From:	Bulletin News
To:	NRC-editors@bulletinnews.com
Subject:	NRC News Summary for Monday, March 28, 2011
Date:	Monday, March 28, 2011 7:09:32 AM
Attachments:	NRCSummary110328.doc NRCSummary110328.pdf NRCClips110328.doc NRCClips110328.pdf

---

This morning's Nuclear Regulatory Commission News Summary and Clips are attached.

Website: You can also read today's briefing, including searchable archive of past editions, at http://www.BulletinNews.com/nrc.

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

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

Contact Information: Please contact us any time at 703-483-6100 or NRC-Editors@BulletinNews.com. Use of this email address will automatically result in your message being delivered to everyone involved with your service, including senior management. Thank you.

AI/3

NUCLEAR REGULATORY COMMISSION NEWS SUMMARY

MONDAY, MARCH 28, 2011 7:00 AM EDT

WWW.BULLETINNEWS.COM/NRC

TODAY'S EDITION

NRC News:

Japan Nuclear Crisis Puts NRC Chairman In Spent Fuel Storage Spotlight. A CQ Weekly (3/28, Kriz Hobson, Koss) cover story profiles NRC Chairman Gregory Jaczko beginning with his appearance on Capitol Hill to update lawmakers on the nuclear power crisis in Japan, when he said that one of the spent fuel pools at the Fukushima Daiichi plant had been "drained of its protective water" and was releasing "dangerous amounts of radiation" into the atmosphere. CQ adds that Jaczko's comments "highlight[ed] the hazards of nuclear power," and focused attention on disposal of spent fuel. On that issue, "few people have played a bigger role than Jaczko over the past decade in impeding the permanent disposal site at Yucca Mountain, which is the industry's preferred solution to the nuclear waste question." The piece notes that "NRC officials say it's premature to suggest that the commission will zero in on the safety of the industry's nuclear fuel pools or consider the future of Yucca Mountain as it responds to the Japanese situation."

Groups Want More Detail On NRC's Recommended 50-Mile Evacuation Zone. On its "Green" blog, the New York Times (3/26, Broder) reported that three American health and environmental groups announced that they would seek more information about why NRC Chairman Gregory Jaczko recommended that US citizens keep at least 50 miles away from the stricken Fukushima Daiichi plant in Japan. Friends of the Earth, the Nuclear Information and Resource Service and Physicians for Social Responsibility "said on Friday that they were filing a Freedom of Information Act request" with NRC and DOE "seeking access to all information about radiation levels gathered by American radiological monitoring equipment and helicopter overflights." The groups noted that in the US, regulations call for a 10-mile evacuation radius "and want an explanation for the more cautious recommendation in Japan."

Obama Urged To Appoint "Independent" Panel To Review Reactor Safety. On its "E2-Wire" blog, The Hill (3/28, Geman) reports that an environmental advocate who served on the White House-created panel that investigated the BP oil spill wants President Obama to appoint an "independent commission to study US nuclear plant safety in light of the Japanese reactor crisis." Frances Beinecke, president of the Natural Resources Defense Council wants the Administration to "appoint a truly independent commission, similar to the Kemeny Commission that investigated the Three Mile Island accident in 1979," and said reviewing "reactor safety shouldn't be left up to the NRC alone," because the NRC, she asserts is a "weak regulator with insufficient independence" from the nuclear industry.

SPS Highlights Nuclear Plant Inspectors In Central New York. In an article about nuclear plant inspectors the Syracuse Post Standard (3/28, Groom) reports, "In Central New York, two teams of two inspectors each ensure the three nuclear plants in Scriba — Constellation Nuclear Energy Group's Nine Mile Units 1 and 2 and Entergy Nuclear's James A. FitzPatrick — operate correctly." The Post Standard notes, "The inspectors oversee training sessions to make certain plant workers know what's necessary to operate the plants safely" and "monitor maintenance work." According to the article, "At Nine Mile 1 and 2, senior inspector Kenneth Kolaczyk and inspector Doug Dempsey" examine the plant every day.

NRC Has Granted Safety Rule Exemptions To Indian Point. Under the headline, "Indian Point's Gotten A Free Pass On Safety Regulations Over Last Decade, Feds Delay Evacuation Plan," the New York Daily News (3/27, Feiden, Kates) reported, "Federal nuclear watchdogs say Indian Point is their No.1 priority - but over the last decade they've let the aging nuke plant bypass scores of critical safety rules." The Daily News adds the NRC "has a history of granting Indian Point's owner, Entergy, numerous exemptions to regulations governing fire safety, storage of spent fuel, and systems designed to prevent meltdown," though agency "spokesman Neil Sheehan insisted the agency has 'followed appropriate processes' when considering Indian Point's request for exemptions to NRC rules."

New York AG Faults NRC Oversight Of Indian Point. In a piece for the Westchester (NY) Journal News (3/26) New York Attorney General, Eric T. Schneiderman wrote, "Just last week, when asked about concerns with Indian Point raised in the wake of Japan's crisis, the NRC's spokesperson said safety data regarding the Buchanan plant is 'really not a serious concern.'" Considering that "proceedings to extend Indian Point's license for another 20 years are well under way, New Yorkers cannot afford anything less than a full and honest inquiry into all the relevant issues." Schneiderman faults the NRC for considering "more than 100 exemptions from federal fire safety requirements" at Indian Point and said it would "be unconscionable for the NRC to critically reduce the number of fire safety measures Indian Point must follow."

Real Estate Market Near Indian Point Thriving. The AP (3/25) reported on real estate listings near the Indian Point nuclear power plant in Buchanan, New York, where realtors, "say that while some are concerned, it's had no effect on the real estate market." Keller Williams realtor Gerri Schwalb said one of the main "appeals" is that "taxes are very low, because Entergy pays most of them," and Schwalb added, "The

nuclear power plant has been there for years and years and years and it really has not affected prices, nor the number of houses selling in the area.'"

In 2005, Entergy Repaired Small Leak In Indian Point Spent Fuel Pool. The Westchester (NY) Journal News (3/27, Clary) reported that with the crisis in Japan's Fukushima plant, all eyes are on atomic plants in the US and what might happen "when fuel storage is compromised." While "Indian Point has never had a serious incident that threatened the water coolant in its spent fuel tanks, it did experience a tiny, potentially dangerous leak, discovered in 2005," when Entergy workers found a "leak in Indian Point 2's spent fuel pool while digging on the property." Entergy continued "monitoring the leak, and the tritium and strontium 90 tainted water that escaped eventually dried up."

Differences Abound Between Indian Point Reactors And Fukushima Plant. International Business Times (3/25, Emspak) reports on comparisons, often by opponents of Indian Point plant or of nuclear power in general, to the current "disaster at the Fukushima Daiichi nuclear power plant in Japan." There are "several differences between the facility at Indian Point and the Fukushima reactor, and those differences show that while Indian Point, like other nuclear power plants, has risks, they are different risks from those at Fukushima." While the Japanese plant is a boiling water reactor, most US facilities, like Indian Point, known as a "pressurized water reactor, or PWR, a much more common design in the US."

Slipups In Evacuation Drill Could Lead To Chaos. The New York Daily News (3/27, Kates) reported that plans to evacuate "the 450,000 people who live and work within 10 miles of Indian Point fill volumes," and they "anticipate dozens of horrific scenarios and hone them depending on the season, day of the week, time of day, weather and wind direction." FEMA tests the evacuation plan every two years – along with government officials and first responders – but last year slipups came to light that "could lead to evacuation chaos and medical breakdowns."

In a piece for the Gothamist (3/27), Ben Yakas "If an emergency were to take place at Indian Point nuclear plant, which sits at the intersection of two fault lines and was recently branded the most vulnerable to an earthquake in the nation, it would take nine-and-a-half hours to evacuate all 450,000 people who live and work within a 10-mile radius. In their most recent test of the plant's evacuation plans, the Federal Emergency Management Agency found dozens of problems in possible evacuation plans based on various disaster scenarios."

Commentator Wants Indian Point Plants Shut Down. In a piece for the Brookfield (CT) Patch (3/25), Chris Goodrich wrote, "I've never been all that upset about nuclear energy, even if it entails significant risks, because top-notch engineers and scientists design these plants." But, "it's impossible to make a nuclear plant fail-safe, if only because you can't anticipate every contingency. And Brookfield is less than 50 miles from Buchanan, New York, where the Indian Point nuclear power plant is located, near the intersection of earthquake faults zones, according to a 2008 Columbia University study."

Opponents Hit NRC Willingness To Approve Vermont Yankee Relicensing.

Politico (3/28, Dixon) reports, "Anti-nuclear activists around the country have seized on the ongoing crisis at the Fukushima Daiichi facility in Japan to argue that the death knell of the nuclear industry is finally at hand." Last Monday when the NRC "announced it would conduct a 90-day 'snapshot' regulatory review of the US nuclear reactor fleet," it "finalized the relicensing of the Vermont Yankee nuclear plant...for another 20 years." The NRC "action leads to questions about the comprehensive nuclear review President Barack Obama called for." Erich Pica of Friends of the Earth called the approval a "stunning" rubber stamp, meant to guarantee "the use of this aging reactor for another two decades, and it's outrageous that it would do so just days after announcing a 90-day review in response to the crisis in Japan.'"

In a commentary for the Boston Globe (3/28) Nancy Braus of the anti-Yankee group, "Safe and Green" writes, "Vermonters have brought repeated and credible arguments before the NRC as to why Vermont Yankee is too risky, old, and poorly maintained to continue operations." Vermonters have the right to tell Entergy "that 40 years is enough, that we can and will do better, and that power can come from sources that do not produce carcinogens, require evacuation drills, and produce the most toxic waste on earth."

County Urges NRC To Rescind Vermont Yankee Relicensing. The Brattleboro (VT) Reformer (3/25, Garofolo) reported that in the wake of the disaster in Japan, "Windham County lawmakers have proposed a resolution" calling for the NRC "to reconsider its decision on relicensing the power plant for an additional 20 years." Vermont Yankee opponents "say the plant is the same vintage and design (Mark 1) as the reactors half a world away in Japan and the NRC should not have continued with issuing a license without a complete review of its safety." Edwards urged the NRC – "strongly urge the NRC to rescind the issuance of a 20-year license until we better understand the catastrophe unfolding in Japan'."

Boston Globe Says NRC Seems Too Close To Nuclear Industry. In a brief editorial, the Boston Globe (3/27) argues that the NRC's decision "to grant a 20-year license extension to 38-year-old Vermont Yankee defies common sense. The agency should have put such decisions on hold until the lessons of Fukushima can be fully understood." The Globe says the NRC "needs to be an

honest broker, but it often seems too close to the industry it regulates."

Prospects Of Second Plant In Vermont Considered. Rutland (VT) Herald (3/27, Bushnell) reports on a second nuclear plant in Vermont, planned on the shores of Lake Champlain, on property to be purchased from Dick and Mary Thurber in Charlotte, and while it is "unclear how word of the proposed nuclear plant got out." According to "one version of the story, Central Vermont Public Service Corp., Vermont Yankee's major shareholder, leaked the news to gauge public reaction. Or perhaps rumors circulated after someone noticed when Vermont Yankee's option was recorded in town records." The Herald added, "However the news emerged, it forced Vermonters to grapple with the issue." Apparently "a poll of Charlotte residents found 60 percent opposed and 22 percent in favor of the plant."

Nuclear Experts To Debate Yankee Relicensing. The Rutland (VT) Herald (3/26) reported Yankee plant "will be the topic of discussion at a public debate being held Tuesday at Harwood Union High School in Duxbury. At 7 pm, the public is invited to explore two sides of the debate as to whether Vermont Yankee should continue to operate for another 20 years." The Herald adds Meredith Angwin, who supports nuclear power and is a "public relations expert for the energy industry" will square off against Vermont Public Interest and Research Group's James Moore.

Vermont Officials Look For Water Well Test Results. The Brattleboro Reformer (3/26, Stilts) reports, "The Vermont Departments of Public Service, Health and Environmental Conservation have asked for the test results from a former drinking-water well at the Vermont Yankee nuclear power plant and members say the results aren't coming quickly enough." Harry Chen, Commissioner of the Department of Health, Elizabeth Miller, Commissioner of the Department of Public Services, and Justin Johnson Deputy Commissioner of the Department of Environmental Conservation sent a letter advising Michael Colomb, site vice president of Vermont Yankee, that it has until March, 28 to provide test results. "'We consider analysis of this well extremely valuable due to its depth and location in close proximity to the Advanced Off-Gas building, a source of tritium contaminated groundwater,' the letter states." Vermont Yankee spokesman Larry Smith, "said testing had not been done."

Boston Globe Seeks Safety Reappraisal Of New England Nuclear Plants. The Globe ran three editorials dealing with nuclear power plants in New England. In the first editorial, the Boston Globe (3/27, 244K) said the Fukushima crisis "kindled a badly needed reappraisal of nuclear energy safety in the United States — including at three nuclear plants that power the Boston area." The Pilgrim nuclear station in Plymouth, like many nuclear facilities, "holds more waste than was originally intended, largely because the federal government has failed to build a long-term storage facility. If plants will be responsible for storing their own waste for the [foreseeable] future, regulators should place stricter limits on wet storage." In addition the NRC should review concerns about aging cables and plant security.

In its second editorial, the Boston Globe (3/27, 244K) questioned the NRC's decision last week to grant a license extension to the Vermont Yankee nuclear plant, saying it "should have put such decisions on hold until the lessons of Fukushima can be fully understood." The decision is "especially puzzling given the history of leaks at the plant and misleading statements by Entergy." The NRC "needs to be an honest broker, but it often seems too close to the industry it regulates."

In its third editorial, the Boston Globe (3/27, 244K) said the Seabrook Station nuclear plant has a license for 19 more years, but "under an oddly generous NRC policy, the plant is hustling to get its license extended for an additional 20 years. Granting that would be foolhardy." The NRC "owes it to the public to assess the extension based on what's known about nuclear safety in 2030, not 2011."

New England Plants Storing Large Quantities Of Spent Fuel Onsite. On its website, WCVB-TV Boston (3/27) noted, "According to the Nuclear Regulatory Commission and companies that own nuclear power plants in New England, a large amount of waste is now being stored." The Pilgrim plant "was originally licensed to store 880 fuel assemblies. It now stores 2,918 – nearly four times the original amount." The story is similar at Vermont Yankee, originally "licensed by the NRC to store 600 fuel assemblies, it now stores 2,935." At Seabrook, "1,128 fuel assemblies are in storage, just shy of the NRC limit of 1,236."

On its website, WMUR-TV Manchester, New Hampshire (3/27) reported, Vermont Yankee Spokesman Larry Smith "said that the spent-fuel rods, which are still radioactive and hot, are stored in a massive, concrete-encased water-filled pool. The pool is beneath the steel and concrete containment area of the plant." Like other plants, Yankee "'had to do what's called re-racking their fuel pools and increase the capacity,' said Smith."

Arizona Corporation Commission To Hold Safety Discussions For Palo Verde Plant. The Phoenix Business Journal (3/27) reported, "The Arizona Corporation Commission will hold a meeting Tuesday to discuss safety plans for the Palo Verde Nuclear Generating Station." The special meeting is being held "at the request of at least two commissioners, Bob Stump and Paul Newman." They asked for the briefing "after getting numerous requests from their constituents regarding the nuclear plant's safety" in view of the Japan nuclear crisis.

The AP (3/25) reported that the "Arizona Public Service, the utility that runs the plant on behalf of a consortium of power companies in the four states, has already briefed Arizona legislators on the plant's safety procedures." AP added, "The nuclear crisis in Japan also has prompted the Nuclear Regulatory Commission to launch a review of US nuclear plants."

KPHO-TV Phoenix (3/25) said, "The hearing before the Arizona Corporation Commission will assess safety procedures in the aftermath of Japan's nuclear accident." KOLD-TV Tucson (3/25, Truelsen) also covered the news.

Reporter Writes About His Experience Of Touring A Nuclear Reactor. In the Phoenix Business Journal's (3/27) "Phoenix Business Blog," reporter Patrick O'Grady wrote about his experience during a tour of Palo Verde Nuclear Generating Station. He wrote: "There's something unsettling about something you can't see, smell or touch, but can kill you quickly enough. The tour involved a view of the operations from security through entering the containment dome where workers were installing new uranium into the core." O'Grady wrote that as he now watches "the events at the Fukushima Daiichi power plants in Japan, I have a little better understanding of what they're dealing with."

Palo Verde To Open New Emergency Center. The Phoenix Business Journal (3/25, O'Grady) reported, "Palo Verde Nuclear Generating Station officials are preparing to open an $18.5 million education and emergency operations center in Buckeye to support the plant in case of emergency." The center "is coming online as the nuclear power industry fields safety questions in the wake of potential meltdowns at four Japanese reactors after a major earthquake and tsunami."

New Jersey To Review Nuclear Safety. The AP (3/26) reported, "New Jersey, the most densely populated state and home to the nation's oldest nuclear power plant, created a task force Friday to review safety and emergency response plans at nuclear plants in light of the disaster unfolding in Japan." AP said "the state Department of Environmental Protection appointed the panel, composed of homeland security, state police and utility officials." The task force will begin "work next week and plans to visit the 41-year-old Oyster Creek plant in Lacey Township, as well as the three reactors in Lower Alloways Township in Salem County, called Hope Creek and Salem I and II."

New Jersey's Record and Herald News (3/26, Fallon, O'Neill) reported New Jersey Gov. Chris Christie said in a statement: "There may be lessons to be learned from what is happening in Japan that could make our preparedness even better and make the state's residents more secure." Notably, "PSEG and the Exelon Corp., which own and op-erate the facilities, have pledged to participate," the paper added.

Potassium Iodide Pills Distributed Near Nuclear Plants In Salem County. New Jersey's Today's Sunbeam (3/27) reported, "More than 700 doses of radiation-blocking potassium iodide pills were distributed here this week to residents living within the 10-mile radius of Salem County's three nuclear power plants." The article said "the action was in direct response to concerns of residents following the March 11 earthquake and tsunami in Japan which damaged several nuclear reactors there and released radiation, according to Salem County Deputy Administrator Robin Weinstein." The tablets "are to be taken only when directed by emergency response officials in the case of the release of radiation from a nuclear plant," the article added.

"Nuclear Renaissance" May Again Be On Hold. The New Yorker (4/4, 1.02M) writes that in the half-century since the Eisenhower Administration "did just about everything it could to promote nuclear energy," US interest in the resource has risen and fallen based on events. The 1979 Three Mile Island incident and the 1986 Chernobyl disaster turned Americans off to nuclear power, but interest "picked up once more after 9/11, and receded again, to the point where many in the industry had begun to speak of a 'nuclear renaissance.'" But following the Japan nuclear crisis, "it looks as if the renaissance will have to be postponed."

NRC Urged To Take "Good, Hard Look" At Safety Regulations. In an editorial, the Oneonta (NY) Daily Star (3/27) wrote of the pending NRC review of the US nuclear fleet after the crisis in Japan and how it the tragedy had "reopened the debate on nuclear power worldwide. Germany is set to abandon nuclear power, and Italy has placed a one-year moratorium on plans to revive its nuclear energy program, which was shut down more than 20 years ago." The Daily Star adds NRC Chairman Jaczko "said the review would determine if changes need to be made at the 104 nuclear power reactors at 65 sites nationwide. We feel this is the right approach. Japan's situation must be a learning experience for the rest of the world." The "NRC must study the Indian Point facility" and every other nuclear and "take a good, hard look at our regulations."

Nuclear Critic Says US Industry Relies Too Heavily On Mitigation In Disaster Preparedness. Ed Lyman of the Union of Concerned Scientists appeared on Bloomberg's "Final Word" (3/25, 4:13pm, Miller) broadcast to discuss safety systems at US nuclear facilities in light of the incidents in Japan and said, the "secret that the industry does not want Americans to know, [is] that nuclear power plants are vulnerable to the kinds of nuclear catastrophe that we are seeing in Japan. The only way to deal with that is to have measures in place to prevent

such an accident from happening to the greatest extent possible. Recently, the industry has relied more on mitigation, saying, 'even if it is happening, we will be able to cope with it. Well, we see how well that's working out. In Japan, they cannot cope with it."

