup of hydrogen gas, and a similar explosion at the No. 1 reactor on March 12.

Japan informed the International Atomic Energy Agency about the explosion at the No. 2 reactor and reported a fire at the No. 4 unit's spent fuel pond that released radioactivity directly into the atmosphere, the IAEA said in a statement yesterday.

About 140,000 people within a radius of 20 to 30 kilometers from the plant were ordered to stay indoors. The magnitude-9 March 11 temblor and subsequent tsunami have led to what Kan has called the country's worst crisis since World War II.

## **Atomic Agency's Assessment Lags (WSJ)**

By David Crawford And Flemming Hansen

[Wall Street Journal](#), March 17, 2011

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

## **G-7 Finance Chiefs To Discuss Measures To Help Japan (NYT)**

By Matthew Saltmarsh

[New York Times](#), March 17, 2011

PARIS — France is arranging a discussion among finance ministers and central bankers from the Group of 7 countries to assess the economic effects of the crisis in Japan and a possible response.

The French economy minister, Christine Lagarde, said after a cabinet meeting Wednesday that she had convened the discussion to see "how we can react on a financial level."

A French official, who was not authorized to speak publicly, said the talks would cover measures to support Japan, improve liquidity if needed and calm financial markets. The official said the discussion was likely to take place by conference call Thursday or Friday, depending on the availability of hard-pressed Japanese officials.

Given the level of Japan's foreign exchange reserves and the wealth of the country, it is not envisaged at this stage that its partners would need to provide direct financial assistance.

But officials in Paris believe they have tools of monetary policy and foreign-exchange coordination that could be used to improve the situation. The Japanese government is keen to avoid excessive appreciation of the yen as it deals with the immediate aftermath of the earthquake and tsunami and the ensuing nuclear power emergency.

In particular, officials in Paris feel that the European Central Bank still has room to maneuver — certainly compared with the US Federal Reserve — in terms of using monetary tools to bolster liquidity in markets.

Still, global central bankers have plenty of options to choose from if the situation in Japan and global markets deteriorates. One initial plan could center around opening lines of credit among major central banks. Similar facilities were opened by some central banks after the terrorist attacks in the United States in 2001 and the financial market contagion in 2008 and 2009.

In this case, the Bank of Japan would provide a steady stream of yen to the Federal Reserve and the European Central Bank, ensuring that private banks would have easy access to the Japanese currency. Demand for yen has been rising in recent days, as Japanese insurers and other financial firms sell their most liquid assets like stocks and commodities to generate cash to use at home for rebuilding efforts.

This in effect is a reversal of past central bank measures, where the Federal Reserve provided dollars to foreign central banks to ensure that banks had an adequate supply of dollars.

The discussions would also involve a broad look at the economic implications of the crisis, both for Japan and other countries, including its effects on growth and the supply of energy.

Ministers from the G-7 countries are scheduled to talk formally next month at the spring meetings of the International Monetary Fund and World Bank.

France currently presides over both the Group of 8 of industrialized countries and the Group of 20 club of rich and developing countries. The G-8 has been a forum of foreign affairs, energy and security cooperation, while the G-7 has focused more on financial issues.

Separately, President Nicolas Sarkozy told his cabinet on Wednesday that he would convene a meeting of energy and economy ministers from the G-20 in coming weeks "to discuss the broad energy options for the world of tomorrow."

Eric Dash contributed reporting from New York.

## **NRC Chief Warns Of Risks As Japanese Flee Tsunami Region (BSWK)**

By Jonathan Tirone, Stuart Biggs And Simon Lomax  
[BusinessWeek](#), March 17, 2011

Japan's crippled nuclear power plant is releasing "extremely high" levels of radiation that could be life-threatening, the head of the US Nuclear Regulatory Commission told lawmakers as hundreds of Japanese fled south of areas hit by last week's earthquake and tsunami.

All the water in one of the Fukushima Dai-Ichi power plant's spent-fuel cooling pools has drained, NRC Chairman Gregory Jaczko told a House Energy and Commerce Committee panel in Washington. "Radiation levels are extremely high, which could possibly impact the ability to take corrective measures," he said.

Japanese officials denied that the water from the cooling pools was gone, the Associated Press reported.

Tokyo Electric Power Co. workers are struggling to prevent a nuclear meltdown at the complex, which has six reactors, 135 miles (217 kilometers) north of Tokyo. With his nation still reeling from strongest earthquake to hit it on record and a resulting tsunami, Japanese Prime Minister Naoto Kan said on March 15 the danger of further radiation leaks has increased.

The United Nations' nuclear agency plans an emergency meeting on the crisis. Japan faces a "serious situation," Yukiya Amano, head of the International Atomic Energy Agency, told reporters in Vienna before departing for talks with authorities in Tokyo today.

Amano said fuel stored in units 4, 5 and 6 at the Tepco facility is exposed and releasing radiation. Separately, Tepco official Masahisa Otsuku said the No. 2 reactor's containment vessel may have been breached.

'Bad Movie'

"It looks like a bad movie," Angel Gurria, secretary-general of the Organization for Economic Cooperation and Development, told a London news conference. "You wouldn't believe a movie that had the largest ever earthquake, a huge tsunami and then, of course, several of the reactors are now acting up." Still, he said, Japan has "recovered with great resilience from past tragedies."

Japanese stocks rebounded as investors bet that the 9.5 percent drop on March 15, the biggest decline in 2½ years, was excessive. The Topix index closed 6.6 percent higher yesterday. Plywood-maker Kanematsu-NNK Corp. jumped 38 percent.

In the wake of Jaczko's remarks, Nikkei 225 Stock Average futures in Chicago showed the benchmark measure of Japanese shares may drop today.

Reconstruction Needs

The earthquake and tsunami will boost the yen as the economy's focus shifts from exports to reconstruction, increasing demand for raw-material imports and fueling the commodity boom, HSBC Holdings Plc said.

"The destruction of infrastructure will require a massive reconstruction effort," HSBC economists including London-based Stephen King and Madhur Jha said in a note to clients. "The yen should rise to divert resources away from exports toward domestic reconstruction."

The yen was at 80.05 per dollar at 3:04 a.m. in Tokyo, the strongest since April 1995, when it touched a post-World War II high of 79.75.

Tepco said it's building a power line to the Dai-Ichi plant's cooling systems, which were knocked out by the quake. US stocks pared losses after the Associated Press reported that Tepco said the power line was almost ready. Later, company spokesman Sakio Iwamoto said the timing hadn't been determined.

The failure of backup generators used to pump cooling water caused explosions in at least three of structures surrounding the station's reactors, as well as a fire in a pond containing spent fuel rods.

Spent-Fuel Pools

Temperatures in the spent-fuel-rod cooling pools of the shuttered No. 5 and No. 6 reactors were rising to as high as 63 degrees Celsius (145 degrees Fahrenheit) at 2 p.m. yesterday, said Tsuyoshi Makigami, head of nuclear maintenance at Tepco. Water levels at spent fuel pools at the three inactive reactors, Nos. 4, 5 and 6, dropped by about 2 meters, exposing the fuel rods, Amano said.

Exposed to air, the fuel bundles could chemically react with moisture, catch fire and spread radiation into the atmosphere, said Edwin Lyman, a physicist with the Union of Concerned Scientists, based in Cambridge, Massachusetts.

"Spent fuel is pretty hot and so it is stored under water to keep it cool," said Kelley, who worked for 30 years at the US Energy Department. "If the water leaks or boils away, then the fuel is exposed," then after burning, the uranium corrodes and releases cesium, contaminating the area, he said.

Peak-Level Threat

The NRC's Jaczko said radiation at the Japanese site is fluctuating and at peak levels "would be lethal within a fairly short period of time."

He told reporters later that the information came from NRC staff that were dispatched to Japan to help with the response and have been in contact with industry officials there.

Jaczko's assessment prompted the US to recommend American citizens living within 50 miles (80 kilometers) of the plant evacuate or take shelter indoors as a precaution against possible radiation exposure. That exceeded the Japanese government's recommendation of a 12-mile (20-kilometer) zone.

A core group of 50 workers remain at the plant to manage the reactors, Tepco said. Those engineers were temporarily evacuated yesterday when dangerous radiation levels were detected, but have now returned, chief government spokesman Yukio Edano said.

#### Fleeing Region

For the past days, people have been fleeing the region toward Tokyo. In the capital, supermarkets reported panic buying of household goods and fears of nuclear contamination have prompted some people to leave the city. Four-hundred kilometers southwest of Tokyo in Osaka, some hotels said they were fully booked.

SAP AG, the world's biggest business software company, said it has reserved 520 rooms in Osaka and Kobe that employees and their families can use. Austria's ambassador in Japan is leaving Tokyo because of the reactors' "unpredictability" and will work from Osaka, the state-run Austrian Press Agency reported. The German government said yesterday it is moving part of its embassy operations to Osaka.

The French and German embassies have recommended that all their citizens leave Japan.

Hong Kong-based Cathay Pacific Airways Ltd. is flying two extra flights from Tokyo today due to "rapidly increasing demand from people wishing to return home to Hong Kong and elsewhere," Chief Operating Officer John Slosar said in an e-mailed statement.

#### Flights Diverted

Alitalia SpA joined Deutsche Lufthansa AG in rerouting flights away from Tokyo. Alitalia will divert its 14 weekly trips to Tokyo from Rome and Milan to the southern city of Osaka, which it already serves with four weekly flights, the company said in a statement yesterday.

A magnitude 6 aftershock to the east of Sendai shook buildings in Tokyo at 12:52 p.m. local time yesterday, according to the US Geological Survey. There have been more than 450 aftershocks since the magnitude-9 temblor left hundreds of thousands stranded and without power, with disruptions to food and water supplies. The Japanese government has dispatched 100,000 troops to the northeastern region.

The official death toll at 4 p.m. local time yesterday was 3,771 people, with 8,181 missing, the National Police Agency said. The tsunami and fears of a meltdown at the plant forced 451,059 people from their homes.

Eleven of Japan's 54 reactors have been operating for 35 years or more. Two of those rank among the 10 oldest operating units in the world, according to the World Nuclear Association.

## Japan Nuclear Crisis: US Navy Monitoring Health Threat To Forces (CSM)

**Some US naval forces engaged in earthquake relief efforts have been exposed to low levels of radiation from the Japan nuclear crisis. The Navy is keeping its ships out of the radiation 'plume' and is taking precautions.**

By Anna Mulrine, Staff Writer

[Christian Science Monitor](#), March 17, 2011

Washington

The US military is keeping a watchful eye on the health of US forces in Japan and on radiation levels emitted by Japan's Fukushima I nuclear power plant as it continues its extensive relief efforts in the wake of the country's massive 9.0 earthquake and accompanying tsunami.

There is reason for concern among US military officials. Already the US Navy's 7th Fleet was forced to reposition its ships and aircraft "after detecting low-level contamination in the air and on its aircraft operating in the area," according to a statement released by the fleet Monday.

In the meantime, the Navy continues to closely measure radiation levels – and ensure that its ships are not downwind from the endangered plant. "We continue to reposition our ships away from what's known as 'the plume,' " says Palmer Pinckney, chief of public affairs for the US Navy's 7th Fleet.

RELATED: Japan's nuclear crisis: A timeline of key events

Perhaps the most alarming development is that radiation has also been detected on US troops themselves. Three helicopter air crews – or about 17 US military personnel – returning to the USS Ronald Reagan after taking part in relief

operations near the city of Sendai over the weekend were found to have higher-than-normal radiation levels coming from their bodies.

On Tuesday the 7th Fleet said that two military service members aboard the Ronald Reagan were given potassium iodide pills as a precaution after they were exposed to radiation, but that no troops have shown any sign of radiation poisoning. On Wednesday, the fleet said, a number of helicopter crews were given the tablets before flying their sorties, which would take them within 70 nautical miles of the reactors.

"The low-level radioactivity was easily removed from affected personnel by washing with soap and water," according to the Monday statement, which added that the helicopter crew members returning to the Ronald Reagan "were subsequently surveyed, and no further contamination was detected." "Not a cause for alarm"

The US military is seeking to put their levels of exposure in perspective for the remainder of ships' crews operating in the area.

"It's important to note that the levels of radiation these air crew members are being exposed to are very, very low and not a cause for alarm," Mr. Pinckney says. "It is something that we have to watch very carefully and make sure that we are able to monitor and mitigate against."

According to the statement released by the fleet, "The maximum potential radiation dose received by any ship's force personnel aboard the ship when it passed through the area was less than the radiation exposure received from about one month of exposure to natural background radiation from sources such as rocks, soil, and the sun."

Nonetheless, the US military's plans have been affected by Japan's escalating nuclear crisis, which "now appears more serious than Three Mile Island," according to US Secretary of Energy Steven Chu, who gave the assessment in testimony on Capitol Hill Wednesday.

The fleet's command decided to move the USS Ronald Reagan, along with other 7th Fleet ships conducting disaster response operations in the area, "out of the downwind direction from the site to assess the situation and determine what appropriate mitigating actions are necessary," according to the statement.

The USS Ronald Reagan was operating about 100 miles northeast of the crippled nuclear power plant at the time of the radiation exposure.

Likewise, the commander of US naval forces in Japan ordered that further precautionary measures for US service members and their families be taken after the USS George Washington, which is docked in Yokosuka, south of Tokyo and some 200 miles from the nuclear plants, "detected low levels of radioactivity" emanating from the Fukushima I nuclear plant.

To this end, the commander ordered that US residents living on bases in Yokosuka and the nearby Atsugi naval air facility limit outdoor activities and keep windows closed and ventilation systems shut "as much as practical."

Again, the commander endeavored to reassure the base community. "These measures are strictly precautionary in nature. We do not expect that any United States Federal radiation exposure limits will be exceeded even if no precautionary measures are taken." Relief effort continues

Even as these warnings were issued, US service members continued the relief mission. Since the earthquake, US troops have delivered more than 25 tons of humanitarian aid – including food, water, and blankets – to some 2,000 people in the affected area and rescued upwards of 752 earthquake survivors, according to Pinckney.

Some politicians questioned whether the Obama administration should risk exposing US troops to radiation for a humanitarian mission. "We're not going to put any troops in harm's way," says Pinckney. He added, too, that "safety is the utmost concern, but the mission has to go on."

He also stressed the Navy's experience with nuclear matters. "What's important here is to understand that no one does this better than the Navy. The Navy knows nuclear," he adds, "and how to do it safely."

RELATED: Japan's nuclear crisis: A timeline of key events

## **Yen Hits Postwar Record Against The Dollar (FT)**

By Michael Mackenzie In New York And James Politi

[Financial Times](#), March 17, 2011

Full-text stories from the Financial Times are available to FT subscribers by clicking the link.

## **Yen Hits Record High After US Warning On Reactor (NYT)**

By Bettina Wassener

[New York Times](#), March 17, 2011

HONG KONG — The Japanese stock market sank again Thursday morning and the yen hit a record high against the US dollar after a US nuclear official warned that the situation at a damaged reactor was more serious than Tokyo has acknowledged.

The benchmark Nikkei 225 index dropped 2.5 percent within an hour of the open, wiping out much of a rebound staged during the previous day and returning toward the lows plumbed during a massive, panicky sell-off on Tuesday.

The broader Topix index sagged 3.2 percent.

The latest declines came as the barrage of ominous news about the reactors at Fukushima Daiichi Nuclear Power Station continued.

Late on Wednesday in Congressional testimony, Gregory Jaczko, the chairman of the US Nuclear Regulatory Commission, gave the Obama's administration first assessment of the condition of the plant, apparently mixing information it has received from Japan with data it has collected independently.

Mr. Jaczko asserted that there was now little or no water in the pool storing spent nuclear fuel at the No. 4 reactor of the Fukushima Daiichi complex, leaving fuel rods stored there exposed and bleeding radiation into the atmosphere.