NRC Faulted For Not Ferreting Out Counterfeit, Substandard Parts. Paul Gunter of Beyond Nuclear appeared on MSNBC's "The Ed Show" (3/25, 6:48pm) and said "what this OIG report, office of the Inspector General has found is that there's been a bobbling of reporting of safety defective parts, fuses, circuit breakers, pumps, motors, any number of parts that are, you know, vital in the event of preventing operations from going into an accident or controlling an accident once it starts s starts. The big problem here, though, the bigger picture is that the Nuclear Regulatory Commission was reported back in 1990 as not managing counterfeit and substandard parts. And so the report from the OIG now in 2011 is disturbing because it's back -- harkening back on the faults and failures of the agency to capture substandard parts again."

Senators Say Nuclear Waste Recycling, Storage Should Be Reconsidered. The Bloomberg News (3/25, Parker) reported Sens. Dick Durbin (D-IL) and Mark Kirk (R-IL) said during a forum in Chicago organized to address nuclear-plant safety in the state most reliant on atomic power that "research on the reprocessing of spent nuclear waste should be revisited in the US as Japan battles to avoid a meltdown at its earthquake-damaged Fukushima power plant." They both said "the country needs a plan for storing or recycling radioactive waste from fission used to generate electricity." Durbin said, "It's been a serious mistake that we have backed off this reprocessing issue." The article explains that "investment in recycling capacity stalled after President Jimmy Carter banned reprocessing over concerns of nuclear- weapons proliferation."

Connecticut Urged To Sue For Refund Of Yucca Funds. In an editorial, the Waterbury (CT) Republican American (3/27) said that the decision not to proceed with plans for the nuclear waste repository at Yucca Mountain is "problematic" for Connecticut, because there are two sites in the state that are "used to store spent nuclear fuel: the active Millstone Nuclear Power Plant in Waterford and Haddam's Connecticut Yankee Nuclear Power Plant, which serves only as a storage facility." After pointing out that Connecticut ratepayers have paid $8 million per year for in-state storage, in addition to the $383 million Connecticut ratepayers have contributed toward the Yucca project, the newspaper argues that Connecticut state Attorney General George C. Jepsen "should consider suing the federal government for the costs its dilly-dallying has incurred on Connecticut ratepayers, already struggling with some of the country's highest electrical rates."

San Diego Paper Says Japan Crisis Underscores Need For Waste Storage Plan. A San Diego Union-Tribune (3/27, 240K) editorial said, "It seemed oddly out of sync when Sen. Feinstein, at the end of a tour this week of California's San Onofre and Diablo Canyon nuclear power plants, said she 'had always thought we didn't need' a national repository for nuclear waste." At present, waste from spent fuel rods "is generally kept on-site at each of the more than 100 nuclear plants throughout the nation, but almost nobody thinks that is a safe, permanent solution. ... Along with so many other questions regarding nuclear power in the wake of the Japan crisis, it is time to rethink the Yucca Mountain decision, or at least come up with a better idea."

TVA Official Offers Tour Of Fukushima-Type Nuclear Plant. The New York Times (3/27, Wald, 950K) says the Tennessee Valley Authority, "seeking to project a balance of confidence and openness to improvements," opened the doors to its Browns Ferry nuclear plant on Friday "to present perhaps the most detailed case so far that American reactors of the same design and vintage as the ones damaged in Japan do not face the same risks. ... Yet it is clear that from fire hoses to batteries on wheels to components like a strobe light, the three reactors at Browns Ferry have preparations in place that operators say would help in a nightmare situation like Japan's, a loss of electricity for running its pumps, valves and safety systems."

Man Charged For Lying In Watts Bar 2 Incident. The Rhea County (TN) Herald News (3/26, Reneau) reported, "Federal prosecutors have charged an area electrician for lying about a report he filed at Watts Bar Unit 2 - the country's only new nuclear reactor currently being constructed - in August 2010." The paper said "Matthew David Correll, 31, was indicted on two counts of falsifying federal reports Thursday in Chattanooga federal court."

TVA Says Its Reactors, Spent Fuel Pools Safer. The Knoxville News Sentinel (3/25, Marcum) reported, "As TVA officials understand it, the Fukushima Daiichi nuclear plant reactors began shutting down as designed when a 9.0 earthquake hit Japan on March 11, and the situation seemed under control until a tsunami hit about 40 minutes later, wiping out the diesel generators that provided a backup power supply to run the reactors' cooling system." Bill McCollum, TVA chief operating officer, was answering "to questions about how TVA is responding to the nuclear plant crisis in Japan." McCollum said TVA's Browns Ferry plant, near Athens, AL, "also has emergency diesel generators, but

they are in flood-protected buildings with watertight doors. Each generator has a seven-day fuel supply that is buried underground, as are the wiring and breaker panels for the generators."

On Fox News' Studio B with Shepard Smith (3/25), Ashok Bhatnagar, TVA's senior vice president of nuclear operations, is shown saying in response to the incident, "We actually have processes in place designed exactly to do this, as work is completed to go through multiple checks. And those checks found this and we will find other issues and make sure those are corrected."

Chris Peck, editor of the Memphis Commercial Appeal (3/27, Peck) writes in an opinion piece that Memphis "is tied into the world economy and world events more than most cities our size." For instance, "the disaster at the Japanese nuclear power plants has shaken the world's confidence in nuclear power." The article said "Memphis gets 35 percent of its electricity from nuclear power plants operated by the" TVA, which "wants to keep building nuclear plants." The paper said that "a big TVA nuclear plant, known as Watts Bar No. 2, is scheduled to come online next year with enough capacity to power every home in Memphis."

The Memphis Commercial Appeal (3/27) published a few responses to a question posed by the paper: "What do you think about TVA's plan to expand its use of nuclear power in the Tennessee Valley over the next two decades?" Two of the readers supported the move to expand the use of nuclear power, with one of them noting that he doesn't "have a problem with nuclear power expansion if it's done slowly and very carefully." Both of them recommended that TVA should also consider alternative forms of energy. The third reader said expansion of nuclear-generated power is fraught with dangers, including problems associated with storage of spent fuel.

In a letter to the editor in The Chattanoogan (3/25), reader Stephen Durham wrote that "after the recent events in Japan," the TVA "leadership touted its nuclear plants as 'robust' and without the design flaws of the Japanese nuclear facilities. Whether TVA nuclear facilities lack the design flaws of the Japanese nuclear facilities is not the real question here." He said the "real question is whether or not the TVA leadership can be trusted to tell the public the truth." For instance, he alleged, that in 2005 "TVA leadership assured" Alabama and the EPA "that the Widows Creek Fossil Plant was not emitting untreated flue gas into the atmosphere," but "in 2008," Alabama "fined TVA $150,000 for illegal emissions at Widows Creek from 2003-2005." But Tom Donelson of Hixson objected to certain matters raised in Durham's letter, noting he should provide "evidence" and "facts" to support his claims.

NRC Issues Final SEIS For New Reactors At Plant Vogtle. MarketWatch (3/26, Gelsi) reported the NRC said "Friday said it completed its final supplemental environmental impact statement for the Vogle Units 3 and 4 proposed by Southern Co." The NRC's SEIS "concludes that 'there are no environmental impacts' that would preclude issuing a limited work authorization and combined licenses for the nuclear reactors, planned for a site near Waynesboro, Ga."

The Wall Street Journal (3/26, Malik, Tracy) adds that the approval on the project means that the NRC's environmental review of the two new reactors did not find anything that would preclude the agency from issuing licenses to the company. The Commission has yet to complete a safety report on the project and wrap up its review of the proposed AP1000 reactor design.

Reuters (3/28, Doggett) notes that Southern spokeswoman Beth Thomas, said, "We don't anticipate any events in Japan to impact the construction schedule or the company's ability to stay on budget for the new units." Reuters adds Glenrock Associates LLC energy analyst Paul Patterson, said nuclear power supporters should not read too much into the NRC's decision on Southern.

On its website, WRDW-TV Augusta, GA (3/26) reported, "Southern Nuclear Operating Company, which owns Plant Vogtle, wants to build two AP1000 reactors. It will still be some time before the NRC issues its final license for Plant Vogtle to actually start building the reactors."

NRC IG Investigation Finds Reporting Flaws For Defective Nuclear Plant Parts. The Christian Science Monitor (3/25) reported, "A large fraction of the nation's nuclear power plant operators – 28 percent – did not tell federal regulators about failures of defective parts that could lead to major safety problems in other reactors across the country, according to a new report Friday by the Nuclear Regulatory Commission's inspector general." Industry watchdogs say some plants may be unknowingly operating with defective parts. The CSMonitor added that a "1990 Government Accountability Office study found counterfeit and substandard parts were rife in the nuclear power industry" and new federal regulations were enacted requiring power plant operators "to report certain types of part failures that could jeopardize nuclear plant safety – even if backup systems prevent any dangerous condition from occurring at the plant."

Limerick Station To Be Part Of NRC Spent Fuel Storage Review. The Pottstown (PA) Mercury (3/25, Brandt) reports, "In addition to undercutting national support for the construction of new nuclear power plants, the ongoing nuclear disaster in Japan has had another effect on US

nuclear policy. It has dragged a nagging nuclear by-product back into the spotlight: spent fuel." Spent fuel "is a subject familiar to neighbors of Exelon Nuclear's Limerick Generating Station. In 2007, ground was broken on a spent fuel facility that takes older, colder fuel from the plant's spent fuel pool and stores it in a dry cask storage system." The NRC will include "spent fuel storage, both in pools and in dry casks, in a 'quick-look review'" that it is planning for some plants including Limerick facility. NRC spokesman Neil Sheehan, "has said that before the earthquake even struck Japan, his agency had planned to include the Limerick plant among those it intended to review for susceptibility to earthquake damage as the result of new geologic data about the region."

Physicists List Lessons To Be Learned From Japan's Nuclear Crisis. The Scientific American (3/25, Castelvecchi) reported, "Many reactors in the US have a similar design to the General Electric units that are spewing radioactive clouds into Japan's skies and keeping the world on edge." Raymond L. Orbach, former undersecretary for science at the Department of Energy, said "here this week at a meeting of the American Physical Society So, the US should learn lessons from that ongoing disaster and seriously consider retrofitting at least some of its reactors." The paper said "the Browns Ferry Nuclear Plant in Alabama, where three reactors came online in the 1970s, is one of many US facilities to use the same design as the crippled reactors at Fukushima Daiichi."

Mixed Oxide Nuclear Fuel Raises Safety Questions. The Scientific American (3/25, Matson) reported that reactor No. 3 at the troubled Fukushima Daiichi power station in Japan "has one characteristic that differentiates it from its neighboring reactors and from any operating reactor in the US" Among the "hundreds of standard nuclear fuel assemblies in its core... are some that contain a mix of uranium and plutonium," or MOX. The use of MOX is controversial, and some "critics say that MOX is riskier than standard fuel and that there are better ways to dispose of excess plutonium." Notably, "the federally owned Tennessee Valley Authority (TVA), which operates the Browns Ferry Nuclear Plant and two other nuclear facilities, has expressed some interest in trying MOX and may step up to take fuel from" the Mixed Oxide Fuel Fabrication Facility (MFFF) in South Carolina.

Nevada, Massachusetts Detect Radiation From Japan. The AP (3/28) reports that "extremely small amounts of the radioactive isotopes iodine-131 and xenon-133 reached a monitoring station by [Las Vegas'] Atomic Testing Museum this week," according to Ted Hartwell, manager of the Desert Research Institute's Community Environmental Monitoring Program. "Hartwell said he's certain the isotopes came from Japan because they're not usually detected in Nevada," but added that the amount detected was far below levels that could pose any health risks. Said Hartwell, "Unless you have an accident like this (in Japan) you wouldn't expect to see this. No doubt it's from Japan."

In a separate story, the AP (3/28) reports that "health officials said Sunday that one sample of Massachusetts rainwater has registered very low concentrations of radiation, most likely from the Japanese nuclear power plant damaged earlier this month by an earthquake and tsunami." John Auerbach, the Massachusetts commissioner of public health, also "said the drinking water supply in the state was unaffected and officials do not expect any health concerns."

Part Of US Monitoring System Out Of Order While Radiation Drifted From Japan. The AP (3/26, Burke, Schwartz) reported, "Part of the nation's key radiation warning system was out of service as the US braced for possible exposure to the fallout from a nuclear crisis in Japan." The RadNet system includes 124 monitors, of which "about 20" and four of eleven in California "were out of service" this week as "low levels of radiation began drifting toward the mainland US." EPA said that it "put portable monitors in place as backups and repaired the permanent ones in Los Angeles, San Bernardino, San Diego last weekend." Sen. Barbara Boxer, chair of the Senate Environment and Public Works Committee, "plans a hearing in the coming weeks on nuclear safety." EPA Inspector General Arthur Elkins "is considering reviewing the agency's emergency response planning."

Trace Radiation From Japan Accident Found In Massachusetts. ABC World News (3/27, story 7, 0:25, Muir, 8.2M) reported, "This evening, it is believed that tiny traces of radiation from the crippled Japan plant have now been detected on the East Coast of the US in rainwater tested in Massachusetts. Officials said the radiation poses no health threat. They did not say where in Massachusetts the rainwater sample was taken but they do believe the radiation was carried by the winds moving west to east."

Low levels Of Radioactivity From Japan Detected By Progress Energy. On its website WRAL-TV Raleigh (3/27) reports, "Very low levels of radioactive Iodine 131 have been detected in the air throughout the US as a result of nuclear leaks at the Fukushima plant in Japan, Progress Energy officials said Saturday." Progress Energy's Drew Elliot said that "very sensitive equipment at the utility's Robinson and Crystal River nuclear plants, in South Carolina and Florida, respectively, detected iodine radiation in the atmosphere, but said it did not pose a health threat for US residents."

Radiation From Japan Reaches Nevada. The AP (3/27, Griffith) reported, "Minuscule amounts of radiation from

Japan's damaged nuclear plant have reached Las Vegas, but scientists say it poses no health risk. Extremely small amounts of the radioactive isotopes iodine-131 and xenon-133 reached a monitoring station by the city's Atomic Testing Museum this week, said Ted Hartwell, manager of the Desert Research Institute's Community Environmental Monitoring Program. Hartwell said he's certain the isotopes came from Japan," but he said the readings "were far below levels that could pose any health risks."

Dominion Official Refutes Fears About North Anna From MSNBC Report. Noting the recent MSNBC report which stated that the North Anna Power Station is the tenth-most-likely reactor in the nation to suffer core damage from seismic activity, the Central Virginian (3/25, LaRoue) reported that "federal regulators and Dominion officials counter that the claim is misleading and ill-informed." In response to the report, "Joey Leford, NRC spokesperson, countered that the data was not intended to provide comparison between plants and that the odds generated do not reflect actual likelihood of the occurrence." Meanwhile, "North Anna Power Station operators, as well as those at other reactors, drill on the protocol to respond to an earthquake or other natural force, with the goal of safely shutting down the reactor, according to Richard Zuercher, Dominion spokesperson. 'The core would not immediately be damaged,' Ledford said of earthquake accident scenarios. 'The core would be damaged, as you've seen in Japan, because of an inability of operators to cool the reactors.'"

Wisconsin Paper Expresses Confidence In Nuclear Power. An editorial in the Hudson (WI) Star Observer (3/25) expressed sympathy for the victims of the disaster in Japan, and considers how the nuclear dimension there could impact the "nuclear power debate" in the US. "The truth of the matter is — nuclear power is a very clean, efficient and cost-effective source of energy" and though "things can, and do, go wrong," the Star Observer states that "most experts" say "the modern nuclear facility is about as safe as anything available. ... Wisconsin has had a nuclear moratorium since 1983. That came about after the 1979 accident at Three Mile Island. Wisconsin has two nuclear plants, near Kewaunee and Point Beach on the eastern side of the state. They provide about 19 percent of the state's electricity." The piece concludes, "Unless we can perfect wind and solar energy quickly, nuclear energy is by far the cleanest and most environmentally friendly, especially when compared to oil, coal and other so-called 'dirty' sources."

Columnist Sees Risk In All Forms Of Energy. Brett Clanton wrote in the Houston Chronicle (3/26, 342K) about recent calls for nuclear plant safety, "While steps can be taken to improve safety and to reduce environmental impacts of leading energy sources, consumers also have to be realistic about the trade-offs that come with the luxury of having the lights come on every time they flip a switch or gasoline available when they pull up to the pump. 'There's nothing free. There's risk associated with every source. We just have to learn to get used to it,' said Raymond Orbach of the Energy Institute at the University of Texas at Austin, who contends more could be done to lower risks if funding for scientific research were a bigger priority."

New Jersey Conducts Nuclear Plant Safety Review. The AP (3/25, Parry) reported, "New Jersey, the most densely populated state and home to the nation's oldest nuclear power plant, created a task force Friday to review safety and emergency response plans at nuclear plants in light of the disaster unfolding in Japan. The state Department of Environmental Protection appointed the panel, composed of homeland security, state police and utility officials. It will start work next week and plans to visit the 41-year-old Oyster Creek plant in Lacey Township, as well as the three reactors in Lower Alloways Township in Salem County, called Hope Creek and Salem I and II."

Lawsuit Over Piketon Processing Plant Settled After 21 Years. The Columbus (OH) Dispatch (3/26, 174K) reports, "A $300 million federal lawsuit by neighbors of the former Piketon uranium-processing plant finally has been settled -- 21 years after it was filed. Neighbors of the Portsmouth Gaseous Diffusion Plant sued plant owner Divested Atomic Corp. in 1990, saying the plant had contaminated their neighborhood. Louise M. Roselle, who has represented the neighbors since 1990, said today that the settlement is confidential."

The AP (3/26, Franko) reports, "The undisclosed settlement was "substantially less" than the $300 million lawsuit and didn't include all the plaintiffs, said attorney Gail Ford, who represented Divested Atomic Corp. and other operators of the former Portsmouth Gaseous Diffusion Plant in Piketon, about 65 miles south of Columbus."

SRS Group To Assist In Japan Radiation Study. The Augusta (GA) Chronicle (3/28, Pavey) reports the National Center for Radioecology, a new consortium managed by Savannah River National Laboratory, "will offer Japan important expertise on risk modeling and the spread of radiation." While the group "had an initial goal to resurrect waning interest in studies of how radiation affects plants and animals...since the March 11 disaster that spawned Japan's nuclear crisis, however, the partners in the group have found themselves far busier than they anticipated." SRNL scientist Tim Jannick said, "We will be getting food and vegetable

samples sent here for analysis," adding, "There will also be a team going over there that will include people from SRS (Savannah River Site), mainly nuclear power folks." The group is also "collaborating on a new white paper to be presented to the US Department of Energy and Nuclear Regulatory Commission to offer guidance on issues ranging from cleanup and food analysis to homeland security."

Popularity Of "Atomic Tourism" Sites Rise During Japanese Crisis. The AP (3/28) reports, "The crisis in Japan has boosted interest in nuclear-related museums and plants, once-secret Manhattan Project complexes and areas laid waste by disaster." The article provides a list of several atomic tourism sites, including the Hanford Nuclear Reservation, where, "from a distance, visitors watch white-suited workers bury mercury-tainted soil in a landfill and see cranes building a plant to encase radioactive waste in glass." Also listed are the American Museum of Science and Energy in Oak Ridge, Tennessee; the Atomic Testing Museum in Las Vegas, Nevada, which discusses the Nevada Test Site, now the Nevada National Security Site; and the National Museum Of Nuclear Science & History in Albuquerque, New Mexico.

Uranium Mining CEO Expects No Long-Term Harm To Industry From Fukushima. The New York Times (3/26, Austen, 950K) reported on Canadian uranium mining and processing company Cameco and the Japanese earthquake and tsunami's consequences for nuclear power. Cameco's stock closed yesterday at $31.17, down from a high of $43.14 before the earthquake. Cameco CEO Gerald Grandey "said this week that he was still optimistic about the long-term future of nuclear power." Grandey said that the nuclear industry will study what happened at Fukushima and over the course of a year or so will figure out how to improve its responses to such events. "After we digest the lessons learned, I think we'll get back on the path of nuclear construction," he said.