On the foreign exchange markets, the yen jumped to a record high against the dollar on expectations that companies, insurers and investors will repatriate more cash to help pay for the costs of the massive quake and tsunami that slammed the country's northeast on Friday.

The yen hit a high of around 76.30 per dollar in late New York trading, breaking the record of 79.75 in April 1995. It was trading at 79.50 yen per dollar during the Tokyo morning.

### **Asia Lower As Tokyo Slides 4%; Yen Hits Record (WSJ)**

By Brad Frischkorn And Colin Ng

[Wall Street Journal](#), March 17, 2011

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

### **Japan Crisis Takes Toll On US Economy (POLITCO)**

By Ben White

[Politico](#), March 17, 2011

NEW YORK—The unfolding crisis in Japan has begun to have an impact on the fragile recovery of the US economy despite assurances by Obama administration officials and many analysts that it does not pose a significant threat to economic growth here or across the globe.

Stocks plunged again on Wednesday, whipsawed by rampant fear that the one of Japan's nuclear plants damaged by last week's massive earthquake was spiraling into an uncontrollable meltdown. Despite a modest late day recovery, Wall Street's three major indices have been falling for nearly a week, wiping out most of their gains for the year after rising sharply on hopes for a robust US economic rebound.

The Dow Jones Industrial Average fell by as much as 300 points before rallying somewhat late in the day to close down 242, or about 2 percent at 11,613. The S&P 500, which offers a broader view of US corporations, also sank dramatically before paring losses and is now down for the year.

The Nasdaq, home to many technology companies that could be hit by an interruption in the delivery of Japanese-made parts, was also off sharply on Wednesday and is now down for the year after a week of significant losses.

"Most of the analysis done to date has been based on the assumption that the nuclear problem was abating," said Mark Zandi, chief economist at Moody's Analytics. "Now that's been called into question. That's why the market is so nervous."

Several analysts said the enormous amount of uncertainty surrounding events at the Fukushima Daiichi nuclear plant in northeastern Japan, especially news that a second reactor had ruptured, sent skittish investors racing to lock in any gains they have made this year.

"If Japan gets the situation under control the market should recover pretty quickly," Zandi said. "I still do not think that there will be significant global implications. Japan will certainly feel it but it won't have much impact beyond that."

However, Zandi and others analysts conceded that while the fundamentals suggest only a modest 2 percent decrease in Japanese GDP in the short term and perhaps a gain in the longer term given massive government reconstruction spending the events following the earthquake and tsunami tap into persistent anxiety that uncontrollable "black swan" events could derail a global recovery that remains fragile at best.

"This just ratchets up all the existing uncertainty in a huge way," said David Kotok, chief investment officer at money management firm Cumberland Advisors. "And I think there are big implications for the US economy. Ten percent of Japanese

electrical power generation in permanently gone and now they will have to deal with a possibly catastrophic radiation and health issue."

Kotok added that any big slowdown in Japan, which produces 40 percent of the world's electronic components, would dent supply chains for many global companies, from airplane manufacturers to stereo equipment makers.

"This is the world's third largest economy we are talking about. It has to have an impact. And they are only third now because China just passed them."

Wednesday's troubling news from Japan came amid grim reminders of other huge clouds over the US economy. Housing starts had their biggest monthly drop in nearly 27 years as building permits dropped to a record low, according to the Commerce Department. Those figures underscore how vulnerable the US remains to any outside shocks.

So far, the Obama administration has played down any economic threat from Japan, focusing solely on the humanitarian crisis.

In appearance before the Senate Banking Committee on Tuesday, Treasury Secretary Timothy Geithner dismissed any concern that Japan might start selling off its vast holding of US Treasury bonds in order to raise cash to spend on reconstruction.

Japan currently holds about \$886 billion in US Treasuries, second only to China's \$1.2 trillion and nearly four times as much as the United Kingdom, the third biggest holder.

Asked if he feared such an outcome, which could drive up US borrowing costs, Geithner calmly said, "I do not." He added, "Japan is a very rich country, very high savings rate. And it has the capacity to help deal with not only the humanitarian challenge but the reconstruction challenge they face ahead."

President Barack Obama has also declined to get deeply involved in the crisis in any public way, sticking to a new White House strategy of avoiding crisis mode based on any day's headlines, no matter how alarming they may be.

On Friday, he leaves for a five day trip to Latin America where he will focus on trade and security issues. "We are leaving on schedule on Friday," press secretary Jay Carney said Wednesday. "It bears repeating that this is a crisis — there is no question about it. And it is a crisis in Japan. It is not a crisis in the United States."

That strategy may offer long-term political dividends but in the case of the market reaction to Japan, analysts say it risks creating the impression that Obama is ignoring the one issue critical to his reelection: the health of the US economy.

Kotok of Cumberland Advisors said this could play into the broader perception of a lack of leadership from the White House on reducing the budget deficit and expanding domestic energy production to blunt spikes in oil prices. This is a significant issue in the Japan disaster given its likely impact on nuclear power as a clean energy source.

"I think you can wrap the White House in with the leadership of both parties on Capitol Hill with failing to offer any leadership on these enormous issues at a time of great economic duress in the United States," Kotok said.

## **Worsening Nuclear Crisis Rattles Financial Markets (AP)**

[Associated Press](#), March 17, 2011

NEW YORK – Financial markets were jolted for a third day Wednesday by fears that a partial meltdown may have occurred at a nuclear plant in Japan. Stocks erased nearly all of their gains for the year.

The losses were broad. Each of the 30 stocks that make up the Dow Jones industrial average fell, with IBM Corp. and General Electric Co. losing the most. All 10 company groups in the Standard & Poor's 500 index, the basis for most US mutual funds, lost ground.

Stocks dropped sharply in midmorning trading after the European Union's energy chief was quoted as saying that Japan's nuclear crisis could get worse. Japan's economy, the third-largest in the world after the US and China, accounts for about 10 percent of US exports.

Treasury prices jumped, sending yields to their lowest levels this year as investors piled into investments seen as being more stable. One measure of stock market volatility, the CBOE Market Volatility Index, jumped 18 percent in a sign that investors expect more wild swings.

"Investors are moving away from anything that has an element of risk with it because they don't know what's happening in Japan," said Bill Stone, chief investment strategist at PNC Wealth Management.

The Dow Jones industrial average fell 242.12, or 2 percent, to 11,613.30. It was the worst drop since Aug. 11. The Dow has now lost 3.6 percent over the past three days, its worst three-day loss since last July.

The S&P index fell 24.99, or 1.9 percent, to 1,256.88. The S&P is now down 0.1 percent for the year, having been up as much as 6.8 percent in February. When dividends are included, however, the index has had a total return of 2.4 percent for the year, according to FactSet.

The Nasdaq composite index fell 50.51 or 1.9 percent, to 2,610. It is now down 1.4 percent for the year.

The yield on the 10-year Treasury note fell as low as 3.15 percent, the lowest level this year. In late trading the yield edged up to 3.21 percent.

Japan temporarily suspended work at a stricken nuclear plant after a surge in radiation made it too dangerous for workers to remain there. That came a day after Japan's prime minister said four crippled reactors at a nuclear power plant were leaking dangerous amounts of radiation.

In the US, homebuilders tumbled after the Commerce Department reported that new home construction fell to the second-lowest level on record in February, reflecting weak demand. Homebuilders Lennar Corp. and D.R. Horton Inc. each fell more than 2 percent.

Wholesale prices rose last month by the most in nearly two years due to higher energy costs and the biggest increase in food prices in 36 years. Shares of companies affected by higher food costs fell.

Three stocks fell for every one that rose on the New York Stock Exchange. Consolidated volume came to 5.8 billion shares.

## **Crisis In Japan Drives US Stocks Into The Red (USAT)**

By Adam Shell, Usa Today

[USA Today](#), March 17, 2011

NEW YORK — Investors fleeing risk in the face of Japan's nuclear crisis sold stocks aggressively Wednesday, causing the US market to dip into the red for 2011 and suffer its first pullback of 5% since late August.

For the third day in a row, most investment decisions were driven by events in Japan.

Wall Street reacted negatively to comments from US officials, who basically advised US military personnel and Americans in Japan to maintain a greater distance from the damaged nuclear reactors than local officials are advising.

Those warnings were interpreted as a sign that the situation may deteriorate further.

The Standard & Poor's 500 index fell nearly 2% to 1257. The drop extended its decline since its Feb. 18 bull market high to 6.4%.

Investors worry that the current economic and profit recovery will come unglued if Japan — the world's third-largest economy — can't contain its nuclear crisis.

There is talk that a full-blown correction — a drop of 10% or more — may be underway. And that is fueling a debate about whether investors should hang on to their stocks or sell to avoid further downside.

David Bianco, chief US equity strategist at Bank of America Merrill Lynch, ticked off 10 reasons to "buy the dip," rather than succumb to fear and dump stocks.

He cited as market supports easy-money policies from the Federal Reserve, attractive valuations on stocks and lower odds of an energy price shock due to slower growth after Japan's crisis.

Pulling money out of stocks at the first sign of trouble, with the hope of getting back in at lower prices, is rarely a profitable trade, Bianco says. His analysis focused on a "panic selling" strategy in which investors exit the stock market after a 2.5% drop and stay on the sidelines for 20 days before buying back in. While this strategy helps avoid some of the market's worst days, it led to poorer returns than a buy-and-hold strategy.

Still, preparing for a bad outcome in Japan's nuclear plant accident makes some sense for investors, says Jeffrey Kleintop, chief market strategist at LPL Financial. "Markets could plunge if the worst fears come to be realized," he said in a Wednesday report titled "Aftershock."

## **US Stocks Dive; Dow Down Over 240 Points (AFP)**

[AFP](#), March 17, 2011

NEW YORK (AFP) – US stocks dived Wednesday as investors worried about the growing Japan nuclear crisis and tensions in the Arab world, as well as weak US economic data.

The Dow Jones Industrial Average posted a sharp triple-digit fall, sinking 242.12 points (2.04 percent) to finish at 11,613.30.

The tech-rich Nasdaq Composite plummeted 50.51 points (1.89 percent) to 2,616.82, while the broad-market S&P 500 index shed 24.99 points (1.95 percent) at 1,256.88.

The 30-stock blue-chip Dow has lost more than 487 points over three days of trading as investors struggled to grasp the impact of Friday's 9.0-magnitude earthquake and massive tsunami in Japan, the world's third-largest economy.

After opening in negative territory, Wall Street stocks spent the day battling choppy trade amid uncertainty about the future of the global economic recovery.

"Disappointing economic data and increasing violence in Bahrain contributed to early pressure on the market," said Scott Marcouiller at Wells Fargo Advisors.

"Stocks added a second leg down after the European Union's energy commissioner said the nuclear crisis in Japan is 'out of control' and possible catastrophic events may occur in hours," he added.

Japan was racing to control a radiation leak at its quake-hit Fukushima nuclear complex and Bahrain and Libya continued to fight anti-government movements.

Sentiment was further dampened by poor US economic data showing larger-than-expected wholesale price pressures and a slump in housing construction to a near-record low.

The Labor Department said its producer price index rose 1.6 percent in February from January. The sharpest rise since June 2009 was led by surges in food and energy prices.

Construction of new homes in the United States plunged 22.5 percent in February to nearly the record low of recession-mired April 2009, according to the Commerce Department.

Among stocks in focus, General Electric, nuclear technology provider to the US and Japan, fell for the third straight day, plunging 3.37 percent to \$18.95.

Nuclear plant operators were hammered: Exelon dropped 3.36 percent, Duke Energy shed 1.40 percent and Constellation lost 1.94 percent.

On the Dow, IBM led the decliners, slumping 3.79 percent to \$153.00 after Sanford Bernstein lowered its recommendation to neutral.

Investors dumped insurers, pushing Hartford Financial down 3.32 percent and MetLife down 2.58 percent.

The insured losses from Japan's quake and tsunami could reach \$25 billion, catastrophic risk modeling firm EQECAT said Wednesday.

Insurer Aflac, which has extensive business in Japan, fell 0.43 percent to \$50.67 after losing nine percent in three trading days.

On the upside, technology licensing firm Rambus soared 4.00 percent to \$19.52 after announcing it was renewing its partnership with Japanese firm Toshiba.

Worried investors flocked to the safety of US government bonds, pushing up prices.

The yield on the 10-year Treasury bond fell to 3.21 percent from 3.32 percent late Tuesday, while that on the 30-year bond slid to 4.34 percent from 4.47 percent the prior day.

Bond prices and yields move in opposite directions.

## **DJIA Takes Another Triple-Digit Hit (WSJ)**

**Anxiety About Japan Nuclear Problems Roils World Markets Again; Volatility Index Sees Big Jump**

By Brendan Conway

[Wall Street Journal](#), March 17, 2011

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

## **Nuclear Problems Put Energy Markets In A Spin (FT)**

By Philip Stafford, Javier Blas And Jack Farhy In London

[Financial Times](#), March 17, 2011

Full-text stories from the Financial Times are available to FT subscribers by clicking the link.

## **For A Change, Proud To Be Japanese (NYT)**

By Hiroki Azuma

[New York Times](#), March 17, 2011

Tokyo

JAPANESE people are accustomed to earthquakes. I myself have experienced many since childhood. So I remained calm when the shaking started on the sixth floor of an old multipurpose building in central Tokyo. I only thought, "This is bigger than normal." But the shaking didn't stop and the swaying grew more severe. I rushed down a narrow staircase through a cloud of dust. When I turned around at the exit, the whole building was leaning sideways — it was shaking so hard that it almost hit the next building. A voiceless cry emanated from the crowd gathering on the street.

Through messages on Twitter, I learned that the epicenter was up north. One after another, the whereabouts of Twitter users whose faces or names I didn't know became clear, but I couldn't even reach my own wife.



From the quakes to the tsunami to the accidents at the nuclear power plants, we all know the chain of events now. And though concrete predictions and assessments will have to wait, there is one thing that can be said on the sixth day since the quake: the Japanese people have begun to see their nation in a more positive light than they have in at least 20 or 30 years.

The Japanese are an unfortunate people who have rarely felt pride in their country or government since the defeat in World War II. This has been particularly true in the last 20 years, during the prolonged recession after our economic bubble burst. Prime ministers have changed many times; policies have stalled; and political cynicism abounds. In fact, after the Kobe earthquake in 1995, the government response was so incompetent that it received strong criticism from the people.

But this time, the situation is different. Of course, the mass media is relentlessly questioning the government and the electric corporations for the handling of the nuclear accidents and the blackouts. On the other hand, the voices of support for them are quite strong. Yukio Edano, the chief cabinet secretary and the spokesman for the rescue efforts, has become an Internet hero, and rescue efforts by the Self-Defense Forces are praised.

I have never seen Japanese people thinking about and discussing "the public" this much. Only recently the Japanese people and the government were seen as indecisive and selfish, muddled with complaints and bickering. But now, they are boldly trying to defend the nation together, as if they are a changed people. To borrow an expression from the younger generation here, the Japanese people seem to have completely transformed their *kyara* (character).

Oddly enough, the Japanese are proud to be Japanese now. Of course, it may be argued that this new *kyara* is not so welcome, as it will likely lead to nationalism. I am seeing such concerns already surfacing on the Web. Nonetheless, I wish to see a ray of hope in this phenomenon.

Prior to the quake, Japan was a timid nation worrying about its eventual decline. People expected nothing from the nation, and the mutual help across generations and the trust in local communities was beginning to crumble.

But maybe the Japanese people could use the experience of this catastrophe to rebuild a society bound together with a renewed trust. While many will revert to their indecisive selves, the experience of discovering our own public-minded, patriotic selves that had been paralyzed within a pernicious cynicism is not likely to fade away.