NRC DOE Officials To Discuss Japanese Nuclear Crisis Before Senate Panel. On its "E2-Wire" blog, The Hill (3/26, Geman) noted that the Senate Energy and Natural Resources Committee will hear from NRC and DOE officials "about the Japanese nuclear crisis. The panel will hear from Peter Lyons, the acting head of the Energy Department's nuclear energy office, and Bill Borchardt, executive director for operations at the NRC." Representatives from the Nuclear Energy Institute and the Union of Concerned Scientists will also testify.

Small Modular Reactors May Help Lower Costs For Nuclear Power. The BBC News (3/25, Palmer) reports on the excitement in the industry about small modular reactors, "an idea that has been gaining ground in the industry and in the halls of power for some time." Attendees at the American Physical Society meeting in Dallas last week ranged from nuclear physicists to policy experts, but "all seem to agree on the merits of SMRs." Such reactors would help address the "biggest issue for the industry" – the fact that its "'upfront capital construction costs are extremely high,' said Bob Rosner, professor of physics at the University of Chicago and former director of Argonne National Laboratory, the spiritual home of the nuclear reactor." Rosner said the units would be "would be factory-built, not built on site," and could be ganged together so that a "utility could buy into nuclear power in stages" and not "have to come up with the entire cost of a gigawatt plant."

DOE Robots May Assist With Japanese Nuclear Crisis. In an article discussing the lack of robotics in Japan that are capable of assisting during a nuclear emergency, the Washington Post (3/28, Vastag) reports that in addition to robots from Europe, "American robots are being enlisted as well." A DOE spokeswoman said Friday that "the agency was evaluating its robotic inventory at the request of the Japanese government. The department has built several remotely operated robots to clean up radioactive waste from former nuclear-fuel processing facilities at its Hanford Site in Washington state and Savannah River Site in South Carolina."

Group Targets GOP Leaders Over Nuclear Agency Budget Cuts. The Washington Times (3/28, Lengell, 77K) reports an "arms control advocacy group has launched a media blitz targeting key Capitol Hill Republican leaders, arguing their support for spending cuts to government nuclear security programs will compromise the nation's ability to defend itself against terrorism." The "nonprofit Council for a Livable World has begun running radio advertisements in the home districts or states of Senate Minority Leader Mitch McConnell, House Speaker John A. Boehner and four other top Republicans criticizing them for voting for deep cuts to the Department of Energy's National Nuclear Security Administration (NNSA)." The Times notes "pressure to leave NNSA funding levels alone also is growing within Congress."

Congressmen Ask Chu, D'Agostino For Y-12, Pantex Contract Extensions. The Oak Ridger (3/27, Huotari) says freshman US Reps. Fleischmann and DesJarlais wrote US Energy Secretary Steve Chu and NNSA administrator Tom D'Agostino a March 14 letter asking them to "extend management and operations contracts for the Y-12 National Security Complex in Oak Ridge; the Pantex Plant

near Amarillo, Texas; and tritium operations at the Savannah River Site near Aiken, S.C. They said the current federal strategy of consolidating operations and construction management at the sites will jeopardize the execution of national security missions."

ORNL Team Assisting DOE, Japan With Computer Simulations. The Knoxville (TN) News Sentinel (3/28, Munger) reports, "Some of Oak Ridge National Laboratory's best computer scientists and nuclear specialists are working long hours and weekends on computer simulations that could help in stemming the nuclear crisis in Japan." Shortly after the crisis began, Jeff Nichols, ORNL's associate lab director for scientific computing, said that a team was assembled "and has applied some of the lab's unique resources and capabilities to better understand the evolving problems at the Fukushima Dai-ichi nuclear power plant," including "simulations of what may be taking place in the pools where spent nuclear fuel assemblies are stored at the reactor sites." He added that information gathered by the team has been passed on to Energy Secretary Steven Chu and ORNL director Thom Mason. Nichols said, "They also have the ability to inform our Japanese counterparts over there and help guide them in their decision-making."

Experts: US Unprepared For Cyberattack Against Infrastructure. In a nearly 1,200-word report on cybersecurity vulnerabilities at critical infrastructure facilities across the US, the Los Angeles Times (3/28, Dilanian, 475K, 657K) notes that DHS "is charged with helping secure crucial civilian infrastructure, but in practice, the job mostly falls to the companies themselves. That would've been akin to telling the head of US Steel in the 1950s to develop his own air defenses against Soviet bombers, writes Richard Clarke, who was President George W. Bush's cyber-security advisor, in his 2010 book, 'Cyber War: The Next Threat to National Security and What to Do About It.'" The comparison, according to experts, "underscores the extent to which the US lacks the laws, strategies and policies needed to secure its cyber infrastructure."

FBI Official To Testify On Cybersecurity Before Senate Panel Tuesday. The Hill (3/28, Nagesh, 21K) reports that Gordon Snow, assistant director of the FBI's Cyber Division, is expected to testify before the Senate Commerce Committee on March 29 during its hearing on cybersecurity. In addition to Snow, the witness panel will also include: Harriet Pearson, vice president security counsel, Chief Privacy Officer, IBM; Sara Santarelli, chief network security officer, Verizon; and Thomas Kellermann, vice president of security awareness, Core Security Technologies.

IN THE BLOGS:

INTERNATIONAL NUCLEAR NEWS:

Officials Retract Extreme Radiation Measurement At Japanese Reactor. Officials at the Japanese power company Tepco on Sunday retracted their announcement of an extremely high radioactive water measurement at the No. 2 reactor at the Fukushima Daiichi nuclear plant. The retraction raised questions anew about the quality and veracity of the information provided by Tepco and the Japanese government on the radiation leaking from the damaged plant.

The Los Angeles Times (3/28, Makinen, Hall, 657K) reports it was "not immediately clear what led to the inaccurate reading of the water, or what the real level was. The company said on its website that there was a 'mistake in the assessment of the measurement of iodine-134.'"

NBC Nightly News (3/27, story 4, 2:30, Cowan, 8.37M) reported it "was the second apology in as many days," and "just the most recent example of late or flat-out erroneous information coming from the owners of Japan's stricken nuclear power plant." TEPCO officials "had reported radiation levels near a pool of one of the reactors were 10 million times the normal level," but it "turns out TEPCO says it was wrong. The radiation level not only in that pool but also in three other newly discovered pools, was high, but not the astronomical level first described."

ABC World News (3/27, story 5, 2:10, Muir, 8.2M) reported there was "yet another major apology tonight from the people who run the Fukushima Nuclear Plant" that "brings into question what can be believed." ABC (Wright) added, the "staggering figure turns out to be wrong, a miscalculation."

The Washington Post (3/28, Harlan, Vastag, 572K) reports the "leaked water sampled from one unit Sunday was 100,000 times more radioactive than normal background levels," while the New York Times (3/28, A1, Jolly, Tabuchi, Bradsher, 950K) reports in a front page story that the "sharply elevated radiation...raised the possibility of spreading contamination and forced an emergency evacuation of part of the damaged plant." The "high amounts of radiation would clearly make continued recovery work near the reactor very difficult and could hobble attempts to bring the nuclear crisis under control."

The New York Times (3/28, A1, Jolly, Tabuchi, Bradsher, 950K) reports in a front page story that the "sharply elevated radiation at the Fukushima Daiichi nuclear complex on Sunday raised the possibility of spreading contamination and forced an emergency evacuation of part of the damaged plant." The "high amounts of radiation would clearly make

continued recovery work near the reactor very difficult and could hobble attempts to bring the nuclear crisis under control." The Wall Street Journal (3/28, Morse, 2.06M) and the Financial Times (3/28, Nakamoto, 448K) also report the story.

Arial Images Show Extensive Damage To Reactors. ABC World News (3/27, story 5, 2:10, Wright, 8.2M) reported, "New aerial images of the smoldering nuclear caldron that refuses to be brought under control. At reactor number one, the roof is completely gone. Reactors two and three have holes in the roof. And steam is leaking out. Reactor four, the walls are gone. That yellow ball is the top of the containment vessel."

Japan Disaster Having Ripple Economic Effects. NBC Nightly News (3/27, story 5, 2:25, Holt, 8.37M) reported on the economic ripple effect from the Japan earthquake and tsunami. NBC (Welker) added, "The crisis in Japan is putting the brakes on an estimated 13% of the world's automotive production." Virtually "all US autos have components manufactured in Japan where plants have been idled by the quake and its aftermath." Electronics "are also struggling," as Sony "partially or temporarily halted production at nine of its 25 plants in Japan. And with 1/5 of the world's computer chips produced in the country, items like the iPad 2 and other tablets and laptops could be in short supply."

Japan Catastrophe Unfolded Before Cameras. The New Yorker (4/4, 1.02M) runs a long feature on the aftermath of the earthquake and tsunami in Japan, writing that "unlike the Indian Ocean tsunami of 2004, the horrific grandeur of this moment unfolded before the unblinking eyes of Japan's ubiquitous surveillance cameras, mobile phones, and hovering news helicopters, compiling a record of rebuke to the sense of protection once extended by the technology and engineering at the heart of Japanese life." Talk quickly "shifted to radiation," and "the prospect of radiation introduced a threat all its own, as invisible as the tsunami was vivid, and throbbing with history" as "survivors of the atomic bombings of Hiroshima and Nagasaki – the revered generation known as hibakusha – stepped forward to plead for 'more sense of crisis'" as the government downplayed the risk.

Sunday: Radiation Levels Jump Sharply At Japan's Impaired Nuclear Plant. Most coverage of developments in Japan's nuclear crisis continue to focus on the extent of damage at impaired reactors, but reports early Sunday indicate much higher levels of radiation at the site. AFP (3/27, Ito) reports, "Very high levels of radiation detected in water leaking from a reactor at a nuclear plant in Japan dealt a new setback Sunday to efforts to bring the stricken facility under control. The operator of the Fukushima Daiichi plant said it had detected radiation levels 10 million times higher than usual in leaked water at reactor two." An air reading of 1,000 millisieverts per hour also forced workers to evacuate reactor No. 2.

The New York Times (3/27, A14, Broad, Jolly, 950K) reported that IAEA director general Yukiya Amano "said Saturday that Japan was 'still far from the end of the accident'" and said, "More efforts should be done to put an end to the accident." He also "cautioned that the nuclear emergency could still go on for weeks, if not months, given the enormous damage to the plant."

ABC World News (3/26, story 6, 2:05, Muir, 8.2M) reported that "high levels of radiation have now been detected well out to sea." ABC (Wright) added that on Saturday "Japanese government officials scolded the Tokyo Electric Power Company for not doing enough to protect workers' safety. Several of the workers braving the front lines of this crisis received severe radiation burns to their legs," and the injuries are "indisputable proof that the reactor core has been compromised." ABC added, "The US Navy is rushing half a million gallons of fresh water to the nuclear plant to replace seawater pumped in a desperate effort to cool off the fuel rods. The fear is the salt water may be corroding the equipment."

NBC Evening News (3/26, story 7, 2:45, Holt) reported, "From Japan, more troubling news from the earthquake zone where workers are struggling to cool the damaged Fukushima Daiichi power plant. High radiation levels found in seawater near the plant two weeks after the earthquake and tsunami struck." NBC (Cowan): "With so much talk of the spike in radiation levels, the other spike in the death toll is sometimes lost. But it continues unabated. It is fast approaching 11,000, with nearly 18,000 still missing."

The Washington Post (3/27, Chandler, Harlan, 572K) reported that "radioactivity levels have soared in the seawater" near the plant, "igniting fresh concerns about the spread of highly radioactive material and the risks involved in completing an already dangerous job." Radioactive iodine levels were at "1,250 times the legal safety limit" in samples 360 yards from the plant. In "some signs of progress" on Saturday, "fresh water was being pumped in to cool the first three nuclear reactors," while "lights were turned on in the control room of the second reactor." Also Saturday, Chief Cabinet Secretary Yukio Edano "urged Tokyo Electric Power Co. ...to relay information more promptly to the government and improve its transparency."

TEPCO Admits Failure To Warn Fukushima Workers About Radioactive Water. The Los Angeles Times (3/27, Makinen, Barboza, Kaplan, 657K) added Tokyo Electric Power Co. "conceded Saturday that it had known about highly radioactive water at reactor No. 1 days earlier but didn't brief workers that a similar hazard could exist at No. 3. Chief Cabinet Secretary Yukio Edano chastised the company, known as TEPCO, saying that it needed to share

information more quickly and, unless it does so, 'the government will not be able to give appropriate instructions and [the company] will make workers, and eventually the public, distrustful,' according to Kyodo News. TEPCO officials apologized for the lapse but also noted that workers had ignored alarms that had alerted them to high levels of radiation in the work area." International Atomic Energy Agency advisor Graham Andrew said on Saturday that the situation at the plant remained "very serious" and that the likelihood of damage to the containment integrity of reactor No. 3 is "a cause for concern."

TEPCO Underestimated Tsunami Threat. The New York Times (3/27, Onishi, Glanz, 950K) reported, "After an advisory group issued nonbinding recommendations in 2002," Tokyo Electric Power Company "raised its maximum projected tsunami at Fukushima Daiichi to between 17.7 and 18.7 feet – considerably higher than the 13-foot-high bluff. Yet the company appeared to respond only by raising the level of an electric pump near the coast by 8 inches, presumably to protect it from high water, regulators said. ... For some experts, the underestimate of the tsunami threat at Fukushima is frustratingly reminiscent of the earthquake – this time with no tsunami – in July 2007 that struck Kashiwazaki, a Tokyo Electric nuclear plant on Japan's western coast."

Japan Relief Mission Puts "Welcome Face" On US Troops. The AP (3/27, Talmadge) reported that the US relief mission in Japan "is showing a new and welcome face for troops the Japanese have hosted – sometimes grudgingly – for decades." Some 20,000 US troops are part of "Operation Tomodachi" – or "Friend" – in "the biggest bilateral humanitarian mission the US has conducted in Japan." The AP says "US troops have been moving farther into hard-hit zones and providing tons of relief supplies and badly needed manpower to help the hundreds of thousands of Japanese" in an area that seldom sees many US military personnel. To date, the cleanup of the Sendai Airport "is one of the troops' most visible – and successful – operations."

Saturday: Fukushima Daiichi Reactor Experiences Possible Breach. ABC World News (3/25, story 3, 2:00, Muir, 8.2M) reported, "It was two weeks ago today the earthquake and the tsunami struck" Japan. ABC (Wright): "Japanese officials acknowledged a possible breach in the containment vessel of reactor number three, a situation Japan's prime minister called grave and serious. 'This is not a time for optimism,' he said. Workers at the plant were dragging an electrical cable through a puddle when radioactive water pour into their boots. Two of them were hospitalized with serious burns to the skin of their feet. ... The water was 10,000 times more radioactive than water just outside the plant, leading officials here to suspect there's a crack or a hole in the stainless steel chamber of the reactor core."

The CBS Evening News (3/25, lead story, 2:40, Couric, 6.1M) reported, "Japan's prime minister says the nuclear crisis is far from over and the goal right now, he says, is simply to keep it from getting worse. But it did today with a possible breach of one of the reactors. It was two weeks ago that they were damaged when a magnitude nine earthquake shook northern Japan and triggered a tsunami. The official death toll passed the 10,000 mark today; 17,000 people are still missing. And now the Japanese government has expanded the voluntary evacuation zone around the Fukushima Daiichi plant from 12 miles to 19 miles."

NBC Nightly News (3/25, story 5, 2:10, Holt, 8.37M) reported, "New concerns tonight about radiation in Japan coming from those damaged nuclear reactors. Trace amounts have now been picked up by air monitors in Hawaii as well as stations in California, Oregon, Washington, and Colorado. Authorities say it poses no threat to health. But in the quake zone in Japan, the danger from radiation appears to be growing."

Self-Sacrifice Of Fukushima Plant Workers Praised. USA Today (3/25, Dorell) reported on the "quiet heroes" working at the Fukushima Dai-ichi nuclear plant in "bulky suits, exposed to unseen radiation," who are trying to "keep the plant's reactors from melting down and spreading more radiation into the Japanese countryside." The "latest injuries were reported Thursday, when TEPCO said two workers were sent to the hospital after their legs were contaminated with radiation, indicating the facility remains dangerous." In the emergency, "Japanese authorities increased the permissible radiation exposure to five times what plant workers normally are allowed in a year." Columbia University pediatrician Irwin Redlener, who is also director of the National Center for Disaster Preparedness, said there "are large-scale population needs and somehow that needs to be balanced. It's basically men and women voluntarily putting themselves in harm's way so thousands of others can be safe."

EU Leaders Call For Testing Of Nuclear Plants Worldwide.

The AP (3/25) reported, "At the end of a two-day summit" on Friday, EU leaders "called for worldwide stress testing of nuclear plants" by year-end and "committed to putting their 143 reactors through the toughest security checks possible." German Chancellor Merkel "said the 27 leaders agreed 'on uniform euro stress tests and the highest possible safety standards.'" France, "one of the nations most reliant on nuclear energy, with 58 reactors, said it would immediately close any plant if it failed a test."

German Christian Democrats Suffer Startling Loss In Regional Election. The New York Times (3/28, A4, Dempsey, 950K) reports, "Chancellor Angela Merkel's conservative Christian Democrats on Sunday suffered a major defeat in a historic stronghold in southwestern Germany," Baden-Württemberg, "where the Christian Democrats have governed since 1953." After Sunday's vote, "the Green Party appeared poised to head a state government for the first time, according to official preliminary results." The Times adds that "the nuclear calamity in Japan and Mrs. Merkel's subsequent reversal on nuclear power played a key role in the elections."

The Los Angeles Times (3/28, Chu, 657K) refers to "a humiliating defeat" for Merkel, caused by "anger over her government's policy on nuclear power and an ineffective campaign by the local party." The Times notes that "although the Greens received a smaller share of the vote than the Christian Democrats, the environmental party performed best of the left-leaning groups and holds the strongest claim to head the new government." The Financial Times (3/27, Peel, Thompson, 448K) also reports the story under the headline "Merkel's Party Set For Severe Poll Defeat."

WikiLeaks Cable Said To Show US Discontent With ElBaradei At IAEA. The AP (3/26, Jahn) reported that a US diplomatic cable released Friday by WikiLeaks shows that the US had "differences" with Mohamed ElBaradei while he was chief of the IAEA, and that it had given up trying to unseat him "just before ElBaradei won the Nobel Peace Prize" in 2005. The cable, said to be written by Gregory L. Schulte, then the US chief delegate to the IAEA, suggested that ElBaradei's views on the Mideast and his investigation of Iran's nuclear efforts left him acting in ways counter to US interests. The cable suggested that ElBaradei was "part of the problem, rather than [a] solution" in the Mideast.

Expert: Iran Only Making Slow Nuclear Progress. AFP (3/26) reported Iran is "not making fast progress towards acquiring a nuclear weapon, a US expert said Friday, adding he believed Tehran would still need another two years to achieve that goal." Former Deputy Assistant Secretary of State for Non-Proliferation, Mark Fitzpatrick, said, "Iran is not moving as fast as it could. They've been at it since 25 years since they started the Iranian enrichment program in about 1985." He also said Iran has "still not yet completely decided whether to press ahead with making a nuclear bomb," which leaves "time for diplomacy."

Qatar Denies Seizing Iran Arms Shipment. AFP (3/28) reports Qatar on Sunday "denied...reports that it had seized two Iranian boats carrying weapons in the Gulf." Kuwaiti newspaper Al-Aan "had reported that the two Iranian boats were intercepted off the Al-Zubara coast," but "provided no details on the crew, the date of the operation or the destination of the boats."

NUCLEAR REGULATORY COMMISSION NEWS CLIPS

MONDAY, MARCH 28, 2011 7:00 AM EDT

WWW.BULLETINNEWS.COM/NRC

TODAY'S EDITION

NRC News:

International Nuclear News:

NRC NEWS:

Nuclear Energy Policy: A Stress Test (CQWKLY)

By Margaret Kriz Hobson and Geof Koss

CQ Weekly, March 28, 2011

On March 16, Nuclear Regulatory Commission Chairman Gregory Jaczko was called to Capitol Hill to update lawmakers on the nuclear power crisis in Japan. In his opening statement, he announced that in the aftermath of the earthquake and tsunami, one of the nuclear waste pools at the Fukushima Daiichi power complex had been drained of its protective water. As a result, dangerous amounts of radiation were being released into the atmosphere. Based on that assessment, the administration recommended that American citizens living within 50 miles of the damaged plants leave the area.