I hear that the foreign media has been reporting with amazement the calmness and moral behavior of the Japanese faced with the disaster. But actually this was a surprise to the Japanese themselves. "Yeah, we can do it if we put our minds to it." "We aren't so bad as a whole nation after all." This is what many Japanese people have been feeling in the last several days, with some embarrassment.

How far can we extend this emotion, temporally and socially? On this question depends the success of the recovery, not just from the current calamity, but also from the prolonged stagnation and despair of the last two decades.

Hiroki Azuma, a professor at Waseda University, is the author of "Otaku: Japan's Database Animals." This article was translated by Shion Kono and Jonathan E. Abel from the Japanese.

## **Amid Shortages, A Surplus Of Hope (NYT)**

By Ryu Murakami

New York Times, March 17, 2011

Yokohama, Japan

I SET out from my home in the port city of Yokohama early in the afternoon last Friday, and shortly before 3 p.m. I checked into my hotel in the Shinjuku neighborhood of Tokyo. I usually spend three or four days a week there to write, gather material and take care of other business.

The earthquake hit just as I entered my room. Thinking I might end up trapped beneath rubble, I grabbed a container of water, a carton of cookies and a bottle of brandy and dived beneath the sturdily built writing desk. Now that I think about it, I don't suppose there would have been time to savor a last taste of brandy if the 30-story hotel had fallen down around me. But taking even this much of a countermeasure kept sheer panic at bay.

Before long an emergency announcement came over the P.A. system: "This hotel is constructed to be absolutely earthquake-proof. There is no danger of the building collapsing. Please do not attempt to leave the hotel." This was repeated several times. At first I wondered if it was true. Wasn't the management merely trying to keep people calm?

And it was then that, without really thinking about it, I adopted my fundamental stance toward this disaster: For the present, at least, I would trust the words of people and organizations with better information and more knowledge of the situation than I. I decided to believe the building wouldn't fall. And it didn't.

The Japanese are often said to abide faithfully by the rules of the "group" and to be adept at forming cooperative systems in the face of great adversity. That would be hard to deny today. Valiant rescue and relief efforts continue nonstop, and no looting has been reported.

Away from the eyes of the group, however, we also have a tendency to behave egoistically — almost as if in rebellion. And we are experiencing that too: Necessities like rice and water and bread have disappeared from supermarkets and convenience stores. Gas stations are out of fuel. There is panic buying and hoarding. Loyalty to the group is being tested.

At present, though, our greatest concern is the crisis at the nuclear reactors in Fukushima. There is a mass of confused and conflicting information. Some say the situation is worse than Three Mile Island, but not as bad as Chernobyl; others say that winds carrying radioactive iodine are headed for Tokyo, and that everyone should remain indoors and eat lots of kelp, which contains plenty of safe iodine, which helps prevent the absorption of the radioactive element. An American friend advised me to flee to western Japan.

Some people are leaving Tokyo, but most remain. "I have to work," some say. "I have my friends here, and my pets." Others reason, "Even if it becomes a Chernobyl-class catastrophe, Fukushima is 170 miles from Tokyo."

My parents are in western Japan, in Kyushu, but I don't plan to flee there. I want to remain here, side by side with my family and friends and all the victims of the disaster. I want to somehow lend them courage, just as they are lending courage to me.

And, for now, I want to continue the stance I took in my hotel room: I will trust the words of better-informed people and organizations, especially scientists, doctors and engineers whom I read online. Their opinions and judgments do not receive wide news coverage. But the information is objective and accurate, and I trust it more than anything else I hear.

Ten years ago I wrote a novel in which a middle-school student, delivering a speech before Parliament, says: "This country has everything. You can find whatever you want here. The only thing you can't find is hope."

One might say the opposite today: evacuation centers are facing serious shortages of food, water and medicine; there are shortages of goods and power in the Tokyo area as well. Our way of life is threatened, and the government and utility companies have not responded adequately.

But for all we've lost, hope is in fact one thing we Japanese have regained. The great earthquake and tsunami have robbed us of many lives and resources. But we who were so intoxicated with our own prosperity have once again planted the seed of hope. So I choose to believe.

Ryu Murakami is the author of "Popular Hits of the Showa Era." This article was translated by Ralph F. McCarthy from the Japanese.

## **Radiation Risks: Who Says What (MONWEEKLY)**

By Glenda Kwek

[Monash Weekly](#), March 17, 2011

The US is recommending a no-go zone of 80 kilometres - four times the size of the 20-kilometre exclusion zone set up by Japanese authorities around Fukushima Daiichi nuclear power plant.

Jacques Repussard, head of France's Institute for Radiological Protection and Nuclear Safety (IRSN), said a radioactive plume would extend from "several dozen kilometres" around the plant to several hundred kilometres "in the coming days".

But he said the plume would have no consequences for health in Tokyo, 250 kilometres to the south-east.

Britain's Chief Scientific Officer, Professor John Beddington, told the British embassy in Tokyo that even in the worst-case scenario, an explosion following a meltdown would only be serious for the local area.

During the meltdown, the nuclear material would fall to the bottom of the containment structure and react with the concrete and other materials.

A man holds his dog as they wait to be scanned for radiation exposure at a temporary scanning centre for residents living close to the quake-damaged Fukushima Dai-ichi nuclear power plant. Photo: AP

"In this reasonable worst case you get an explosion. You get some radioactive material going up to about 500 metres up into the air. Now, that's really serious, but it's serious again for the local area. It's not serious for elsewhere. Even if you get a combination of that explosion it would only have nuclear material going in to the air up to about 500 metres.

"If you then couple that with the worst possible weather situation [that is] prevailing weather taking radioactive material in the direction of Greater Tokyo and you had maybe rainfall, which would bring the radioactive material down, [the question is] do we have a problem? The answer is unequivocally no. Absolutely no issue. The problems are within 30 kilometres of the reactor."

When Chernobyl exploded in 1986, it sent dangerous materials into the upper atmosphere for a long period of time.

A woman holds her dog as they are scanned for radiation near Fukushima Dai-ichi nuclear power plant. Photo: AP

At the Fukushima plant, the explosive potential within the six reactors is easing with time, experts said.

"In the worst case, a radioactive cloud would not go that far up in the atmosphere," said Jan Beranek, head of environmental group Greenpeace's International Nuclear Campaign.

"That is good news for the world, but bad news for Japan."

Professor Beddington said the problems with Chernobyl were exacerbated by people "continuing to drink the water and continuing to eat vegetables".

"When Chernobyl had a massive fire at the graphite core, material was going up not just 500 metres but to 30,000 feet. It was lasting not for the odd hour or so but lasted months, and that was putting nuclear radioactive material up into the upper atmosphere for a very long period of time.

"But even in the case of Chernobyl, the exclusion zone that they had was about 30 kilometres. And in that exclusion zone, outside that, there is no evidence whatsoever to indicate people had problems from the radiation. The problems with Chernobyl were people were continuing to drink the water, continuing to eat vegetables and so on and that was where the problems came from. That's not going to be the case here."

Professor Javier Dies, head of Nuclear Engineering at the Polytechnic University of Barcelona in Spain, said: "The situation may recede or deteriorate and lead to a massive radiation leak to the atmosphere.

"As things stand, this cannot be ruled out."

Malcolm Crick, Secretary of the UN Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) said Fukushima was "a serious situation but it's too early to say" what the worst outcome could be.

A key warning sign would be if plumes of caesium are emitted from the plant, according to Richard Barrett, a former US Nuclear Regulatory Commission member who led the regulator's emergency response centre.

"When caesium comes out, that means your temperatures have reached the 4000- and 5000-degree level," he said.

After that, the next step would produce "transuranics" such as strontium, plutonium and americium.

"If you begin to see those things then it may be an indication that the accident has proceeded to the next step," he said. "The core would have melted through the bottom of the vessel ... and it is on the floor of the reactor cavity."