The news of the worsening problems at the Japanese facility riveted the world, which was hungry for authoritative information about conditions at the complex. And Jaczko's statements were at odds with the Japanese government's decision to set a 12-mile evacuation zone around the plants.

He had focused international attention on the potential dangers of storing spent radioactive fuel at power plant sites, which happens to be what US utilities do as well.

But he also exposed some of the tension in his position. There he was highlighting the hazards of nuclear power, promising action if additional controls became necessary at American plants, while serving an administration pursuing a nuclear growth strategy.

In addition, few people have played a bigger role than Jaczko over the past decade in impeding the permanent disposal site at Yucca Mountain, which is the industry's preferred solution to the nuclear waste question.

As appropriations director and science policy adviser to Senate Majority Leader Harry Reid, Jaczko coordinated the Nevada Democrat's fight against the Yucca project. Without Yucca, the waste continues to pile up in the temporary storage pools. Since his appointment to the commission in 2005, Jaczko has pressed utilities to move more of the waste from storage ponds to concrete-and-steel casks, which he suggested could safely be stored on-site for up to three centuries. The power industry has resisted, worried that it would cost too much and eliminate political pressure for the government to take custody of radioactive waste.

Jaczko's blunt assessment of the conditions at the Japan utility was not welcomed by nuclear power backers in the United States, who had been urging Americans to wait for a thorough review of the Japanese accident before reaching conclusions. The industry-backed Nuclear Energy Institute moved quickly to "clarify" the evacuation issue, releasing fact sheets that agreed the warning to US citizens was "prudent" but stating that "this action should not be interpreted as a standard that should be applied to US reactor emergency planning policy, specifically the use of a 50-mile zone."

Since Jaczko's Capitol Hill appearance, the five-member NRC agreed to examine the safety of America's 104 nuclear power reactors located in 31 states across the country. Those facilities also house 65,000 metric tons of radioactive waste, an estimated 76 percent of which is now warehoused in pools, according to the NEI. While federal regulators say the radioactive waste can be secured for a century at the nation's commercial nuclear generation sites, Jaczko's comments inevitably raise doubts about safety.

Despite this history of conflict with the industry, the sharpest questions for Jaczko in the aftermath of the Fukushima Daiichi disaster have come from liberals already skeptical about nuclear power.

While briefing the Senate Environment and Public Works Committee on March 16, Jaczko was scolded by Chairwoman Barbara Boxer, a California Democrat, demanding answers about the safety of two plants in her state. "I'm looking to you for more leadership than I've gotten," she lectured. Before the House Energy and Commerce Committee earlier in the day, he faced a barrage of difficult questions from Edward J. Markey, a Massachusetts Democrat for whom Jaczko once worked as a congressional science fellow.

Markey later said in a telephone interview that he thinks Jaczko is "committed to improving the NRC transparency" and "lets the science speak for itself." He credited Jaczko with being "proactive" by initiating a review of how vulnerable US reactors might be to earthquakes and the electricity outages that have plagued the Japanese facility.

"I think he is doing a very good job," Markey said. "But he's working hard to question a lot of the assumptions that people have about safety in the nuclear industry."

The Nation's Fears

Former NRC Chairman Richard A. Meserve, who headed the commission during the Sept. 11, 2001, terrorist attacks, said the task facing Jaczko and his fellow commissioners is "trying to understand exactly what happened at the Japanese plants, what vulnerabilities they reveal, and what things, as a result, we need to re-examine and possibly change.

"In my view, you can't just quickly decide what the ultimate answer is," he said, adding that so far Jaczko "has been doing the right things."

Like government officials of the past who have been thrust into national crises after terrorist attacks, hurricanes or the financial market collapse, Jaczko faces the challenge of handling the nation's fears without sacrificing his own credibility. A week after the Japanese earthquake and tsunami, he said during a C-SPAN interview that the commission has "a program in place that would deal with the kinds of situations that we are seeing in Japan." But he also noted that what the Japanese are dealing with "is a very, very difficult situation and that there will be plenty of opportunity when this crisis is resolved to really figure out what happened and how we can all learn from it."

Reid's Protégé

Jaczko declined to be interviewed for this article. But his mentor Reid said he is the right man for the challenging job.

"Greg's entire career has been dedicated to applying science to public policy," Reid said in a statement. "His work in Congress and at the Nuclear Regulatory Commission has improved the safety of nuclear power plants and is based on his demonstrated commitment to bringing all stakeholders to the table."

Jaczko, 40, owes his position as the NRC chairman to Reid's political clout and stubborn persistence. Jaczko is thin and lanky, an avid cyclist who was warned against biking to work by aides who feared the potential dangers of Washington's congested traffic. He grew up in Albany, N.Y., earned a bachelor's degree from Cornell University and a doctorate in theoretical particle physics from the University of Wisconsin, Madison. He then headed to Washington to work as a congressional science fellow for Markey, one of Congress's most vocal critics of the nuclear industry.

Jaczko later joined Reid's staff and the fight against the Yucca Mountain repository. Congress in 1987 selected the location, which lies about 90 miles northwest of Las Vegas, as the permanent disposal site for the utilities' radioactive nuclear waste. Opponents say the site is geologically unsuitable to contain the waste safely for thousands of years, but at the time, Nevada lacked the political wherewithal to derail the selection.

Reid has waged a bare-knuckled political fight against the Yucca facility, using his position to whittle away the project's annual budget and to block legislative efforts to hasten its completion. After he became minority leader in 2005, Reid struck a deal with President George W. Bush to nominate Jaczko to an open seat on the five-member NRC. To twist Bush's arm, Reid stalled Senate approval of 175 presidential nominees. To ease strenuous opposition from industry and Senate Republicans, the deal limited Jaczko to a single two-year term on the commission, as well as a promise that he would recuse himself from all Yucca matters for the first year.

Senate conservatives argued that Jaczko should permanently recuse himself from Yucca matters. Jaczko refused, telling Oklahoma Republican James. M. Inhofe, then the Senate Environment and Public Works chairman, that he was determined to show impartiality.

"My hope is that within one year, I will have demonstrated that absolutely I can be fair and objective," he said in 2005. During the recusal period, Jaczko steadfastly declined to discuss Yucca publicly, even refusing to answer a question on nuclear waste from Sen. Barack Obama during a hearing.

Despite the earlier agreement to limit Jaczko to two years on the NRC, Reid used his enhanced power as majority leader in 2007 to press Bush to nominate the former aide for a full five-year term. He was confirmed in 2008. After Obama won the presidential election later that year, Reid persuaded the new president to designate Jaczko as the panel's chairman — and to put the brakes on the Yucca Mountain project by formally asking the NRC to withdraw its review of the licensing application in early 2010.

As a result, nuclear utilities found themselves appealing to the Jaczko-led NRC to prevent a shutdown of the Nevada facility. Jaczko's handling of the Yucca Mountain issue has drawn criticism from nuclear supporters in Congress, prompting bitter public charges of collusion with the administration to close the door on the project forever.

Last October, Jaczko instructed NRC staff to start closing down the Energy Department's license application for Yucca. Supporters of the project say the move was an attempt to sidestep a recommendation last June by an NRC administrative panel, which found that the Obama administration lacked legal authority to withdraw the application.

While that recommendation has given Yucca supporters faint hope that the project isn't dead, the decision is in legal limbo until the full NRC rules on it. As chairman, Jaczko decides when to issue a ruling -- even though Republican commissioners publicly released their votes last fall.

The delay of a final decision by the NRC plays into the administration's hands in an ongoing federal lawsuit over whether the executive branch can cancel Yucca without congressional approval. During oral arguments last week, a panel of judges on the D.C. Circuit Court of Appeals suggested they may lack jurisdiction to decide the issue until the NRC issues a final ruling. Jaczko has given little indication of when -- or even if -- that may happen.

In an unusually blunt letter to Jaczko last fall, senior House Republicans suggested an "appearance of coordinated action between you" and the Energy Department. But Jaczko was largely given a pass on the Yucca flap during his Capitol Hill appearances earlier this month, when some of his biggest critics instead sought assurances about the safety of US plants.

Storage Pool Concerns

An Alternative for Storage: Click here to view chart

While Japanese officials initially downplayed the concern voiced by Jaczko on March 16, they later conceded that water in one of the pools was heating up and in danger of boiling off. The situation that Jaczko highlighted drew new attention to the dangers that spent-fuel pools on nuclear plant sites might pose in the event of natural disasters.

A 2003 report by the Government Accountability Office noted that NRC studies found that the risk of "widespread harm to human health from spent fuel arises from the remote possibility of a sustained loss of coolant in a spent fuel pool." That could result in a fire that would "disperse radioactive material across a wide area" and result in "200 early fatalities and thousands of latent cancer fatalities," the GAO report said. It added that a "catastrophic earthquake" or "loss of electrical power, which would shut down the pool cooling system," were among the events that could cause such an accident.

Anti-nuclear advocates were quick to point out that the spent-fuel pools at the 30 or so US reactors with designs similar to the stricken Japanese generators are much more densely packed, containing by some estimates four or five times as much spent fuel.

"We're talking about some of the largest concentrations of radioactivity on the planet in these pools," said Robert Alvarez, a former Energy Department official and nuclear critic at the Institute for Policy Studies.

He said that for decades the NRC has allowed nuclear plant operators to stockpile the waste in the pools on the assumption that it would ultimately be transferred to a permanent disposal site. With Yucca off the table and an alternative perhaps decades away, critics say the regulators should require utilities to offload some waste to dry storage casks, which some maintain are safer from seismic threats.

Jaczko has also called for such requirements, telling an industry conference in 2008 that moving spent fuel from pools into dry casks was "the most clear-cut example of where additional safety margins can be gained."

But NRC officials say it's premature to suggest that the commission will zero in on the safety of the industry's nuclear fuel pools or consider the future of Yucca Mountain as it responds to the Japanese situation. The commission recently announced plans to conduct a short-term staff review of US nuclear plant safety.

"We will work through all of this information methodically, systematically and carefully to determine what lessons can be drawn that might be applicable for consideration for changes in the US safety regulatory structure," said NRC spokesman Eliot Brenner.

Nuclear's Future

Meanwhile, nuclear regulators say the Japanese situation will not stop them from relicensing existing nuclear plants or prompt them to slow down review of proposals to build new nuclear reactors.

The NRC is also standing firm on its decision to allow the Vermont Yankee nuclear plant to continue operating for an additional 20 years, despite complaints by state officials and Vermont independent Sen. Bernard Sanders that the facility is unsafe. Vermont lawmakers say they will try to block the reactor's continued operations under state law.

US nuclear industry executives predict that the NRC will beef up safety standards in response to Japan's disaster. New controls will raise the cost of operating nuclear power plants, a concern that could make utility companies rethink whether to continue operating existing nuclear plants or to move forward with plans to construct expensive new reactors.

"Let's not fool ourselves," said John Rowe, chairman of Exelon Corp., which owns more nuclear power plants than any other US company. "We are going to spend a lot of money on new regulatory reviews, and we are going to face some kind of new requirements."

A week after the Japan accident, Rowe called a special phone briefing to assure his investors and the public that Exelon's reactors are safe and that he and other nuclear industry officials are taking seriously the Fukushima disaster. He ranked the episode in Japan as "clearly worse than the 1979 accident" at the Three Mile Island nuclear facility in Pennsylvania but not as bad as the 1986 nuclear disaster in Chernobyl.

Although Rowe isn't interested in building a new nuclear plant – he has long argued that it's too expensive -- other industry executives are still weighing a nuclear future. All of the nation's nuclear power utilities are carefully monitoring the steps that Jaczko and the commission take to guarantee that the US nuclear power fleet is safe. So far, the NRC has refused to speculate on the policy changes that might result from the Japanese accident.

Other Obama administration officials have been more forthcoming. Energy Secretary Steven Chu recently said regulators are likely to consider the safety of the Indian Point nuclear plant near New York City, owned by Entergy Corp., a power-generating company that operates 11 US commercial reactors, including Vermont Yankee.

"We're going to have to look at whether this reactor should remain," Chu told Fox News, although he added: "I don't want to make any – jump to some judgment about what we should do going forward."

Chu also suggested that regulators will steer new nuclear plants away from sites near large cities, although he showed no signs that the administration is backing off its broader support for nuclear power.

"Certainly, where we site reactors going forward will be different than where we might have sited them in the past," said Chu, a Nobel Prize-winning physicist. "Any time there is a serious accident, we have to learn from those accidents and go forward."

For Further Reading: Japanese accident's impact on US nuclear industry, CQ Weekly, p. 616; alternatives to Yucca Mountain, 2009 CQ Weekly, p. 966; short-term nuclear storage dilemma, 2006 CQ Weekly, p. 1147; Yucca selected as nuclear waste site, 1987 CQ Almanac, pp. 307-308.

Groups Demand Data On Radiation Release (NYT)

By John M. Broder

New York Times, March 25, 2011

As the Japanese authorities order a wider evacuation area around the stricken Fukushima reactor complex to as far out as 19 miles, three health and environmental groups in the United States announced that they were seeking further information about why American officials recommended that its citizens keep at least 50 miles away.

Gregory B. Jaczko, chairman of the Nuclear Regulatory Commission, recommended the 50-mile radius in congressional testimony 10 days ago. He based his opinion on information he had at the time that the water in the spent fuel pond for one of the reactors had boiled away and that a wide release of radiation was possible.

His testimony was quickly contradicted by Japanese officials, who inspected the pool using a helicopter and a worker at the site and found there was still some water in it.

The status of the cooling reservoir is not certain, but Japanese officials have been critical of the United States government for spreading unverified information about the levels of radiation in the vicinity of the plant.

The American groups – Friends of the Earth, the Nuclear Information and Resource Service and Physicians for Social Responsibility – said on Friday that they were filing a Freedom of Information Act request with the Nuclear Regulatory Commission and the Department of Energy. They are seeking access to all information about radiation levels gathered by American radiological monitoring equipment and helicopter overflights.

The groups noted that United States regulations call for evacuation plans only to a radius of 10 miles and want an explanation for the more cautious recommendation in Japan.

"The radiation monitoring information being collected by the US government in Japan is of urgent interest to the public in the US and internationally, and we expect an expedited response to the F.O.I.A. request," said Tom Clements, Southeastern nuclear campaign coordinator for Friends of the Earth.

"If the full data set is not immediately released, the government can rightly be accused of attempting to cover up the radiation threat posed by the disaster," he said. "This would severely undermine regulators' credibility."

The activists said that the Department of Energy was taking radiation measurements from the air but had not published the complete data from the flights. The latest D.O.E. data is here.

"By recommending a 50-mile evacuation zone for US residents, N.R.C. Chairman Jaczko gave a strong signal that the Fukushima accident was much worse than reported by the Japanese government and the utility," said Michael Mariotte, executive director of the Nuclear Information and Resource Service in Takoma Park, Md. "We believe that he was getting information about the severity of the accident from airborne radiation measurements taken by US Department of Energy aircraft. But neither D.O.E. nor the N.R.C. has published those measurements in full."

American officials said that in addition to recommending a 50-mile evacuation zone around the plants, the government was offering "voluntary departure" to diplomats and military personnel serving at a military post as far away as 250 miles from Fukushima. The American ambassador to Japan, John Roos, said he was taking the step "out of an abundance of caution."

Groups Seeking Full Fukushima Radiation Data From DOE, NRC (SalemNews)

Why Aren't Japanese and American Citizens Getting All the Facts? "Extreme" Step Seen As Indication of Much Higher Radiation Levels Than Revealed So Far by NRC, Japanese Government.

Salem-News.Com, March 28, 2011

(WASHINGTON, D.C.) -- Three groups -- Friends of the Earth (FOE), the Nuclear Information and Resource Service (NIRS) and Physicians for Social Responsibility (PSR) – announced today that they have filed a Freedom of Information Act (FOIA) request to get to the bottom of what led the US government to call for a 50-mile evacuation radius for Americans near the Japanese reactor crisis in Fukushima.

The FOIA requests filed with the US Nuclear Regulatory Commission (NRC) and the US Department of Energy (DOE) are available online at http://foe.org/sites/default/files/FOE-NIRS-PSR-RadiationFOIA-3-22-11.pdf. The three groups are not satisfied that the incomplete summary provided so far by the DOE at http://www.energy.gov/news/10194.htm provides the full picture of the scale of the radiation.

On March 16, 2011, NRC Commissioner Gregory B. Jazcko told Congress that he was recommending the 50-mile evacuation radius. (See http://www.nrc.gov/about-nrc/organization/commission/comm-gregory-jaczko/0317nrc-transcript-jaczko.pdf.) The scope of the recommended evacuation is highly unusual and suggestive of extraordinarily high radiation levels in excess of those reported to the public in Japan and the US, the three groups said. In the US, nuclear reactor licensees and local governments are only asked to provide for evacuation out to 10 miles.

As concerns grow about food and water contamination in Japan, the three groups filing the FOIA request are seeking to determine the answer to this key question: What made Jaczko exceed the limits of his own agency's regulations by five times?

Tom Clements, Southeastern nuclear campaign coordinator, Friends of the Earth, said: "The radiation monitoring information being collected by the US Government in Japan is of urgent interest to the public in the US and internationally and we expect an expedited response to the FOIA request. If the full data set is not immediately released, the government can rightly be

accused of attempting to cover up the radiation threat posed by the disaster. This would severely undermine regulators' credibility."

Michael Mariotte, executive director, Nuclear Information and Resource Service, Takoma Park, MD, said: "By recommending a 50-mile evacuation zone for US residents, NRC Chairman Jaczko gave a strong signal that the Fukushima accident was much worse than reported by the Japanese government and the utility. We believe that he was getting information about the severity of the accident from airborne radiation measurements taken by US Department of Energy aircraft. But neither DOE nor the NRC has published those measurements in full."

Attorney Diane Curran of Harmon, Curran, Spielberg & Eisenberg, LLP, who filed the FOIA request for the groups, said: "We think the American and Japanese public have a right to see the complete details of the Fukushima radiation data and, therefore, we have requested the NRC and the DOE to release the information under the Freedom of Information Act. If necessary, we are prepared to go to federal court to get the uncensored set of measurements."

As the FOIA request explains, the three groups "seek expedited release" of the requested information, "so that they may timely inform their members and the general public about the unfolding events at the Fukushima reactors, including the significance of the public health and environmental threat posed by radiation releases from the Fukushima reactors. Requesters believe that requested disclosures will do a great deal to fill currently existing information gaps and resolve inconsistencies in the currently available reports about the severity of the Japanese radiological releases."

The groups also contend that expedited release of the information is justified in order to allow them to participate in and comment on any proceedings the federal government may undertake to evaluate the lessons learned from the Fukushima accident, including the 90-day review of the safety of US reactors recently announced by the NRC. According to the FOIA request letter, a better understanding of the severity of the Fukushima releases is "essential to Requesters' ability to evaluate and participate in any such review."

Member Of White House Oil Spill Commission Urges Nuclear Safety Panel (HILL)

By Ben Geman

The Hill, March 28, 2011

An environmental advocate who served on the White House-created panel that probed the BP oil spill is urging President Obama to establish an independent commission to study US nuclear plant safety in light of the Japanese reactor crisis.

Natural Resources Defense Council President (NRDC) Frances Beinecke, in a letter Friday to Obama, is seeking a probe that would supplement the Nuclear Regulatory Commission safety review that Obama ordered this month.

"The administration should appoint a truly independent commission, similar to the Kemeny Commission that investigated the Three Mile Island accident in 1979, that can help to engender public confidence by thoroughly examining nuclear safety issues, including assessing the conclusions and proposed corrective actions arrived at by both the nuclear industry and the NRC in its '90-day safety review,'" Beinecke writes.

Beinecke writes that reviewing reactor safety shouldn't be left up to the NRC alone.

She writes:

"Review of the implications of this disaster should not be limited to the NRC assessing the adequacy of its own previous rules and decisions. This would be problematic for any entity, but is particularly the case for the NRC, which has long been seen as a weak regulator with insufficient independence from the industry it oversees."

Beinecke served on the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling, which in January issued a report that called for a host of federal and industry safety reforms. The commission ceased operations earlier this month and Beinecke sent the nuclear safety letter, which doesn't mention the spill commission, in her capacity as NRDC's leader.

Her letter adds to other calls for an independent probe of US nuclear safety.

Sen. Bernie Sanders (I-Vt.), in a March 18 letter to Obama, said the NRC safety review that the president ordered is insufficient and called for a Presidential Commission on Nuclear Safety that would include independent scientists and experts.

Beinecke's letter recommends that the NRC "should suspend the granting of nuclear power plant license renewals in high seismic hazard areas until the findings of the NRC's 90-day review are finalized and vetted by the independent commission."

The letter also says the NRC should "consider on a case-by-case basis the rescission of license renewals already granted for nuclear power plants located in high seismic hazard areas that were built to standards that no longer conform to our modern understanding of the full extent of the earthquake threat to the facility."

Meet The Inspectors Who Make Sure Central New York's Nuclear Plants Are Safe (SPS)

By Debra J. Groom

Syracuse Post Standard, March 28, 2011

Scriba, NY – The nuclear crisis in Japan has brought into sharp public focus questions about just how safely US plants operate.

Responsibility for the day-to-day safety of the plants rests in the hands of resident inspectors who work for the Nuclear Regulatory Commission.

NRC inspectors could not have prevented the dangerous conditions plaguing the Japanese plants, set in motion by a powerful earthquake and the tsunami that followed.

But they can help ensure safety by paying close attention to day-to-day operations at nuclear reactors.

In Central New York, two teams of two inspectors each ensure the three nuclear plants in Scriba — Constellation Nuclear Energy Group's Nine Mile Units 1 and 2 and Entergy Nuclear's James A. FitzPatrick — operate correctly.

All three Scriba plants are boiling water reactors, like those in Japan.

The inspectors oversee training sessions to make certain plant workers know what's necessary to operate the plants safely. They monitor maintenance work. They review operating and safety systems, looking for the first signs of problems. And they keep their door open to any plant worker who wants to report something of potential concern.

At FitzPatrick, senior inspector Edward C. Knutson and inspector Scott Rutenkroger walk to nearly every part of the plant each day. At Nine Mile 1 and 2, senior inspector Kenneth Kolaczyk and inspector Doug Dempsey do the same.

These four men are responsible to help keep Central New York safe from nuclear mishaps.

"Our aim is to protect public health and safety and the environment," Knutson said.

Trained to spot trouble

The resident inspector program began in 1977. Now about 130 Nuclear Regulatory Commission resident inspectors work in the United States. Each plant has at least two resident inspectors.

"They are our eyes and ears inside the plant," said Neil Sheehan, speaking for the NRC.

Often, they are the agency's first responders when something happens at a plant, the NRC says. Inspector stay at a plant for a maximum of seven years.

Candidates undergo rigorous training to become NRC inspectors. Most inspectors, like Rutenkroger, come to the job as nuclear engineers or have worked in the Navy's nuclear program, like Knutson, Kolaczyk and Dempsey. Still others worked at nuclear power plants before interviewing with the NRC.

The salary range for NRC resident inspectors is $63,695 to $118,573, depending on years of experience and the cost of living in the area where they work.

Each day brings something new for an inspector. There is always some sort of maintenance being performed, so inspectors are on hand to check out the work. They have to inspect any new equipment — from pumps to security devices — that is being installed. Any excavation being done on the site needs to be monitored.

Sometimes, they walk through the plants together, but not always.

Perhaps the most important part of the day is the visit to the control room, the heart of every nuclear plant. Twenty-four hours a day, two supervisors, senior reactor operators and reactor operators keep their eyes trained on the various lights and readings on the huge control-room board, to ensure that all systems in the plant are operating correctly.

"Every day, we do a control room walk-down," Knutson said. "We look at what's going on, we indicate what we expect them (operators) to do."

"We talk to the control-room supervisor and get from them what has occurred in the previous shift," Rutenkroger said. "We see what's in service and what's out of service. We find out what they see as the condition of the plant."

Scores of lights, called enunciators, are on the control-room wall telling operators and inspectors what is going on in the plant. Some might show a radiation spike in one part of the plant. Others might indicate a pump has gone out of service. Still others could signify that the temperature in the spent-fuel pool is too high.

Problems can escalate

The two inspectors ask questions in the control room if they see a reading indicating a potential problem. "They better know the answers," Knutson said.

During their walk through the plant, they check on any employees doing maintenance jobs.

Sometimes, they see things that aren't quite right.

Rutenkroger once noticed that the door between an emergency diesel-generator room and turbine building had a support missing. It could have hampered proper operation of the door and that could have led to trouble: Steam lines are located on the

other side of the door. If the door hadn't shut properly and one or more of the steam lines ruptured, steam could have seeped into the generator room and knocked out the generators — the backup power source for the plant.

Sheehan of the NRC explained that such circumstances could lead to the same type of problems facing the Japanese. The tsunami killed the generators at the Japanese plants, without which operators have been unable to keep the reactors cool.

A resident inspector's primary emphasis is safety, not whether the plant is making power, Rutenkroger said.

"The point of everything is safety," he said. "But having said that, when a plant is making power and operating well, that is indicative of it operating safely, too."

A variety of inspections are done at certain times each year. The Oswego plants' flood-protection systems are inspected once a year. In the fall, inspectors check preparations being made for cold weather.

At least 20 times a year, fire protection systems, including fire extinguishers, sprinkler systems, carbon dioxide systems and fire hoses, are reviewed.

Sheehan recalled how a fire hose at a plant — not in Central New York — had been certified. Even so, the resident inspector on duty stretched the hose out to full length to check it, only to find it didn't reach the area it was supposed to serve in case of a fire.

Currently, Nine Mile 1 is shut down for refueling. That can be one of the busiest times for an inspector. That's when they can check areas they normally don't get to see, such as inside the reactor vessel. Inspectors wear protective clothing when they review work being done in the containment area.

"They often have to come in on their off hours during refueling," Sheehan said. "They are an independent set of eyes on all those maintenance activities ... They make sure everything's being done right."

All inspections are detailed in reports to the NRC. Plant owners and local municipalities also receive copies. In Oswego County, that includes County Administrator Philip Church and Scriba Supervisor Kenneth Burdick.

Knutson said that while working in the nuclear field in the Navy was fulfilling, he finds his NRC work more worthwhile.

"In the Navy, the rewards in nuclear were strictly personal," he said. "But with the NRC, there is a greater degree of recognition. If I identify a problem here that has some significance beyond the FitzPatrick plant, then that's rewarding."

Indian Point's Gotten A Free Pass On Safety Regulations Over Last Decade, Feds Delay Evacuation Plan (NYDN)

By Douglas Feiden and Brian Kates, Daily News Staff Writers

New York Daily News, March 28, 2011

Federal nuclear watchdogs say Indian Point is their No.1 priority -- but over the last decade they've let the aging nuke plant bypass scores of critical safety rules.

In the fallout from Japan's crisis, the Nuclear Regulatory Commission tried to quell growing fears about safety at the 40-year-old plant that's built on an earthquake fault just 24 miles from New York City.

Yet the agency has a history of granting Indian Point's owner, Entergy, numerous exemptions to regulations governing fire safety, storage of spent fuel, and systems designed to prevent meltdown.

Gov. Cuomo called for closing Indian Point permanently after a recent federal report branded it the most vulnerable to an earthquake in the nation.

The plant's licenses expire in 2013 and 2015 and Entergy has applied for a 20-year renewal. The NRC, which has repeatedly declared Indian Point safe, has never denied a nuclear plant relicensing.

NRC spokesman Neil Sheehan insisted the agency has "followed appropriate processes" when considering Indian Point's request for exemptions to NRC rules.

He could not say how many had been granted in the 10 years that Entergy has owned the plant, but the number is so high that "it's not feasible for me to recount the history of all of them."

A Daily News review indicates they include:

Extending deadlines for the plant to install and test equipment to prevent radiological sabotage. Denying the exemption would have "added expense to both the NRC and the licensee," the agency said.

Reduced inspection requirements for a spent fuel pool known to be leaking radioactive material.

Curtailed inspections for a rusting reactor dome.

Changes in safeguards for the transfer of spent fuel.

Allowing insulation on cables that control reactor core shutdown to withstand fire for only 24 minutes - not the one hour NRC regulations usually require.

Entergy spokesman Jerry Nappi said no exemption has made the plant unsafe and that backup systems ensure all safety requirements are met.

Still, critics worry that safety has been compromised.

Deborah Brancato, a lawyer for the environmental group Riverkeeper, said the "NRC's misuse of exemptions has significantly reduced safety standards and required inspections at Indian Point."

The NRC did little to allay fears with its recent admission that nearly one-third of the nation's 143 nuclear plants don't report major safety risks because regulations are "contradictory and unclear."

That agency's admission came after an inspector general's probe concluded nuke plant reporting lapses "could reduce the margin of safety for operating nuclear power reactors."

Though the NRC passed Indian Point on all its inspections last year, a number of troubling problems surfaced, documents show:

Discrepancies in the alert notification system for the emergency operations facility.

Safety reporting that did not conform to plant conditions.

Missing equipment needed for safe shutdown procedures.

Conditions that could lead to failure of a pump needed to prevent core damage in an emergency shutdown. The problem had not been corrected since 2001.

NRC Must Do Its Job And Regulate Indian Point (WESTJN)

By Eric T. Schneiderman

Westchester Journal News, March 26, 2011

For a regulatory agency responsible for the safety of millions of people living near nuclear power plants, the Nuclear Regulatory Commission sure has a funny way of showing it.

Just last week, when asked about concerns with Indian Point raised in the wake of Japan's crisis, the NRC's spokesperson said safety data regarding the Buchanan plant is "really not a serious concern."

Not serious? Then why did the NRC release a study last September identifying Indian Point's risk for a seismic event greater than previously believed?

Considering that proceedings to extend Indian Point's license for another 20 years are well under way, New Yorkers cannot afford anything less than a full and honest inquiry into all the relevant issues.

Japan's horrifying events shine light not just on Indian Point's lack of preparedness, but on the NRC's dismissal of concerns that this office has repeatedly raised.

Before any conversation about the continued operation of Indian Point can take place, the NRC must answer questions about the seismic risk to the facility, and the safety of long-term radioactive waste storage -- an issue seen as the next threat to the plants in Japan.

So far, the NRC has failed to conduct immediate, comprehensive and transparent reviews of these critical issues.

While it said it will eventually study seismic risk, it has refused to commit to completing a review in time for relicensing proceedings. It also failed to respond to concerns regarding a misleadingly named "waste confidence rule," which allows long-term on-site storage of radioactive waste without any serious environmental or public health studies.

As a result, my office filed a lawsuit in February demanding that the NRC first examine those effects before saying with any "confidence" that radioactive waste will not blight our communities.

On top of all of this is another concern that has garnered very little attention but is no less alarming.

As you read this, the NRC is now considering Indian Point's application for more than 100 exemptions from federal fire safety requirements that were established to keep nuclear plants secure in an emergency.

Given all of the improvements in fire safety technology in recent years, it would be unconscionable for the NRC to critically reduce the number of fire safety measures Indian Point must follow. Yet rather than compelling it to comply with fire safety regulations, the NRC is considering exempting Indian Point from the rules it is supposed to follow.

Instead of refusing to consider important data, and scaling back safety requirements, the NRC should take the steps that we expect from the federal agency charged with ensuring nuclear power plants' safety: conduct immediate, comprehensive, and transparent studies, and then use the results to inform the decision-making on relicensing, as well as the safety measures for Indian Point's day-to-day operations.

Whether you are for or against the relicensing of Indian Point, we can all agree that before any decisions are made we should have as much information as possible about the public safety risks posed to New Yorkers who live near the plant.

Nearly 20 million people live and work within 50 miles of Indian Point's two nuclear reactors and the radioactive waste it stores onsite. It should not require legal action to get the results we need to ensure our communities' public health, but I will continue to take all necessary measures until the questions surrounding Indian Point are answered.

Despite Indian Point Nuclear Power Plant, People Still Want To Live In Buchanan, New York (WCBS)

By Catherine Cioffi

WCBS880-AM NYC, March 28, 2011

BUCHANAN, NY (WCBS 880 / AP) -- It's a regular old neighborhood. There are nice homes and sidewalks.

But in Buchanan, there's also the Indian Point nuclear power plant.

Realtors, however, say that while some are concerned, it's had no effect on the real estate market.

"Well, one of the appeals is that it's an easy commute to Manhattan and the second major appeal is that taxes are very low, because Entergy pays most of them," says Keller Williams realtor Gerri Schwalb. "The nuclear power plant has been there for years and years and years and it really has not affected prices, nor the number of houses selling in the area."

WCBS 880's Catherine Cioffi: House Hunters Are Still Looking

Entergy is the company that runs Indian Point.

Schwalb says Buchanan is a great place to live, nuclear power plant and all.

"There aren't too many places you can move in the United States that you're not close to one," she says.

Meanwhile, following the earthquake and tsunami, Japan's prime minister says the situation at the crippled Fukushima Dai-ichi nuclear power plant remains "grave and serious."

In a televised address today Naoto Kan warned that "we are not in a position where we can be optimistic. We must treat every development with the utmost care."

He also apologized to farmers and business owners around the plant for damage caused.

Nuclear safety agency officials said Friday they suspected a breach in the reactor core of one unit at the plant. The complex was damaged by a March 11 earthquake and tsunami.

That could mean more radioactive contamination in the environment.

The uncertain situation halted work at the plant, where dozens had been trying to stop the overheated plant from leaking dangerous radiation.

Indian Point Had A Small Leak In The Past (WESTJN)

By Greg Clary

Westchester Journal News, March 26, 2011

BUCHANAN -- The Hudson Valley has already suffered from the spent nuclear fuel at Indian Point.

With visions of Japanese atomic plants releasing radioactive steam in the wake of a monstrous earthquake and tsunami, Americans have quickly learned more about nuclear fission than they probably ever wanted to, including what happens when fuel storage is compromised.

Indian Point has two huge pools of spent nuclear fuel rods stored at its working reactors, each housing tons of uranium and plutonium no longer strong enough to turn steam into electricity, but still strong enough to be lethal.

"The issue is to keep water in the pool," said Steve Kraft, senior director of special projects for the Nuclear Energy Institute, an industry policy organization. "It's all solved by having water in the pool."

Nuclear fuel rods in the pools can start to heat up and even spew radiation -- as in Fukushima -- when the water that usually surrounds them leaks out or boils away as steam.

While Indian Point has never had a serious incident that threatened the water coolant in its spent fuel tanks, it did experience a tiny, potentially dangerous leak. In 2005, Entergy Nuclear workers discovered the leak in Indian Point 2's spent fuel pool while digging on the property.

Radioactive water was seeping through a crack in the wall of the pool building, soaking into the ground – and then finding its way into the nearby Hudson River.

Entergy spent millions monitoring the leak, and the tritium and strontium 90 tainted water that escaped eventually dried up. The radioactive water likely had been around since about 1993, before Entergy purchased the plant.

The loss of water at that time wasn't significant enough that plant workers couldn't keep the highly radioactive spent fuel rods safely covered. They routinely have to put more water in to compensate for evaporation, just as homeowners with a backyard swimming pool do.Problem with pools

The reactors that the Japanese are now battling to bring under control have lost enough water in their spent fuel pools to cause extremely dangerous overheating.

But David Lochbaum, a nuclear engineer with the Union of Concerned Scientists, said a key issue with the spent pools in Japan doesn't pose as much of a problem at Indian Point.

"Spent fuel pool safety is an issue there (Indian Point), but it's not as bad as plants with elevated spent fuel pools," as in Japan, said Lochbaum, a former NRC safety trainer who worked for 17 years at US nuclear plants.

Indian Point's spent fuel pools are built at a lower point in the structure than the Japanese design, and they are better protected by 4-foot-thick concrete walls.

The elevated pools seem like a good idea because it allows for easy fuel transfer, but they're not as well protected and if there is a problem, water has to be pumped up instead of letting gravity do the work as would be the case at Indian Point.

"The problems in Japan were made worse by the hydrogen (gas) explosions," Lochbaum said. "It's unlikely that hydrogen would have collected in separate building at Indian Point."

He said what might not survive at the Buchanan site in the event of catastrophe is the cooling system piping, which is not as robust as the reactor piping.

"But you have hours, days even, to restore cooling before heat boils off the water and you have 30 feet of water to evaporate before you have problems. You can use fire hoses or a bucket brigade. You wouldn't need Hudson River water to cool that pool."

If the water gets down to the rod level, however, it can be lethal in minutes, he said.

Without the cooling system functioning properly, the evaporation rate would go from an average 100 gallons a day to 100 gallons a minute.

He said a standard fire hose could replace 100 gallons a minute.

There were also problems in Japan with rubber seals for the fuel transfer canal openings; they're like bicycle tubes that are inflated to make a tight seal.

Without power, they lost their seal and water escaped from below as well.

Indian Point has similar seals, Lochbaum said, but would be able to use one of its three independent sets of diesel generators and a set of backup batteries to keep critical areas operating.

If all power goes out, the Buchanan plant also has a 1-million-gallon tank of water connected to municipal sources that sits high enough above the reactors to deliver water via gravity-only, Entergy officials said.Changing storage

Critics of the plant say the company should move as much spent fuel to dry storage as possible, an opinion that Lochbaum seconds.

"It significantly reduces the safety threat," Lochbaum said. "The bad guys would have to go after more than one, and since the cannisters weigh about 100 tons each, they're not going to be easily moved. Even with a rocket-propelled grenade, you'd need to put two holes in each because you can't empty a can easily with just one hole."

Without a national repository for the fuel, it is likely to remain there indefinitely, and the Nuclear Regulatory Commission recently said such storage would be safe for at least 60 years.

There are still, however, 2,410 fuel assemblies under water in the spent fuel pools out of a total capacity of 2,719, and company officials said they are working to lower the pool densities.

"The movement of fuel from Unit 2 is an ongoing process and Unit 3 has an application before the NRC to begin moving fuel out of there," said Indian Point spokesman Jerry Nappi. "We expect that to start before the end of the year."

The presence of radioactive isotopes in the wells in 2005 prompted Entergy officials to move the 160 spent fuel assemblies from the defunct Indian Point 1, and to drain that pool in 2008.

Strontium 90 levels dropped quickly after that.

The firm has since moved about 11 percent of its total spent fuel in the two working reactors into dry cask storage at the Buchanan site.

The NRC is now conducting a 90-day safety review of its 104 commercial reactors and agency officials said the short-term examination will put "particular emphasis" on strategies related to protecting the spent fuel pools.

"More specifically, (inspectors) will be asked to check what sorts of plans the companies have in place to address fires or a loss of coolant to the spent fuel pools," NRC's Neil Sheehan said.

That's important, Lochbaum said.

"There isn't one size fits all," he said. "You need to give operators as much time as possible to survive."

Indian Point And Fukushima Have Different Hazards (INTLBIZ)

By Jesse Emspak

International Business Times, March 28, 2011

Governor Andrew Cuomo has said that he favors shutting down the nuclear reactors at Indian Point, largely due to the possibility of an earthquake in the area that might damage the reactor.

The issue becomes more urgent in the wake of the disaster at the Fukushima Daiichi nuclear power plant in Japan, which was hit by a magnitude 9 earthquake and a tsunami that disabled the plants cooling systems, putting the reactor cores and spent nuclear fuel in danger of melting down and spreading radioactive contamination into the environment.

There are several differences between the facility at Indian Point and the Fukushima reactor, and those differences show that while Indian Point, like other nuclear power plants, has risks, they are different risks from those at Fukushima.

Different Designs

The Fukushima Daiichi plant consists of a set of boiling water reactors. There are six reactor units, and all work on the same principle. Water is pumped into the reactor vessel and heat from the nuclear reactions in the fuel boils it, creating steam which is then used to power a turbine. The water is then pumped into a condenser, where it is cooled down and re-used in the reactor.

Indian Point is a pressurized water reactor, or PWR, a much more common design in the US In a PWR there are two coolant circuits. One pumped directly through the reactor core, and kept at high pressure, typically 150 atmospheres. Ordinarily water boils at 100 degrees C (212 F) but pressurizing it raises the boiling temperature and allows for more efficient cooling. The high-pressure circuit runs from the reactor into a steam generator, which is filled with water at more ordinary pressures. The water in the steam generator boils and runs the turbines. The water from the two circuits never mixes.