Long term scenarios

The long-term scenarios are coloured by many unknowns concerning the rate and type of radioactive release.

Mr Repussard, who was speaking at a French parliamentary committee meeting, said there could eventually be a "strongly contaminated zone" extending up to 60 kilometres around Fukushima, beyond which "there will be measurable impacts but not dramatic impacts".

Didier Champion, who oversees environment and intervention issues at the IRSN, said Fukushima would probably generate "more local impacts than were seen for Chernobyl".

"The downside is that contamination is likely to be more concentrated inside a 10- to 20-kilometre zone. The upside is less contamination over a larger area," he said.

Mr Beranek said that heavy pollution from cesium could make some areas of Japan near the plant uninhabitable, at least for decades, as happened around Chernobyl.

Dr Crick said that long-term exposure after Chernobyl for people living in Ukraine, Belarus and Russia was about 10 millisieverts, the equivalent of the radiation in one CT scan.

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People pick up about 2.4 millisieverts a year in background radiation.

Main sources of contamination

Longevity of highly toxic nuclear waste is a major problem.

The likely contaminants from Fukushima are iodine-131 and caesium-137, with half-lives of eight days and 30 years, respectively.

The half-life is the number of years required for any amount of a radioactive element to decompose by half. Typically, such elements remain hazardous for a period 10 times their half-lives.

Radioactive iodine and caesium are carcinogenic and pose a threat to health, whether directly in the polluted air or water or indirectly through the food chain.

Radioactive iodine is highly volatile and disperses easily into the air in the form of vapour plumes such as those generated by the disabled Fukushima reactors.

It becomes a hazard when it settles on water sources or crops, such as leafy vegetables, that are later ingested by livestock or humans.

Since iodine-131 has a half-life of eight days, it decays completely within a matter of months.

Everyone is exposed to limited, and apparently harmless, levels of caesium-137 as a result of atmospheric testing of nuclear weapons during the 1950s and 1960s, although much of that contamination has since decayed.

The Chernobyl reactor blast also generated caesium pollution.

Tainted soil can become airborne as dust, resulting in exposure to internal organs when breathed in, according to the US Environmental Protection Agency. Drinking the element in contaminated water also exposes living tissue.

In plants, the element is first absorbed by leaves, then roots. It also concentrates easily in mushrooms and wild birds.

Clean-up

Cleaning up radioactive sites is massively costly, time-consuming and dangerous.

Contaminated soil can be removed and buried in lined landfills, but doing so does not eliminate the waste. Incineration in special furnaces renders toxic elements harmless, but is expensive and technically challenging.

Soil can also be "washed" by mixing it with solvents that transform the contaminants into a liquid form that must then be disposed of.

Water can be filtered using synthesised cloth that traps solid particles, but the technique works well only with low levels of contamination.

Deminceralisation through electrodialysis - to remove radioactive ions - has also proved effective, as has boiling water to separate out contaminants as solids.

There are several methods for sealing off failed reactors which continue to generate radiation long after they have been shut down.

A concrete and steel sarcophagus was built to entomb the Chernobyl reactor, but the makeshift structure now has cracks and is being replaced.

## Japan Crisis Spreads Doubts In Nuclear Countries (AP)

By Angela Charlton

[Associated Press](#), March 17, 2011

PARIS -- Japan's nuclear crisis reverberated in atomic power-friendly countries Wednesday, with China saying it would hold off on approving new nuclear plants and French lawmakers questioning top energy executives about the safety of their reactors.

Some governments have put their nuclear future on hold, at least for now, as concerns grow even among pro-nuclear governments about the safety of the 442 reactors operating around the world. Japanese emergency workers are desperately struggling to cool overheating reactors after a series of explosions at a nuclear plant crippled after last week's earthquake and tsunami.

China's Cabinet said Wednesday the government will suspend approvals for nuclear power stations to allow for a revision in safety standards. The State Council said it has ordered the relevant departments to conduct safety checks at existing plants and at those under construction.

The move will allow China's communist leaders to allay any concerns among the public about the safety of nuclear power without derailing plans to double nuclear energy's share of national power generation to high single digits by 2020.

A top Chinese official said earlier this week that Japan's problems would not deter China from expanding nuclear power generation.

China has 13 nuclear power plants in use now and plans to add potentially hundreds more. Beijing has been focusing on solar, hydropower, wind and nuclear energy generation to reduce the country's reliance on coal.

In France - the world's most nuclear-dependent country - the heads of both houses of parliament ordered a legislative investigation into "the future of the French nuclear industry." Until this week, questioning atomic power was almost taboo in a country where politicians on the left and right have long backed nuclear development, even after the Chernobyl disaster.

The chiefs of reactor builder Areva and Electricite de France, the world's biggest operator of nuclear plants, faced French lawmakers at an emergency meeting Wednesday.

Areva CEO Anne Lauvergeon tried to keep the focus on the immediate drama unfolding at the Japanese plant, saying high-powered fire-fighting trucks should be rushed to the site to douse the overheated nuclear fuel.

"We are in a catastrophe," she said. "The situation today requires urgent action."

She insisted that new-generation reactors are safer than those at Fukushima. The industry "needs to rebuild a dialogue and trust about nuclear energy," she said. Areva markets its nuclear technology around the world, including to China, Japan and the United States.

European Union energy officials agreed Tuesday to apply stress tests on plants across the 27-nation bloc. Spanish Prime Minister Jose Luis Rodriguez Zapatero told reporters Wednesday that studies have been commissioned to determine how vulnerable his country's six nuclear plants are to earthquakes or flooding.

Germany went further, saying it would temporarily switch off seven aging reactors.

Swedish Environment Minister Andreas Carlgren, whose country like Germany scrapped plans to phase out nuclear power quickly in recent years, said "domestic political issues" were behind the move in Germany, which holds regional elections this weekend.

"For us, the situation is different and we want long-term decisions when it comes to energy policy," Carlgren said.

In South America, Venezuelan President Hugo Chavez said the Japanese catastrophe prompted him to call off plans he announced last year to develop nuclear energy.

"It's something extremely risky and dangerous for the whole world because despite the great technology and advances that Japan has, look at what is happening with some nuclear reactors," Chavez said.

And in Chile, which suffered its own devastating earthquake and tsunami last year, the government was scrambling to preserve a nuclear energy accord that was supposed to be the highlight of President Barack Obama's visit to the country next week. Obama has defended the use of nuclear energy.

Officials said the still-secret accord focuses on training, not construction of what would be the country's first nuclear energy reactors, but some lawmakers want Chile to discard the option altogether.

It took many countries a generation after the accidents at Chernobyl in then-Soviet Ukraine and Three Mile Island in the United States to get over worries about nuclear safety. In recent years governments around the world - especially in developing countries with rapidly growing energy demand - have again embraced the power of the atom.

Boosters say nuclear energy is an alternative to polluting fossil fuels, amid concerns about global warming and volatile oil prices. Critics have maintained that nuclear plants always pose safety risks and governments have yet to find a good solution to storing nuclear waste.

Ferhat Aziz, a spokesman for Indonesia's Nuclear Energy, said four nuclear reactors planned near a volatile fault will be safe and more modern than the crippled Japanese plant. The plant was rocked by explosions that the International Atomic Energy Agency said were caused by a build-up of hydrogen.

The Indonesian reactors will be built on the island of Bangka, near Sumatra, the heavily populated island where a 2004 earthquake caused the massive tsunami that killed 230,000 people in a dozen nations.

In the Philippines, however, Japan's nuclear crisis has prompted President Benigno Aquino III to prioritize the development of non-nuclear sources of energy, spokesman Edwin Lacierda said.

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Associated Press writers Gillian Wong in Beijing, Daniel Woolfs in Madrid, Malin Rising in Stockholm and John Heilprin in Geneva contributed to this report.

## **Europe's Nuclear Future To Be Decided By Individual States (WSJ)**

By Sean Carney

[Wall Street Journal](#), March 17, 2011

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

## **China Suspends Approval Of Nuclear Plants (FT)**

By Leslie Hook, Beijing

[Financial Times](#), March 16, 2011

Full-text stories from the Financial Times are available to FT subscribers by clicking the link.

## **Chile Leader Pushes Ahead On Nuclear Deal With US, Saying Reactors Remain Option Despite Japan (AP)**

[Associated Press](#), March 17, 2011

Chile's president insisted Wednesday on signing a nuclear accord with the United States during President Barack Obama's visit next week, saying the country must keep reactors as a potential option for fueling the booming economy despite anxieties about Japan's disaster.

Governments around the world are re-evaluating nuclear energy because of radiation leaks since the powerful earthquake and devastating tsunami in Japan, which had been seen as a model for designing safe nuclear facilities. Venezuela's Hugo Chavez called off Russia's plan to help build a reactor, calling it "something extremely risky and dangerous for the whole world."

Skepticism about nuclear power is rising in Chile, too, but President Sebastian Pinera said the country needs to double its energy resources and can't be afraid to consider all the alternatives.

"Chile needs to learn about nuclear energy, and that's why we've signed accords with France and Argentina and we'll sign another with the United States," Pinera said during a meeting with the Japanese ambassador. The goal is to learn lessons from Japan's example, and train Chileans to make wise decisions.

Chile, like Japan and the United States' west coast, sits on the Pacific's "ring of fire" of seismic activity. It is so prone to major earthquakes that many Chileans believe nuclear energy should have no part in the country's future. Greenpeace plans to protest against the accord during Obama's visit, and even lawmakers from Pinera's center-right party have asked him to drop plans for nuclear energy.

Both Pinera and Obama include nuclear power in the "clean energy" matrix they say is needed to avert global warming.

But with the accord's wording still secret and Chilean lawmakers demanding more transparency in light of Japan's crisis, plans for a high-profile signing ceremony have apparently been shelved. A closed-door ministerial-level event ahead of the presidential meeting is now most likely, officials told The Associated Press on condition of anonymity because they weren't authorized to speak on the record.

Asked in Washington if the accord would be signed in Chile, a top White House official said only that nuclear energy would be discussed between Obama and Pinera.

"Nuclear safety and security is part of the bilateral dialogue between the United States and Chile," said Dan Restrepo, Obama's point man on Latin America at the National Security Council.

The accord — a broadly worded "memorandum of understanding" about shared goals — has gone through many drafts, but Chilean officials said it will generally focus on training Chilean engineers.

That's an essential first step toward any nuclear energy future, but also something Chile needs for its health care system. Chile has just two small, underused research reactors, and nearly all its nuclear experts are approaching retirement. Without highly trained nuclear engineers, it will struggle to provide nuclear isotopes for medical purposes, including diagnosing cancer.

Sara Larrain, who leads the environmentalist group Sustainable Chile, contends lobbying by the nuclear power industry is setting back Chile's renewable energy future.

She and others say Chile should build huge solar-powered plants in the northern desert where sun is constant, wind energy farms along the long and breezy Pacific coast and geothermal plants above the country's volcanic steam vents.

Chile now generates less than 3 percent of its energy from renewable sources. It lacks a unified electricity grid or a long-term clean energy plan, and has provided few incentives for industrial use of renewables, said Pilar Moraga, an environmental law professor at the University of Chile.

"Chile has opportunities it isn't taking advantage of," Moraga said in an interview.

Chile's economy is booming, on track to meet Pinera's goal of 6 percent annual growth. With 17 million people, Chile trails the more populous Brazil and Argentina in the size of its overall economy, but its per capita income of \$14,000 a year leads South America, according to the United Nations.

Still, each new mine or factory requires more energy — and for every percentage point the economy grows, the electricity supply needs to expand by as much as 1.5 percent, economist Miguel Marquez said.

Today, imported fuel, coal and hydroelectric dams provide 13,000 megawatts to the country's four independent electricity grids, but at this rate, Chile will need 20,000 megawatts a year by 2030, experts say.

The energy crunch has already arrived: A prolonged drought has drained reservoirs, lowering hydroelectric capacity. By importing all its oil and most of its natural gas, Chile suffers inflationary price jumps and supply shortages.

The government has extended summer hours for three more weeks, approved a plan for rationing and controlled blackouts, and may even lower its 220-voltage electricity by five watts. But these are stopgaps.

Small wind projects already approved and awaiting construction will add 1,500 megawatts and geothermal plants could add 2,000 more, Larrain said.

But Marquez said Chile's regulatory framework favors cheap, dirty fuels and doesn't encourage conservation, because it lacks incentives for using renewable energy or penalties for polluting. He also said Chile hasn't pushed the all-important mining operations and other heavy industries that consume 70 percent of the country's power to invest in unifying and modernizing the grids to better support solar and wind energy.

In February, the government approved the huge Castilla coal-fired power plant, with \$4.4 billion in Brazilian funding, to provide 2,100 megawatts mostly for mining operations in the northern desert. Several other coal-fired plants also have been approved.

Burning more coal will make it harder to keep Chile's promise to reduce carbon emissions by 20 percent by 2020.

If Chile's largest mining companies were required to be just 2 percent more efficient each year, these plants wouldn't be necessary, Marquez said.

But Pinera said Chile's energy needs are so profound it needs any energy it can get — from traditional sources to nuclear to hydropower — the latter a likely reference to a controversial plan to dam a pristine river in southern Patagonia for the Hidroaysen project. That would generate 2,750 megawatts for a grid that could serve large new mines in southern Chile and Argentina, but isn't connected to central Chile's population centers.

Pinera's spokeswoman, Ena Von Baer, added later Wednesday that the government "is working hard and putting special emphasis, very strong, on renewable non-conventional energies, which is part of the president's commitment."

She said the government is already investing \$12 million this year and plans \$85 million next year in this area.

Larrain said the thrust of the government's energy policy is to support industrial growth no matter the cost. Pinera insisted that his government "will always put as its first priority the security, the protection of life, the protection of the health of everyone."

But Japan was already a world leader in nuclear safety, and now radiation is spreading across parts of the country.

Sen. Carolina Toha, who leads Chile's center-left opposition coalition, tweeted that after Japan, "those who are so enthusiastic about nuclear energy for Chile should think again."

### **Czechs Refuse To Yield To 'Nuclear Hysteria' (WSJ)**

By Sean Carney

[Wall Street Journal](#), March 17, 2011

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

### **Poland Rules Out Japan-Style Nuclear Crisis (WSJ)**

By Marynia Kruk

[Wall Street Journal](#), March 17, 2011

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

### **Indonesia to continue planning for nuclear power plants (REU)**

By Telly Nathalia and Aditya Suharmoko

[Reuters](#), March 17, 2011

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

### **Malaysia Seizes 'Possible' Nuclear Weapons Parts (AFP)**

[AFP](#), March 17, 2011

KUALA LUMPUR (AFP) – Malaysian police confirmed on Thursday they have seized two containers which may contain parts used to make nuclear weapons, from a ship bound for western Asia.

"I can confirm that we have seized the containers at Port Klang but we do not know yet whether these are possibly parts to help make weapons of mass destruction or nuclear items," national police chief Ismail Omar told AFP.

"We are waiting for a report from our nuclear agency on the parts seized before we can make any determination and investigations are still ongoing," he added.

His comments follow a front page story in the influential Sun daily which said police had seized "parts of an equipment believed used to make weapons of mass destruction, including nuclear warhead" from a ship about 10 days ago.

The paper said the Malaysian-registered vessel, which had arrived from China and was headed for western Asia, carried dismantled equipment parts which were listed among items subject to controlled and restricted sale by the UN Security Council and other international laws.

It said the captain and crew were questioned by police before being allowed to leave port with their vessel, while authorities impounded the two containers and their contents.

Last April, Premier Najib Razak said his country would strictly enforce a new law to curb trafficking of nuclear weapons components after being linked to the illegal supply of sensitive technology to Iran and Libya.