One of the advantages of a PWR is that the cores are more stable. This is because water also slows down the neutrons produced by the uranium fuel in the reactor, allowing the nuclear reaction to sustain itself and generate heat. If the water boils away, there are fewer hydrogen and oxygen atoms for the neutrons to collide with, which means they have a tougher time sustaining the chain reaction in the core.

In the case of a problem with the coolant water at Indian Point, the nuclear reactions can actually slow down and generate less heat, reducing the chances for meltdowns. The two separate cooling circuits also means that the water in the second loop is not contaminated by radioactivity, whereas in a boiling water reactor it is.

Another design difference is the control rods. In Fukushima and other reactors of the same design, the control rods are inserted into the core from the bottom. That means that if power is lost there isn't any way to get the control rods in. The Indian Point reactors are designed with the control rods held up by electromagnets. If power is lost (as it was in Fukushima) the rods simply fall into place. The control rods absorb neutrons and slow the reactions in the core down.

This doesn't mean that Indian Point will be free from problems. The high pressure in the first coolant circuit means that the pipes and vessels have to be much stronger. The steel, after exposure to radiation, becomes brittle, and has to be replaced periodically if the plant isn't to be rebuilt completely or shut down.

Indian Point also uses water from the Hudson as part of its cooling system. The river water is taken up to cool the water used in the condenser for the secondary coolant circuit. Thus far Indian Point has been locked in a battle with local environmental officials over permits to use the water, which is discharged at a higher temperature that can stress local wildlife.

Spent Fuel

One of the biggest problems at Fukushima has not been the actual reactor cores, but the spent fuel. In four of the reactors at Fukushima the pools, which are housed near the top of the reactor vessel, had to be supplied with water to cool them down. When the power went out the pumps that sent the water there were out of commission, raising the possibility that the spent fuel at reactor number 4 would release radionuclides into the air.

The pools that house the spent fuel at Indian Point also have to be kept full of pumped water. A failure of the coolant system there, or a leaking fuel pool, could cause result in spent fuel overheating and releasing radionuclides into the environment. One advantage Indian Point has is that the fuel rods, generally speaking, are older than at Fukushima, meaning they are less radioactive.

The biggest issue around Indian point is leakage of the fuel pools into groundwater. In 2006 the New York Times reported finding traces of radioactive contamination in the groundwater. Among the elements found were tritium and nickel-63. At the time the Nuclear Regulatory Commission noted that the groundwater was not used in any drinking water sources. (The Hudson River is not used for drinking).

Seismic Hazard

The Fukushima reactors were hit by a 9.0 magnitude earthquake, and in fact the reactors themselves suffered only minor damage. It was the tsunami that knocked out the generators that supplied the water. Tsunamis are not an issue for Indian Point as the plant is located far from the coast.

Entergy, the operator of Indian Point, says the facility is designed to handle anything up to a magnitude 6.1 temblor. The most intense earthquake recorded in New York was a magnitude 5.8. Indian Point would be able to handle a quake 2.8 times as powerful. The earthquake in Japan, at magnitude 9.0, beat out the most powerful in New York by a factor of 63,000.

While Indian point sits near a fault line - which was only discovered after the plant was built -- the USGS says it is not likely that any quake as powerful as the one that hit Japan will hit the area. That said, a 2008 study found that a magnitude 7 temblor happens once every two to three thousand years. In addition, earthquakes that are smaller than their west coast counterparts can cause damage over a wider area in the northeast, largely because the rock is colder and denser and transmits energy more efficiently. The NRC is studying the issue of seismic hazards, though it has thus far said there is no immediate need to retrofit many nuclear plants.

Well-Honed Evacuation Plans During Indian Point Emergency Are Found To Have Faults (NYDN)

By Brian Kates

New York Daily News, March 25, 2011

Plams for evacuation of the 450,000 people who live and work within 10 miles of Indian Point fill volumes.

They anticipate dozens of horrific scenarios and hone them depending on the season, day of the week, time of day, weather and wind direction.

They factor in situations triggered by special events. The biggest evacuation nightmare: An autumn weekend at midday with a West Point football game and the wind blowing from the southeast.

An estimated 195,365 vehicles would be on the roads if the entire 10-mile radius was evacuated, and traffic flow for every major route has been planned to the last intersection.

To evacuate all 450,000 people who live and work within a 10-mile radius of Indian Point would take 9-1/2 hours.

The Federal Emergency Management Agency tests the evacuation plan every two years, drilling government officials, first-responders, school teachers and hospitals in a variety of complex scenarios.The most recent test, last June, revealed slips that could lead to evacuation chaos and medical breakdowns.

Examples included a mixup between state and county leaders that would have "led to general confusion," mistakes in critical information given to the media, and thousands of expired packets of anti-radiation medicine at a reception center.

After a 2009 counterterrorism drill, the feds concluded that "standard public notification procedures did not suit" a worst-case scenario in which terrorists take control of the plant.

Rockland County Executive Scott Vanderhoef put it this way: "I have complete faith in our first-responders. But even with the best plans something can go wrong. The area is too densely populated for a nuclear plant. Indian Point should be closed."

Indian Point Evacuation Plans Aren't Exactly Comforting Us: Gothamist (GOTHAMI)

By Ben Yakas

Gothamist, March 28, 2011

Ever since the earthquake in Japan caused a crisis with one of their nuclear power plants, reminding New Yorkers that we too have a nuclear power plant about 25 miles from the city, the public has been told two things: that the plant is completely safe, and anyway, it's the "first and top priority" of the US Nuclear Regulatory Commission. Except, uh, the former may not be true, and the latter may be too-little-too-late.

If an emergency were to take place at Indian Point nuclear plant, which sits at the intersection of two fault lines and was recently branded the most vulnerable to an earthquake in the nation, it would take nine-and-a-half hours to evacuate all 450,000 people who live and work within a 10-mile radius. In their most recent test of the plant's evacuation plans, the Federal Emergency Management Agency found dozens of problems in possible evacuation plans based on various disaster scenarios.

An estimated 195,365 vehicles would be on the roads if the entire 10-mile radius was evacuated, ensuring chaos and clogged roads; the worst disaster scenario would be an autumn weekend at midday with a West Point football game and the wind blowing from the southeast. "I have complete faith in our first-responders. But even with the best plans something can go wrong. The area is too densely populated for a nuclear plant. Indian Point should be closed," said Rockland County Executive Scott Vanderhoef.

Also not giving us much comfort: according to the News, the Nuclear Regulatory Commission has historically lax attitude with Indian Point's owner, Entergy, granting them numerous exemptions to regulations governing fire safety, storage of spent

fuel, and systems designed to prevent meltdown. The NRC also recently casually mentioned that nearly one-third of the nation's 143 nuclear plants don't report major safety risks because regulations are "contradictory and unclear." "NRC's misuse of exemptions has significantly reduced safety standards and required inspections at Indian Point," said Deborah Brancato, a lawyer for the environmental group Riverkeeper.

Shut 'Em Down (BROOKFDPTCH)

By Chris Goodrich

Brookfield (CT) Patch, March 28, 2011

Nuclear power may be low-risk operationally, as we're learning from the ongoing crisis in Japan, but it's high-risk when there's an accident. We live less than 50 miles from Indian Point's nuclear reactors...so let's hope the odds are on our side.

Back in the 1980's, when I worked for a law magazine in San Francisco, I did a story about the "necessity defense" -- the legal argument that sometimes it's okay to break the law, because higher things are at stake. The defense has been used by protesters of every stripe -- anti-abortion, anti-logging, anti-animal-testing – but is rarely countenanced by the court system, for obvious reasons. Judges are supposed to enforce laws, not theories. In 1987, however, a trial judge did allow defendants to use the necessity defense, at which point the State of California dropped trespassing charges against hundreds of protesters.

What were they protesting? The opening of the Diablo Canyon nuclear power plant, which was built in the vicinity of earthquake faults. Nuclear power, according to the protesters, wasn't worth the risk. However, the chances of a terrible accident, at any given moment, are small, a plant rupture could be catastrophic and last for tens of thousands of years. Moreover, the risk never really goes away: spent fuel rods are dangerous for millennia, and surprise, surprise, we've yet to develop a good way to dispose of them.

I'm thinking about nuclear power, of course, because of the recent earthquake and tsunami in Japan. It's not the nuclear-energy industry's worst nightmare – that would be the China Syndrome -- but it's not too far off. If Japan can't do nuclear power right, who can? Don't look for any plant approvals in this country over the next couple years, regardless of the price of oil, or instability in the Middle East, or growing demand. Radiation is too scary and too long-lived to take chances with.

Now I've never been all that upset about nuclear energy, even if it entails significant risks, because top-notch engineers and scientists design these plants. But still, it's impossible to make a nuclear plant fail-safe, if only because you can't anticipate every contingency. And Brookfield is less than 50 miles from Buchanan, New York, where the Indian Point nuclear power plant is located, near the intersection of earthquake faults zones, according to a 2008 Columbia University study.

Japan's Fukushima Daiichi plant was more heavily damaged by the tsunami than by the earthquake but one of the hijacked 9 / 11 airplanes flew right by Indian Point on its way to crashing into the World Trade Center. Terrorist Mohammed Atta apparently considered targeting Indian Point.

The Nuclear Regulatory Commission says the Buchanan reactors, seismically speaking (and contrary to some reports), are safer than most, but last week the agency suggested Japanese residents remain 50 miles away from the damaged Fukushima plant . This is well beyond this nation's current 10-mile evacuation recommendation.

All of Fairfield County lies within Indian Point's 50-mile "shadow." I, for one, wonder where the 20 million people within that area (which includes New York City) would go in case of emergency. If you think I-84 at rush hour, and I-95 are bad now....

We've been down this road before, of course. Remember the Three Mile Island accident in Pennsylvania in 1979? That partial core meltdown occurred 250 miles from here, and less than two weeks after the movie The China Syndrome opened. The timing was creepy.

Commentators and policy wonks and "experts," in the wake of the accident said all the right things about more "sustainable" and "alternative" energy – wind, solar, geothermal, etc. -- but as with many things that challenge existing infrastructures, most of those initiatives died on the vine. Short-term goals -- cheap energy, the promise of jobs (however project-based or low-skilled), the comfort of stability -- usually trump long-term planning.

Songwriter Gil Scott-Heron has written a couple of memorable anti-nuke songs. One, "We Almost Lost Detroit," refers to a 1966 partial meltdown at a Michigan nuclear plant, and also references Karen Silkwood, the labor activist and nuclear-plant whistle-blower killed in a suspicious car accident in 1974.

The other, "Shut 'Em Down," was written in the wake of Three Mile Island. Scott-Heron -- an unsung hero of modern American music, puts the nuclear-power dilemma pretty well:

I heard a lot about safety, and human error,
A few dials and gauges is just a wing and a prayer,
If you need perfection (and that's what it takes),
Then you don't need people, can't use people,

You know people make mistakes...
Shut 'em down.
If that's the only way to keep them from melting down...
Shut 'em down.
I can't say I disagree.

Vt. Plant OK Belies Nuclear Review (POLITCO)

By Darius Dixon
Politico, March 28, 2011

Anti-nuclear activists around the country have seized on the ongoing crisis at the Fukushima Daiichi facility in Japan to argue that the death knell of the nuclear industry is finally at hand. But economics may be the more dangerous foe, if the case in Vermont is a guide.

Monday, the same day the Nuclear Regulatory Commission announced it would conduct a 90-day "snapshot" regulatory review of the US nuclear reactor fleet, the agency finalized the relicensing of the Vermont Yankee nuclear plant -- which has the same design as the stricken Japanese plant -- for another 20 years.

Vermont Yankee is actually scheduled to close next year anyway, but the NRC's action leads to questions about the comprehensive nuclear review President Barack Obama called for.

"It is stunning that the Nuclear Regulatory Commission would rubber stamp the use of this aging reactor for another two decades, and it's outrageous that it would do so just days after announcing a 90-day review in response to the crisis in Japan," said Erich Pica, president of Friends of the Earth.

Aside from being one of the 23 US nuclear plants sharing a design and containment system similar to the Fukushima Daiichi plant in Japan, Vermont Yankee has had its own series of problems including the collapse of a cooling tower and leaks of radioactive tritium.

But the fate of the Yankee plant is mostly a matter of economics. And the economics don't look good.

"For the last decade, we've had more juice for sale than consumers can buy," Vermont Gov. Peter Shumlin, a Democrat, told POLITICO. "The bottom line is: This is a great time to be purchasing power. We have more sellers than we're able to buy from."

Shumlin, when in the state Senate, spearheaded last year's vote to block the plant's continued operation beyond its initial 40-year license that expires in 2012.

Replacing the lost power shouldn't be a problem. The state of Vermont belongs to a broad transmission network of New England states. Within the greater New England grid, Vermont Yankee produces about 2 percent of the electricity flowing between states.

Although the Energy Department's Energy Information Administration website states that the Yankee plant represents over 70 percent of Vermont's electricity generation, Michael Dworkin, a professor at the Vermont Law School and director of its energy and environment institute, said that because of the larger regional network, the Yankee plant actually supplies Vermont with about a third of its electricity needs. Much of the rest is made up through imported energy and smaller in-state hydropower projects as well as a woodchip-burning plant that can burn natural gas.

Dworkin said projections show that the New England grid is expected to be flush with excess electricity over the next several years, providing states like Vermont with several power options should it continue to resist the Yankee plant's continued operation.

"Roughly 24 to 26 gigawatts are expected to be needed, and something between 32 and 35 gigawatts will be available," he said. That doesn't include excess hydropower available from Canada, from which Vermont already imports through Hydro-Quebec.

In that context, the roughly 600 megawatts that Yankee generates is small peanuts. "So when you say 'what would you replace it with?' The answer is: a whole lot of other things," Dworkin said.

The excess generating capacity on the market from other sources is particularly attractive to buyers and hard on sellers, Dworkin said, an environment created partly from the lull in demand created by the economic recession and a greater application of energy efficiency measures.

Not that closing the plant is as simple as flipping a switch. Last year, New England's independent service operator found that removing the Yankee plant had implications for the reliability of the power system in Vermont and neighboring New Hampshire.

"[W]ith or without Vermont Yankee, the system in Vermont has reliability issues that must be addressed; without Vermont Yankee in service, those issues are more severe and could affect neighboring areas," the ISO noted. "The potential reliability issues could include thermal overloads on high-voltage transmission lines and voltage instability, either of which could damage equipment, compromise grid stability or cause uncontrolled outages."

The ISO is responsible for reliability but can't mandate where a state gets its electricity from. Therefore it also drew up several potential solutions to the plant's closure, including transmission line upgrades, increasing power imports and energy efficiency.

Yankee spokesman Larry Smith said that the plant can still compete for Vermont's electricity contracts. "We're a third of Vermont's electricity so they're going to have to replace a third of their electricity with a clean, non-carbon emitting source," he said.

And as far as the company is concerned, the safety issue has been resolved by the NRC. "After a five-year, thorough, intensive review by the Nuclear Regulatory Commission, that involved between 20,000 to 30,000 hours of physical inspections of Vermont Yankee," and the commission's 4-0 vote to issue the plant a new license, he said, "the issue of safety has been answered once and for all by our regulator."

Smith also said the company is closely following bills in the state legislature that shift the licensing decision-making process to the state public utility commission.

Gov. Shumlin said the excess electricity has given his state much better options for considering new power sources. "We have all kinds of wonderful, well-priced long-term contract offers coming our way and we have the luxury of picking and choosing among them," he said. "Bottom line is, with some very minor transmission upgrades there will be no problems when the plant shuts down in 2012."

NRC Needs To Hear Message That Vermont Yankee's Time Is Up (BOS)

WARY EYE ON FUTURE OF NUCLEAR ENERGY

By Nancy Braus

Boston Globe, March 28, 2011

FOR CITIZENS working to close Vermont Yankee, the Japanese earthquake, tsunami, and nuclear power failures are an overwhelming call to find another way to power our world. We must change the system that allows corporations to sell power that carries a huge potential cost should there be an unforeseen, yet inevitable, crisis.

Tweet Be the first to Tweet this!..

Yahoo! Buzz ShareThis .It is clear to me that nearby Vermont Yankee is just too dangerous. Nuclear plants, whether built on fault lines or in flood plains, are vulnerable. The failing plants in Japan are General Electric Mark 1 reactors, the same design as Vermont Yankee and the Pilgrim plant in Plymouth.

The Nuclear Regulatory Commission last week granted Vermont Yankee an operating license for 20 more years. The NRC apparently is at least as concerned with the continued existence of the nuclear industry as it is with the safety of the reactors and the surrounding environment.

Vermonters have brought repeated and credible arguments before the NRC as to why Vermont Yankee is too risky, old, and poorly maintained to continue operations. These have delayed the process, but the NRC has never denied a renewal.

Vermonters have the right to tell Entergy, the plant's owner, that 40 years is enough, that we can and will do better, and that power can come from sources that do not produce carcinogens, require evacuation drills, and produce the most toxic waste on earth.

Nancy Braus

Putney, Vt.

The writer is active with Safe and Green, a citizens' organization of residents living within 20 miles of Vermont Yankee.

Edwards Asks NRC To Review Decision (BRATBORO)

By Chris Garofolo , Reformer Staff

Brattleboro (VT) Reformer, March 28, 2011

MONTPELIER -- Stressing a major concern over the safety of Vermont Yankee following the natural disaster in Japan, Windham County lawmakers have proposed a resolution calling for the US Nuclear Regulatory Commission to reconsider its decision on relicensing the power plant for an additional 20 years.

Rep. Sarah Edwards, P/D-Brattleboro, issued a resolution during a Tuesday press conference expressing her deep regret at the NRC's failure to delay action on the license extension at the Vermont Yankee nuclear power station located in Vernon, particularly with the unfolding crisis in Japan.

Critics of the 39-year-old nuclear site, owned by Entergy Corp., say the plant is the same vintage and design (Mark 1) as the reactors half a world away in Japan and the NRC should not have continued with issuing a license without a complete review of its safety.

"In light of events in Japan, many of us who represent communities in the immediate vicinity of Vermont Yankee strongly urge the NRC to rescind the issuance of a 20-year license until we better understand the catastrophe unfolding in Japan," Edwards said. "It seems to me its a little backwards to go ahead and issue the license and try to revoke it. That's not very good for a business, which Entergy is."

NRC Public Affairs Officer Neil Sheehan said Yankee underwent an extraordinarily detailed license renewal review that took more than five years to complete.

"At the conclusion of this evaluation, we were satisfied that the plant meets the clearly defined requirements for a license extension, including the establishment of thorough aging management programs for key safety systems, structures and components," he said. "We continue to have confidence that all of the US nuclear power plants are safe. This is based on, among other things, the fact that they are designed to cope with a broad range of natural phenomena, including earthquakes, tornadoes, hurricanes, etc., and have diverse and redundant safety features."

President Barack Obama, a first-term Democrat, said nuclear power is an important part of the country's energy future, asserting all plants have undergone exhaustive study and were declared safe.

"But when we see a crisis like the one in Japan, we have a responsibility to learn from this event, and to draw from those lessons to ensure the safety and security of our people," Obama said. "That's why I've asked the Nuclear Regulatory Commission to do a comprehensive review of the safety of our domestic nuclear plants in light of the natural disaster that unfolded in Japan."

The NRC concluded the legal proceeding on Yankee regarding the renewal of the operating license on March 10. Japan was rocked by a massive earthquake and tsunami the following day, jeopardizing the safety of the nuclear reactor at the Fukushima Dai-ichi power station.

The natural disaster disabled several key cooling systems at the nuclear site, hampering efforts to return those systems to service. Yankee has the same vulnerabilities and weaknesses as the Japanese model.

"There is a significant weakness in the Mark 1 reactor. In other words, if the Mark 1 reactor cooling system failed, which this one did in Japan, the fuel rods would overheat and as a result, the primary containment vessel surrounding the reactor would burst and it would be likely to spill radiation into the environment," Edwards said. "Back in 1972, there was a recommendation from a member of the Atomic Energy Commission that said the Mark 1 system should be discontinued."

Commission members issued the renewed license this week, allowing Yankee to operation until March 21, 2032. The decision to renew came after the NRC staff's extensive safety and environmental review of the application submitted in January 2006 by Entergy.

Laurence M. Smith, manager of communications at Yankee, said earlier this week Entergy is pleased the NRC issued the operating license extension.

"[Monday's] action comes after five years of careful and extensive review and confirms that Vermont Yankee is a safe, reliable source of electricity and capable of operating for another 20 years," he said.

Nevertheless, Windham County Democrats supported the Edwards resolution because of the similarities between the Vermont site and the Japan reactors, especially when dealing with the levels of spent fuel on the properties.

"I think Vermont Yankee has a higher concentration of spent-fuel in those pools. I think it was unfortunate the NRC didn't take a step back, given the events unfolding in Japan and say 'we need to take another look here," said Putney Democrat Mike Mrowicki. "We're calling on the NRC and Entergy to do the right thing and close the plant down so we can really ensure it can withstand such stresses."

Rep. David Deen, D-Westminster, urged Entergy to perform a stress-test on Yankee. While the plant is durable for an earthquake, it is in a hazardous flooding zone next the Connecticut River.

"It was water that took out the cooling tower capacity in the Japan plants, not the earthquake itself. What would happen if we had a 1927 or 1937 flood, and one of the dams in the upper Connecticut River let go and send a huge wall of water down?" Deen said.

Yankee advocates, such as Vernon Republican Michael Hebert, said he would support a resolution to let the Vermont Public Service Board complete their work on Yankee's review.

"As I've said right along, that's the problem with this issue. We have politicians trying to make this decision on Yankee," he said. "We should be leaving it to the experts, be it the NRC or the Public Service Board. So, no I wouldn't support [Edwards] resolution."

Hebert sponsored a House bill to remove the legislative approval requirements for the continued operations of Vermont's only nuclear plant beyond the date of its current certificate of public good. Chris Garofolo can be reached at cgarofolo@reformer.com or 802-254-2311 ext. 275.

...While Reopening The Review Of Vermont Yankee (BOS)

Boston Globe, March 27, 2011

The NRC's decision last week to grant a 20-year license extension to 38-year-old Vermont Yankee defies common sense. The agency should have put such decisions on hold until the lessons of Fukushima can be fully understood.

Instead, it plowed ahead with the extension to Vermont Yankee, which is on the Connecticut River near the Massachusetts border. The decision is especially puzzling given the history of leaks at the plant and misleading statements by Entergy, which owns it.

Anywhere else, the commission's unfortunate decision would be the end of the story. But, unique among states, Vermont lawmakers have the authority to prevent the plant from operating past 2012. The Vermont Senate has already voted overwhelmingly against allowing operations to continue, setting the stage for a possible court clash.

The commission needs to be an honest broker, but it often seems too close to the industry it regulates. If the NRC were to reopen the process, and consider the lessons of Japan, the public -- and the Vermont legislature -- might be less suspicious

Vermont's Other Nuclear Plant Planned For Lake Champlain (RUTHER)

By Mark Bushnell

Rutland Herald, March 28, 2011

On Dec. 11, 1967, construction began on the Vermont Yankee nuclear power plant in Vernon. It would be Vermont's first nuclear plant. But most Vermonters didn't know that plans were under way for a second reactor, this one on the shores of Lake Champlain.

Two months earlier, officials with the Vermont Yankee Nuclear Power Co. had signed an option to purchase the farm of Dick and Mary Thurber in Charlotte as a possible site.

It is unclear how word of the proposed nuclear plant got out. One version of the story is that Central Vermont Public Service Corp., Vermont Yankee's major shareholder, leaked the news to gauge public reaction. Or perhaps rumors circulated after someone noticed when Vermont Yankee's option was recorded in town records. Another version has it that Dick Thurber himself accidentally let it slip at town meeting in 1968.

However the news emerged, it forced Vermonters to grapple with the issue. Apparently no one conducted a statewide poll, but a poll of Charlotte residents found 60 percent opposed and 22 percent in favor of the plant. Those supporting the plant believed it would spur local development and lower property taxes.

Indeed, it was rising property taxes that sparked the Thurbers' interest in selling, according to Nancy Wood, who was then their daughter-in-law. Though they were farming the land, state tax policy called for the property to be taxed based on its development potential. This was in the days before the state Current Use program offered tax relief for people working their land.

The idea of selling the land to CVPS came from one of the Thurbers' sons-in-law, who was working for the company and training in nuclear science, says Wood. The time seemed right. The nuclear industry was planning numerous plants to meet America's growing energy demands. Between 1970 and 1975, ground would be broken on 45 nuclear plants.

Word of the purchase option worried neighbors. They implored the Thurbers, in person and in letters, not to sell.

"They were under a considerable amount of pressure," says Wood from her home in Charlotte.

Defending the lake

If the Thurbers were in an uncomfortable position, so was Wood, whose father was a leading opponent of the project. "I pretty much kept my head down and kept out of it," says Wood, who was in her mid-20s at the time.

Her father, Lyman Wood, was secretary-treasurer of the Lake Champlain Committee, a nonprofit citizens organization that fought the nuclear plant. The organization was only four years old when CVPS signed the purchase option.

The organization ran full-page newspaper ads outlining the risks nuclear plants might pose. The ads appeared Oct. 22, 1968, in the Plattsburgh (N.Y.) Press-Republican and the Burlington Free Press.

Lyman Wood, who as an advertising executive worked on the state's "Vermont, the Beckoning Country" tourism campaign, helped craft the Lake Champlain Committee's response to the potential nuclear plant. The ad's large headline read: "Lake

Champlain Committee Will Oppose Construction of Nuclear Power Plants Anywhere on the Lake." Below, the committee spelled out its arguments.

Among its concerns was that a nuclear plant would draw cold water from the lake to cool the reactor and discharge warm water into the lake. Higher water temperatures would kill many forms of aquatic life, lower fish populations and spur algae growth, the ad said.

The plant might also release radionuclides like tritium into the lake, which could rise to dangerous levels over time and enter the food chain. Farther down the list was risk of a serious nuclear accident. Such an event might have seemed purely hypothetical, as Three Mile Island, Chernobyl and the Japanese nuclear power plant crisis were still years in the future.

The committee expressed concern that some dangers were unknown, as no reactors of that size, 1 million kilowatts, were yet operating. That was nearly twice the capacity of the plant being built in Vernon. (It later emerged that CVPS was actually considering making the Charlotte plant a 2 million kilowatt facility.)

A nuclear power plant would mar the landscape, the committee charged. The facility might be composed of a massive reactor building dwarfed by cooling towers and a brightly painted 400-foot smoke stack. The plant would be brightly lit at night to make it visible to aircraft.

Fighting back

CVPS President L. Douglas Meredith tried to allay concerns by saying all this talk was premature.

"We are making some water studies," Meredith said, "and we plan some meetings with the state Water Resources and Fish and Game Departments. But at this point we have no plans for a plant. We have no definite information and we haven't got a line on a piece of paper."

Two months later, CVPS purchased 140 acres from the Thurbers. (The couple retained a section of the farm. "I don't think they had any intentions of going anywhere," says Wood. "They were among the folks who believed that nuclear power was a safe and reliable option.")

US Sen. George Aiken, R-Vt., attacked plant opponents, asking whether most of the opposition wasn't just from oil companies and railroads, which carried fuel to coal-burning plants. Aiken noted that the general counsel to the Lake Champlain Committee, Peter Paine Jr., had done work for the Delaware & Hudson Railroad.

Paine, who still lives in the lakeside community of Willsboro, N.Y., laughs at the idea that he was paid for his work. The committee had no paid staff at the time. His interest was personal, not professional, he says. Paine volunteered to draft the committee's position on the issue and went on to serve as the committee's general counsel for roughly 45 years.

'A catastrophe'

Paine believes the plant's fate was sealed after Gov. Deane Davis' administration persuaded members of the Atomic Energy Commission to come to Vermont to answer questions about the proposed plant in September 1969. "It was the first time the AEC had done such a thing," Paine says. "The concept of having a public hearing was completely alien to them."

And it showed.

Vermonters packed the Patrick Gymnasium at the University of Vermont in Burlington. "This wasn't nuclear disarmament types with flags and such. It really wasn't," says Paine. "It was just ordinary citizens with scientific concerns and quite a bit of scientific evidence to back it up."

The Atomic Energy Commission grew out of the Manhattan Project, which developed the first nuclear weapon. One of the commission's roles was to promote peaceful, civilian uses for nuclear technology. Working for an offshoot of the military, Paine says, AEC officials were not used to being questioned.

At the gathering, Paine says, "The AEC made a terrible mistake and said, essentially, father knows best. In Vermont, with its tradition of town meetings and people saying what they think, it went down like a lead balloon.

"It was a catastrophe from the perspective of the power company and as a result, a ways down the line, they simply withdrew the proposal."

Close call?

Paine says that after the Lake Champlain Committee and others had defeated the proposal, Meredith, the CVPS president, wouldn't speak to him. Years later, though, they ran into each other in Burlington. This was at a time when power companies were running into massive cost overruns in building nuclear plants. "He said to me, 'You saved my company,'" Paine recalls. "He said it sort of grudgingly."

CVPS sold the site in 1978. The new owners subdivided the property into 10-acre lots. Now more than a dozen homes dot the late Thurbers' land, Wood says. Recently, the new owners burned down the former Thurber home, which had been built in the 1930s, to make way for a new house. "It was sort of the end of a chapter," Wood says.

The visible changes to the land, however, seem relatively minor, Wood says: "Take a picture now and it almost looks the same."

Mark Bushnell's column on Vermont history is a regular feature in Vermont Sunday Magazine. A collection of his columns was published in the book "It Happened in Vermont." He can be reached at vermontpastlane@gmail.com.

Harwood To Host Vermont Yankee Debate (RUTHER)

Rutland Herald, March 28, 2011

Vermont Yankee will be the topic of discussion at a public debate being held Tuesday at Harwood Union High School in Duxbury.

At 7 p.m., the public is invited to explore two sides of the debate as to whether Vermont Yankee should continue to operate for another 20 years.

The Central Vermont Regional Planning Commission, in conjunction with Harwood Union High School students, has invited two guests to make cases for and against continued operation.

Meredith Angwin is a public relations expert for the energy industry. She supports nuclear power and keeping Vermont Yankee alive.

Vermont Public Interest and Research Group's James Moore will try to make the case for mothballing Vermont Yankee and moving toward alternatives to nuclear power.

Following the presentations, there will be a question and answer session.

"The acute timeliness of this event was not planned as the date and format were chosen before the disasters in Japan," CVRPC's Nancy Notterman said in a press release.

The event, which will take place at the school's Common Ground Cafe, is part of a course taught by Harwood Union civics teacher Jean Berthiaume called "Creating Sustainable Communities."

State Seeks Former Drinking Water Well Test Results (BRATBORO)

By Josh Stilts , Reformer Staff

Brattleboro (VT) Reformer, March 28, 2011

BRATTLEBORO -- The Vermont Departments of Public Service, Health and Environmental Conservation have asked for the test results from a former drinking-water well at the Vermont Yankee nuclear power plant and members say the results aren't coming quickly enough.

In a letter addressed to Michael Colomb, site vice president of Vermont Yankee, sent from Harry Chen, Commissioner of the Department of Health, Elizabeth Miller, Commissioner of the Department of Public Services, and Justin Johnson Deputy Commissioner of the Department of Environmental Conservation, Entergy, which owns and operates the nuclear power plant in Vernon, has until March, 28 to provide test results.

"We consider analysis of this well extremely valuable due to its depth and location in close proximity to the Advanced Off-Gas building, a source of tritium contaminated groundwater," the letter states.

Verbal and written requests to resume testing of the COB well have been made since February last year, when the former drinking-water well was taken out of service.

"Despite the numerous state regulator requests to obtain samples from the COB well, (Entergy Nuclear Vermont Yankee) has yet to do so," the letter states. "We would appreciate a prompt and complete written explanation as to why ENVY has failed to obtain samples from the COB well to date."

Larry Smith, manager of communications for Vermont Yankee, said testing had not been done.

"We have not done testing on the construction office build well as yet," Smith wrote in a e-mail to the Reformer. "Entergy is evaluating appropriate next steps and we are communicating with the state on that topic."

According to the letter, however, members of the departments disagree.

"ENVY had indicated that it would sample the well in February 2011, but operations ceased before a sample was obtained," the letter states.

There were concerns that sampling the well could introduce even more tritium contamination in the COB well.

According to the letter, samples obtained from the COB well could help verify whether deeper sources of water, where drinking water is drawn from, have been affected.

"If we are not in receipt of these documents by (March 28) we will take appropriate enforcement action," the letter states.

On Monday, the Nuclear Regulatory Commission issued a new license for Vermont Yankee to operate from 2012 to 2032.

The issuance was temporarily put on hold following the earthquake and tsunami that crippled the safety systems of a set of nuclear reactors in Fukushima on March 11.

Gov. Peter Shumlin stated he found it "puzzling" that the NRC issued the license during the aftermath of the earthquake in Japan.

"Fortunately, Vermont has taken steps to close down the aging Yankee plant, and I have urged other states with older nuclear facilities to follow our example and take control of the lifespan of their plants," he stated.

The issuance of the renewed operating license is the culmination of an NRC review process, that began with Entergy's submission of the application for a 20-year license extension on Jan. 27, 2006.

"The Yankee license renewal application has had more than five years of review, a safety evaluation, an environmental assessment and a hearing that lasted for several years," said Neil Sheehan, spokesman for the NRC. "This application has received as much scrutiny as any license renewal proposal we have considered to date."

In addition to the NRC extension, Entergy must also receive a certificate of public good from the state of Vermont, something, Shumlin has repeatedly said the state will not grant to Entergy. Last year the state Senate voted 26-4 against the continued operation of the plant.

Josh Stilts can be reached at jstilts@reformer.com, or 802-254-2311 ext. 273.

At Pilgrim, NRC Must Address Fuel Rods, Cables, Safety Plan (BOS)

Boston Globe, March 27, 2011

THE CRISIS at Japan's Fukushima Daiichi nuclear power station has kindled a badly needed reappraisal of nuclear energy safety in the United States – including at three nuclear plants that power the Boston area. For now, it appears that the worst-case scenario in Japan has been averted. But that shouldn't stop the rethinking, which should result in more stringent standards and rigorous enforcement to ensure that plants in the United States are the world's safest.

In Massachusetts, that reappraisal can start with Pilgrim nuclear station in Plymouth, which has applied to extend its license for another 20 years. The 38-year-old plant has a design similar to the reactors at Fukushima – but that's largely beside the point. Every nuclear plant poses its own set of risks. Regulators should ensure that the operators have done everything possible to understand and minimize those risks.

One of the most worrisome problems facing Pilgrim is the wet storage of nuclear waste, which is packed into a swimming-pool sized container at the site. Like many nuclear facilities, Pilgrim holds more waste than was originally intended, largely because the federal government has failed to build a long-term storage facility. If plants will be responsible for storing their own waste for the forseeable future, regulators should place stricter limits on wet storage. In Japan, a wet storage pool apparently malfunctioned, leading to the release of radioactive material. Before the Nuclear Regulatory Commission renews Pilgrim's license, it should insist that waste go into dry storage, which is safer.

The NRC should also revisit other concerns about the aging cables at Pilgrim and the plant's security. The crisis in Japan was caused, in part, when the plant lost power needed to keep the core cool and backup systems failed. Pilgrim's safety systems are powered by submerged cables of a type that have been known to fail under damp conditions. Last year, the NRC declined to mandate more frequent inspections of the cables, a decision it should reverse.

In light of modern concerns about terrorism, which were not on the radar screen when Pilgrim opened in 1972, plants also need adequate protection from attack. Last year, the NRC disclosed that there had been an unspecified security breach at Pilgrim, but withheld details. Representative Edward Markey, a critic of nuclear power, has rightly called for a full accounting of the incident so the public can judge whether the plant is adequately secure.

Finally, the plant's owner, Entergy, should abandon a short-sighted plan to cut emergency preparedness funding in communities surrounding Pilgrim. Troy Clarkson, the town manager of Bridgewater, said that if the company goes ahead with plans to shrink the $114,000 in annual payments the town receives from Entergy, it will curtail training and close an emergency operations center. In the event of a crisis at Pilgrim, Bridgewater is one of three communities that would be designated reception centers for evacuees. In addition to keeping up funding levels, the company should ensure those emergency scenarios are sufficient; relying on three communities to handle 100,000 South Shore residents seems unrealistic.

The NRC has never denied an application to extend a plant's license. But after the crisis in Japan, the agency must make clear that nothing but the most rigorous standards will be acceptable.

...And Postponing Any Action On Seabrook (BOS)

Boston Globe, March 27, 2011

New Hampshire's 20-year-old Seabrook Station is the newest — and in some ways, safest — nuclear plant in the Boston area, using more advanced designs than the region's older plants. Seabrook does not have the same reactor type as the Japanese plants and, crucially, its pool for spent fuel is of a safer design.

Seabrook already has a license for 19 more years. But under an oddly generous NRC policy, the plant is hustling to get its license extended for an additional 20 years. Granting that would be foolhardy.

It is impossible to predict technology. While Seabrook may seem state-of-the-art now, by 2030, when the original license expires, its safety measures could well be outdated. The NRC owes it to the public to assess the extension based on what's known about nuclear safety in 2030, not 2011.

Nuclear Waste Storage Raises Concern At New England Plants (WCVB)

This story was reported by NewsCenter 5's Janet Wu in conjunction with Hearst Newspapers and the New England Center for Investigative Reporting

By Janet Wu

WCVB-TV Boston, MA, March 28, 2011

BOSTON -- Some of New England's nuclear plants are currently storing significantly more waste than federal regulators originally licensed the plants to store.

Team 5 Investigates

Janet Wu, in conjunction with WCVB-TV's corporate partner Hearst Newspapers and the New England Center for Investigative Reporting, reported Sunday that concern is growing about the storage of nuclear waste at US nuclear plants in the wake of the disaster in Japan.

After a massive earthquake and tsunami ravaged Japan and cut off power at the Fukishima-Daiichi nuclear power plant, operators lost the ability to pump cooling water into the pools where nuclear waste is stored. When waste is exposed to air it can overheat, causing fires, explosions and nuclear radiation to be released.

According to the Nuclear Regulatory Commission and companies that own nuclear power plants in New England, a large amount of waste is now being stored.

The Pilgrim plant in Plymouth, Mass., was originally licensed to store 880 fuel assemblies. It now stores 2,918 – nearly four times the original amount.

It's a similar story at the Vermont Yankee power plant in Vernon, Vt., located in the southeast corner of the state. Originally licensed by the NRC to store 600 fuel assemblies, it now stores 2,935.

At Seabrook, on the New Hampshire coast, 1,128 fuel assemblies are in storage, just shy of the NRC limit of 1,236.

"The Nuclear Regulatory Commission tends to be very lenient when it comes to giving the industry, the nuclear power industry, what it wants in terms of strategies that will allow it to pack more spent fuel into these spent fuel pools," said Shay Totten of the New England Center for Investigative Reporting.

An independent study by the Brookhaven National Laboratory concludes an earthquake or terrorist attack would be deadly since the spent rods are so tightly packed together.

"It could cause more than a half billion dollars in damages and could cause the evacuation of millions of people, or hundreds of thousands of people, and certainly immediate deaths in the area," said Totten.

But in each case where nuclear plants are storing more waste than originally licensed for, the NRC approved the increase, saying it would not jeopardize the public's safety.

"They believe, in fact, that these fuel pools can hold more fuel assemblies than originally designed," said Totten.

Massachusetts governor Deval Patrick isn't so sure.

"Nuclear power has a lot to say for it," Patrick told Wu. "But they have not solved the question of disposal of the waste and that is concerning to me like it is to many citizens."

David Lochbaum is a former nuclear plant operator and a member of the Union of Concerned Scientists, a group that has sounded the alarm over nuclear safety. He noted, "You can't take shampoo on an airplane, but we can have 400 metric tons of waste in a pool at a nuclear plant."

The alternative is moving the rods to more expensive dry cask storage.

Plant owners insist it would not significantly increase public safety. But that may not be avoided. The NRC predicts many power plants, especially the older ones in New England, will be out of room by 2015.

Nuclear Waste Storage Raises Concerns At VT Yankee, New England Plants (WMUR)

This story was reported by News 9's Adam Harding in conjunction with Hearst Newspapers and the New England Center for Investigative Reporting.