Malaysia's parliament passed the Strategic Trade Bill early last year, which provides for prison terms of at least five years and fines of millions of dollars for those illegally bringing in or exporting material that could be used to make weapons of mass destruction.

The government has denied involvement in the illegal 2008 export of nuclear weapons to Iran although it confirmed the involvement of one of its nationals.

In addition, a Sri Lankan businessman living in Malaysia was jailed in 2004 for allegedly supplying nuclear weapon components to Libya and linked to a nuclear black market run by Pakistan's disgraced scientist Abdul Qadeer Khan.

Khan had admitted passing nuclear secrets to Libya, Iran and North Korea in a confession in February 2004, placing him in the thick of a global atomic black market.

## **Hot Cargo Seized From Vessel In Port Klang (SUN)**

Sun, March 17, 2011

KUALA LUMPUR (March 16, 2011): Police seized two containers loaded with parts of equipment believed used to make weapons of mass destruction, including nuclear warheads, from a vessel in Port Klang about 10 days ago.

The contraband, comprising dismantled parts, was found in the containers on board a Malaysian-registered ship which was bound for the Middle-East.

Sources told theSun that police were tipped off about the illegal shipment when the vessel arrived at Northport from China.

A special task force from the federal Criminal Investigations Department (CID) boarded the ship soon after it berthed and seized the contraband equipment after a search.

The sources said the seized equipment is listed among the dozens of items subjected to controlled and restricted sale to the receiving country by the United Nations Security Council and other international laws.

It is learnt that the crew could not produce the required documentation for the shipment of the consignment. The captain and crew were questioned before being freed. The ship was allowed to leave port – minus the parts which were seized by the police.

Federal CID Director Commissioner Datuk Seri Mohd Bakri Zinin confirmed that police were investigating the case and the seizure of the parts.

"We are liaising with our Interpol counterparts in both the source and destination countries.

"We are viewing this find very seriously and we are unable to divulge details as we do not want to jeopardise our probe. I can only say that we are investigating and give us more time," said Mohd Bakri who declined further comment.

It is learnt that the matter has been brought to the attention of the Prime Minister's Department, the Home Ministry and the Attorney-General's Chambers.

Police are also liaising with other agencies, including the customs department, military and the Ministry of International Trade and Industry in their probe.

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## **Malaysia Seizes Suspected Nuclear Parts Shipment From China+ (AP)**

Associated Press, March 17, 2011

KUALA LUMPUR, March 17 (AP) - (Kyodo)—Malaysian police have seized suspicious equipment found in two containers shipped from a Chinese port that could possibly be used for nuclear weapons, Home Minister Hishamuddin Hussein said Thursday. Hishamuddin told reporters that the two containers transiting Malaysia "were as held on the grounds that they may be used for weapons of mass destruction and nuclear armaments." "But it has to be verified by both local and international agencies," he said. The verification process could take "weeks or months," Hishamuddin said, adding that Malaysia is seeking information from China. He indicated that the two containers were not necessarily from China and may merely have transited a Chinese port. The police raid took place about two weeks ago, he said. News of the raid on a ship at Port Klang, the country's main port about 50 kilometer northwest of Kuala Lumpur, was first reported by The Sun daily on Thursday. Hishamuddin said the ship came from China but he declined to disclose where the consignment was headed. The Sun, quoting unnamed sources, said it was bound for West Asia. The ship and its crew were released after questioning. Hishamuddin said the raid was mounted following a tip-off from a foreign intelligence agency. "We are really on top of it. We are constantly monitoring," he said. There have been previous police seizures of suspected weapons parts in Malaysia, which serves as a transit point. The Sun daily said police seized the cargo after the crew failed to produce the necessary documentation.

## **US Reminds Iran To Halt Any Arms Smuggling (AP)**

[Associated Press](#), March 17, 2011

WASHINGTON – The Obama administration is implicitly criticizing Iran after Israel intercepted a ship carrying weapons it said was bound for Palestinian militants in Gaza.

State Department spokesman Mark Toner said in a statement late Wednesday that the US condemns illicit smuggling of arms and ammunition. He said U.N. resolutions prohibit Iran, in particular, from exporting weapons and that "any activity to the contrary is another example of Iran's destabilizing activities in the region."

Israel said the ship intercepted Tuesday in international waters in the Mediterranean Sea had roughly 2,500 mortar shells, nearly 75,000 bullets and six anti-ship missiles. It said the weapons were sent by Iran by way of Syria, and that the advanced anti-ship missiles could have challenged Israeli enforcement of a naval blockade of the Hamas-controlled Gaza Strip.

### **Iranian Cargo Plane Searched In Turkey (AP)**

[Associated Press](#), March 17, 2011

ANKARA, Turkey – Turkey's government says a cargo plane from Iran has been required to land in Turkey so its shipment could be searched.

But the Foreign Ministry denied a Dogan news agency report that Turkish military jets forced the plane to land at Diyarbakir airport on Tuesday night to search it for an alleged cargo of arms from Iran to Syria.

The ministry says it is standard procedure for Iranian cargo planes to request permission to fly over Turkey and sometimes be required to make unscheduled landings to be searched.

Turkey's official Anatolia news agency confirmed that the plane, heading from Tehran to Aleppo, Syria, was searched Wednesday.

But Anatolia and the government did not say what the cargo plane was found to be carrying.

### **Turkey Stops Iranian Plane En Route To Syria (AFP)**

[AFP](#), March 17, 2011

ISTANBUL (AFP) – An Iranian cargo plane en route to Syria was forced to land in Turkey's southeastern Diyarbakir airport for an inspection, security sources said on Wednesday.

The plane landed following an order from the Turkish foreign ministry citing suspicion of military or nuclear related cargo onboard, the sources said.

The plane was still grounded at Diyarbakir airport on Wednesday where the search was ongoing, according to an AFP correspondent at the scene.

The plane took off from Tehran on Tuesday night bound for the Syrian city of Aleppo, Anatolia news agency reported.

Two Turkish F-16 fighter planes were put on standby to intervene if the Iranian plane did not obey the orders of Diyarbakir airport officials, security sources said.

### **US Senator: Iran Seeks Nuclear Weapons (AFP)**

[AFP](#), March 17, 2011

WASHINGTON (AFP) – An influential US Senator said Wednesday after a closed-door, classified intelligence briefing on Iran that Tehran is working "seriously" to develop nuclear weapons.

"I can't say much in detail, but it's pretty clear that they're continuing to work seriously on a nuclear weapons program," Independent Senator Joe Lieberman, who chairs the Senate Homeland Security committee, told AFP.

The lawmaker, who also sits on the Senate Armed Services Committee, spoke after a briefing from a senior US intelligence official on weapons of mass destruction on the latest US National Intelligence Estimate (NIE) on Iran.

A previous NIE on Iran, partly declassified in December 2007, stated with "high confidence" that Tehran had "halted its nuclear weapons program" in late 2003. The document is the consensus view of all 16 US spy agencies.

In February, a US official told AFP on condition of anonymity that US intelligence agencies believe Iran's leaders are locked in debate about whether to build nuclear weapons and that sanctions have aggravated those divisions.

The official said the assessment was detailed in the latest NIE on Iran, which was the subject of Wednesday's closed-door briefing.

Lieberman, after noting that he was speaking in general terms, said that Iranian activities "pose a threat" on a range of fronts, from its suspect atomic drive to its activities in Iran and Afghanistan.

"We know their intentions toward us from what they say, which is hostile, and from what they have done in Iraq, which is to train a lot of Shia extremists who've killed hundreds of American soldiers, and what they're beginning to do more of in Afghanistan," he said.

The senators heard from a top weapons of mass destruction and proliferation official on the US National Intelligence Council that reports to Director of National Intelligence (DNI) James Clapper.

Lawmakers were tight-lipped as they emerged from the session, with most declining to comment even in general terms on the Islamic republic's suspect nuclear program -- a frequent target of angry denunciations in the US Congress.

Senate Armed Services Committee Chairman Carl Levin, a Democrat who organized the session, simply said he "learned a lot."