By Adam Harding

WMUR-TV Manchester, NH, March 28, 2011

VERNON, Vt. – The nuclear crisis in Japan is bringing new attention to the ways nuclear waste is being disposed of and stored in New England, especially considering that the United States does not have a national disposal site for waste.

A special investigative series from Hearst Newspapers and the New England Center for Investigative Reporting looked at Indian Point in New York, along with the seven nuclear power plants located in New England.

The report found that many of those plants are beyond their initial designated capacity for storage of nuclear spent-fuel. In each case, the storage of additional spent-fuel was approved by the Nuclear Regulatory Commission. Storage Beyond Capacity

At the Vermont Yankee Nuclear Power Plant, located just over the New Hampshire state line in Vernon, Vt., the report found that the plant is storing five-times the spent-rods that it was originally designated for.

"The plant is safe and will continue to be safe," Vermont Yankee Spokesman Larry Smith told News 9.

Smith has been with the Vermont plant for more than a decade. The plant itself, currently operated by Entergy, has been running for nearly 40 years. It supplies power to part of New Hampshire, Vermont and Massachusetts.

Smith said that the spent-fuel rods, which are still radioactive and hot, are stored in a massive, concrete-encased water-filled pool. The pool is beneath the steel and concrete containment area of the plant.

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

"Plants like Vermont Yankee had to do what's called re-racking their fuel pools and increase the capacity," said Smith.

Smith said the process was all supervised by the NRC, and there is no cause for concern.

The investigative report from Hearst and NECIR suggests that the re-racking may have partly been an economic move for plant owners.

"One of the reasons why critics will say the NRC allowed for this re-racking is because it saves nuclear plant operators a tremendous amount of money," said Shay Totten, a journalist who contributed to the investigative series. "It's very costly to take those spent fuel rods and put them in dry storage on site."

Vermont Yankee, however, said it has already begun moving some of that spent fuel out of the pool and into giant dry storage canisters. Some nuclear power proponents said that dry storage is a safer alternative. Smith said the process at Vermont Yankee began in 2008. Terrorism Concerns

The investigative report also included concerns raised by some scientists and engineers that the storage pools may be a tempting target for terrorists.

That same terrorism fear is echoed by former US Rep. Paul Hodes, who has been vocal about safety at Vermont Yankee and previous leaks of radioactive Tritium at the site. Hodes took those concerns to Washington and to plant management.

"When I visited Vermont Yankee, I can say they maintained a very high level of security outside the plant and inside the plant," Hodes said. However, given the plant's age and prior problems, Hodes said he did not believe the plant should be re-licensed for another 20 years.

However, plant operations are moving forward, and Smith insists the plant is well-protected from terrorism. Vermont Yankee said it will continue to transition spent fuel to dry storage.

Smith said that there is hope the disaster in Japan prompts new discussion about a national repository site. "We are in hopes that the federal government, the department of energy, are going to take spent nuclear fuel from sites like Vermont Yankee," said Smith.

The day before the events in Japan, the NRC did report that it would give the green light to re-licensing Vermont Yankee for another 20 years. Smith and proponents said that is proof that the federal regulators believe the plant is safe. Storage At Seabrook Station

The report also took a look at the Seabrook Station Nuclear Power Plant in Seabrook, noting that the site is not at or beyond capacity when it comes to spent-fuel storage.

Seabrook is the newest of the New England plants, and it was originally licensed for 1,236 spent-rods. Seabrook currently has 936 in its pool, and there are another 192 in dry storage.

Seabrook spokesman Al Griffith told News 9 that there is currently enough storage capacity at the plant to last at least through 2050.

The report pointed out that the storage pool at Seabrook is outside of the containment dome.

Griffith said the storage is within an extremely high-secure protection area that was designed to withstand all sorts of natural disasters and terrorist attacks.

ACC To Hold Special Meeting On Palo Verde (PBJ)

By Patrick O'Grady

Phoenix Business Journal, March 28, 2011

The Arizona Corporation Commission will hold a meeting Tuesday to discuss safety plans for the Palo Verde Nuclear Generating Station.

The special meeting, to be held at 1 p.m. in the commission's hearing room at 1200 W. Washington in Phoenix, is at the request of at least two commissioners, Bob Stump and Paul Newman.

Both asked for the briefing after getting numerous requests from their constituents regarding the nuclear plant's safety following a more than two week disaster at a nuclear facility in Japan following that country's massive earthquake and tsunami.

Representatives of Arizona Public Service Co., which operates the plant on behalf of the utility and six other partners, will be at the meeting to discuss what Palo Verde has doen in terms of upgrades and safety. Representatives from the Nuclear Regulatory Commission also have been invited to the meeting.

Palo Verde is preparing to open a new education center in early April that also will serve as an emergency operations center should it be needed. The new building is in Buckeye, about halfway between Phoenix and the plant 50 miles west.

Questions about the nuclear industry's safety arose again following the accidents at the Fukushima Daiichi power plant in Japan. Officials there are trying to prevent the further melting of fuel at four of the plant's six reactors after power was cut during the earthquake and water flooded its backup generators.

The result was a situation where the nuclear fuel could not be cooled. The incident has pushed radiation into the Japanese countryside and forced the evacuation of anyone living within 12 miles of the plant.

Regulators To Assess Safety At Ariz. Nuclear Plant (WASHEX)

By Mark Tapscott

Washington (DC) Examiner, March 28, 2011

Utility regulators in Arizona set a Tuesday hearing with the operators of the nation's largest nuclear power plant to assess safety procedures there in the wake of Japan's nuclear accident.

The hearing before the Arizona Corporation Commission will focus on the Palo Verde Nuclear Generating Station in Wintersburg, located about 50 miles west of downtown Phoenix.

The triple-reactor plant supplies electricity to about 4 million customers in Arizona, New Mexico, Texas and California.

The nuclear crisis in Japan also has prompted the Nuclear Regulatory Commission to launch a review of US nuclear plants.

Arizona Public Service, the utility that runs the plant on behalf of a consortium of power companies in the four states, has already briefed Arizona legislators on the plant's safety procedures.

Hearing Set To Focus On Ariz. Plant Safety (KPHO)

KPHO-TV Phoenix, AZ, March 28, 2011

PHOENIX --

Utility regulators have set a meeting for next week, to examine safety procedures at the Palo Verde nuclear plant.

The hearing before the Arizona Corporation Commission will assess safety procedures in the aftermath of Japan's nuclear accident.

Arizona Public Service has already briefed state legislators on the plant's safety procedures.

The plant supplies electricity to some 4 million customers in Arizona, New Mexico, Texas and California.

Palo Verde Tour Gives Reporter Perspective (PBJ)

By Patrick O'Grady

Phoenix Business Journal, March 28, 2011

Being a journalist, you get to do some different things. Two years ago, walking into a nuclear reactor was one of them.

I bring this up because the nuclear industry is getting bombarded with questions about its safety. The Arizona Corporation Commission has asked representatives from Arizona Public Service Co. to talk about the utility's safety plan.

APS, which runs the plant, is one of seven utility owners of the facility, about 50 miles west of Phoenix. Officials took members of the media on a tour of one of the reactors during a refueling operation at one of the three it operations at Palo Verde Nuclear Generating Station.

First, a disclaimer: I am both fascinated and terrified of radiation. I was a geek growing up, and first fascinated by the Manhattan Project and guys like Robert Oppenheimer, Edward Teller, Enrico Fermi and, of course, Einstein, for the power they had unleashed.

But there's something unsettling about something you can't see, smell or touch, but can kill you quickly enough. The tour involved a view of the operations from security through entering the containment dome where workers were installing new uranium into the core.

Getting into the containment dome, where the fuel is and where the power is generated when they turn the reactor on, is a task itself. First, security is everywhere. From the time you roll onto the grounds, where you are searched at a checkpoint, to an entry into the plant complex and then the individual reactors, there are guards in most areas, sensors and cameras at every turn.

Inside, workers ride bikes around the complex to get where they need to go. From the outside, Palo Verde is like every other power plant with transmission lines and transformers.

Inside, as you get closer to the containment domes, it begins to change. Once on the way to the domes, workers are covered nearly head to toe in protective material. They wear dosimeters, which measure how much radiation they have been exposed to as they only are allowed to be exposed to so much per year.

The process of getting dressed is specific so that when you come back out of the reactor, you undress so as not to contaminate yourself or track radiation out of specifically designated areas where, theoretically, the radiation is supposed to stay.

The containment domes, which are the large concrete structures that contain the reactors and are the prominent rounded features in pictures of the plant, are massive and thick. Walking into one is like walking into essentially an airlock with two giant steel doors on either end.

Once inside, the dome's interior could house just about any power plant. It's somewhat cramped, very industrial, and particularly hot and humid. Walking in, workers initially are protected by a massive wall designed to shield them from the radioactive materials in the core. With the power off, there is less radiation, but it is still present. Roped-off areas and signs designate where workers are allowed and where they can stay only for a short amount of time.

Up a staircase took the tour to a vantage point above the core. Workers were installing the fuel rods and the reactors control rod assembly had been moved out of the way and the core sat easily viewable in about 40 feet of water.

Every so often, a device that looked like a gantry crane would move into position and look to lower one of the fuel rods into one of the numerous chambers in the core.

We weren't in the containment dome for long. The process of getting back out is more involved than getting in. The used clothing is removed and sealed as waste products just outside the dome. I was scanned twice by equipment designed to detect if I was tracking any radiation outside. They are full-body scanners that you stand in, inserting your arms one at a time into housings that can detect even the faintest bit of radiation.

Cleared just outside the dome, we go back the way all the other workers walk and were scanned again before we were cleared to leave the area.

For the workers at Palo Verde, this is just something that goes with the territory of providing nuclear power. And as I've been watching the events at the Fukushima Daiichi power plants in Japan, I have a little better understanding of what they're dealing with.

NJ, Home To Oldest US Nuclear Plant, Appoints Task Force To Review Safety Plans At 4 Reactors (AP)

Associated Press, March 28, 2011

LACEY TOWNSHIP, N.J. — New Jersey, the most densely populated state and home to the nation's oldest nuclear power plant, created a task force Friday to review safety and emergency response plans at nuclear plants in light of the disaster unfolding in Japan.

The state Department of Environmental Protection appointed the panel, composed of homeland security, state police and utility officials. It will start work next week and plans to visit the 41-year-old Oyster Creek plant in Lacey Township, as well as the three reactors in Lower Alloways Township in Salem County, called Hope Creek and Salem I and II.

Oyster Creek is a General Electric reactor, similar to the Fukushima Daiichi complex in Japan, whose reactors were damaged by an earthquake and tsunami that knocked out power to cooling systems, allowing radiation to escape. The same boiling-water reactor design at the Japanese plants is also used at Hope Creek.

"We want to ensure all proper safety protocols and preventative measures are in place to protect the residents of New Jersey from ever having to experience a nuclear emergency," Gov. Chris Christie said. "There may be lessons to be learned from what is happening in Japan that could make our preparedness even better and make the state's residents more secure. We have an obligation to explore those facts and will make necessary adjustments to our safety plans as appropriate."

Exelon Corp. and PSE&G, which own the reactors, have pledged to participate in the reviews. In December, Exelon and the state reached a deal to close Oyster Creek in 2019, 10 years earlier than called for under its current license.

Potential impacts from reactors in neighboring Pennsylvania and New York also will be examined.

Oyster Creek went online Dec. 1, 1969, the same day as the Nine Mile Point Nuclear Generating Station near Oswego, N.Y. But Oyster Creek's original license was granted first, technically making it the oldest of the nation's 104 commercial nuclear reactors that are still operating.

It has had problems including leaks of radioactive tritium from underground pipes, as well as malfunctioning electrical components. Environmentalists also say the metal containment liner has worn too thin, but Exelon and the NRC say the plant can be operated safely.

The early shutdown deal was reached to let the plant avoid having to build costly cooling towers that New Jersey officials insisted upon to vastly reduce the number of fish and small marine creatures the plant's operations kill each year.

Located about 60 miles east of Philadelphia and 75 miles south of New York City, Oyster Creek generates 636 megawatts of electricity, enough to power 600,000 homes a year, and provides 9 percent of New Jersey's electricity.

The task force will explore emergency response plans at all the state's reactors, technical reviews of plant operations, the chain of command and control at each nuclear facility, evacuation plans, and plans for emergency communications to the public.

Led by DEP Commissioner Robert Martin, the task force includes Charles McKenna, the state's homeland security and preparedness director; State Police Superintendent Col. Rick Fuentes, and Lee Solomon, president of the state Board of Public Utilities. It will submit a written report to Christie once the review is completed.

"We already have an excellent response system in place, one that is continuously updated as we gather new science and facts," Martin said. "We also have excellent cooperation from the owners of nuclear facilities in our state. But you can never be too prepared. If there are lessons for New Jersey from what is happening in Japan, we should draw from that information."

The federal Nuclear Regulatory Commission requires nuclear plants to meet federal specifications to withstand natural disasters, such as earthquakes, hurricanes and tsunamis.

In Japan, it was not so much the force of the earthquake but rather water from the tsunami that inundated the plant and knocked out crucial electrical and backup power systems to run cooling systems. The fires and explosions believed to have been caused by uncooled nuclear fuel have released high amounts of radiation into the atmosphere, and the situation still has not been brought under control nearly two weeks later.

The DEP said backup generators and fuel supplies at New Jersey's reactors "are far better protected than at facilities now in jeopardy in Japan."

The agency also added, "There is virtually no possibility of a tsunami striking New Jersey."

It said no radiation levels "of concern" have reached the US or New Jersey. But radiation monitors from California to Virginia have measured trace amounts of radiation from the Japanese accident.

NJ To Review Nuclear Safety; Christie Hopes To Learn From Japan Crisis (RHNNJ)

By SCOTT FALLON AND JAMES M. O'NEILL

Record and Herald News (NJ), March 26, 2011

Governor Christie has created a task force to review emergency evacuation procedures and the operations of New Jersey's four nuclear reactors to see whether the ongoing disaster at a nuclear facility in Japan could provide lessons locally.

The task force will also review the potential impact of disasters at nuclear facilities in Pennsylvania and New York. All of Bergen and Passaic County lies within 40 miles of the Indian Point nuclear facility on the Hudson River in Westchester County, N.Y.

"There may be lessons to be learned from what is happening in Japan that could make our preparedness even better and make the state's residents more secure," Christie said in a statement.

The task force will begin its work as early as next week, and will conduct firsthand briefings on the operations at each of New Jersey's reactors. PSEG and the Exelon Corp., which own and op-erate the facilities, have pledged to participate.

The task force will look at ex-isting emergency response proto-cols and conduct technical re-views of plant operations, evac-uation plans and emergency communication to the public.

PSEG executives said they look forward to working with the state to see what they can do bet-ter. "The whole purpose of drilling the plan is not just to practice it, but to improve it," said Joe Delmar, a spokesman for PSEG.

The US Nuclear Regulatory Commission requires nuclear plants to meet federal specifica-tions to withstand natural disas-ters such as earthquakes, hurri-canes and tsunamis. The disaster at Japan's Fukushima Dai-ichi plant occurred after an earth-quake and tsunami struck Japan's northeast coast March 11.

New Jersey's four nuclear re-actors are Oyster Creek in Lacey Township, Ocean County; and Hope Creek and Salem Units 1 and 2 in Lower Alloways Town-ship, Salem County.

PSEG, which operates the three Salem County reactors, tests its emergency plans four times a year and is evaluated by the NRC and the Federal Emer-gency Management Agency. The plants have replica control rooms to simulate disaster scenarios.

PSEG's reactors generate enough electricity for 3 million homes a day. The company is considering applying for a license to build another reactor at the massive plants that span several hundred acres on the southwest-ern tip of New Jersey.

The Hope Creek reactor is a General Electric boiling-water reactor similar to the ones at the Fukushima Dai-ichi facility.

The task force will be headed by Department of Environmental Protection Commissioner Bob Martin and will include the di-rector of the state Office of Homeland Security and Pre-paredness, the state police super-intendent and the state Board of Public Utilities president.

Federal regulators, meanwhile, are in the midst of an ongoing study to determine whether the 10-mile evacuation zone around nuclear power plants should be expanded — a move that would affect Bergen and Passaic coun-ties, which are just outside Indi-an Point's 10-mile zone. New York Gov. Andrew Cuomo has called for Indian Point to be shut down, saying it poses risks as a possible terrorist target.

The NRC also requires disaster preparedness for a wider 50-mile zone around each facility to deal with the potential contamination of food, milk and water produced in or collected from the zone. In addition to the proximity to Indi-an Point, southern Bergen Coun-ty lies just outside the 50-mile zone around Oyster Creek.

A regularly scheduled nuclear emergency preparedness drill will be held this May at Salem Unit 1. These drills are held quar-terly and rotate among New Jer-sey's four facilities.

E-mail: oneillj@northjersey.com

Governor Christie has created a task force to review emergency evacuation procedures and the operations of New Jersey's four nuclear reactors to see whether the ongoing disaster at a nuclear facility in Japan could provide lessons locally.

The task force will also review the potential impact of disasters at nuclear facilities in Pennsylvania and New York. All of Bergen and Passaic County lies within 40 miles of the Indian Point nuclear facility on the Hudson River in Westchester County, N.Y.

"There may be lessons to be learned from what is happening in Japan that could make our preparedness even better and make the state's residents more secure," Christie said in a statement.

The task force will begin its work as early as next week, and will conduct firsthand briefings on the operations at each of New Jersey's reactors. PSEG and the Exelon Corp., which own and op-erate the facilities, have pledged to participate.

The task force will look at ex-isting emergency response proto-cols and conduct technical re-views of plant operations, evac-uation plans and emergency communication to the public.

PSEG executives said they look forward to working with the state to see what they can do bet-ter. "The whole purpose of drilling the plan is not just to practice it, but to improve it," said Joe Delmar, a spokesman for PSEG.

The US Nuclear Regulatory Commission requires nuclear plants to meet federal specifica-tions to withstand natural disas-ters such as earthquakes, hurri-canes and tsunamis. The disaster at Japan's Fukushima Dai-ichi plant occurred after an earth-quake and tsunami struck Japan's northeast coast March 11.

New Jersey's four nuclear re-actors are Oyster Creek in Lacey Township, Ocean County; and Hope Creek and Salem Units 1 and 2 in Lower Alloways Town-ship, Salem County.

PSEG, which operates the three Salem County reactors, tests its emergency plans four times a year and is evaluated by the NRC and the Federal Emer-gency Management Agency. The plants have replica control rooms to simulate disaster scenarios.

PSEG's reactors generate enough electricity for 3 million homes a day. The company is considering applying for a license to build another reactor at the massive plants that span several hundred acres on the southwest-ern tip of New Jersey.

The Hope Creek reactor is a General Electric boiling-water reactor similar to the ones at the Fukushima Dai-ichi facility.

The task force will be headed by Department of Environmental Protection Commissioner Bob Martin and will include the di-rector of the state Office of Homeland Security and Pre-paredness, the state police super-intendent and the state Board of Public Utilities president.

Federal regulators, meanwhile, are in the midst of an ongoing study to determine whether the 10-mile evacuation zone around nuclear power plants should be expanded — a move that would affect Bergen and Passaic coun-ties, which are just outside Indi-an Point's 10-mile zone. New York Gov. Andrew Cuomo has called for Indian Point to be shut down, saying it poses risks as a possible terrorist target.

The NRC also requires disaster preparedness for a wider 50-mile zone around each facility to deal with the potential contamination of food, milk and water produced in or collected from the zone. In addition to the proximity to Indi-an Point, southern Bergen Coun-ty lies just outside the 50-mile zone around Oyster Creek.

A regularly scheduled nuclear emergency preparedness drill will be held this May at Salem Unit 1. These drills are held quar-terly and rotate among New Jer-sey's four facilities.

E-mail: oneillj@northjersey.com

700 Radiation-blocking Potassium Iodide Pills Distributed Near Salem County's Nuclear Power Plants (TSNJ)

By Bill Gallo Jr.

Today's Sunbeam, March 26, 2011

LOWER ALLOWAYS CREEK TWP.

— More than 700 doses of radiation-blocking potassium iodide pills were distributed here this week to residents living within the 10-mile radius of Salem County's three nuclear power plants.

Conducted by the Salem County Department of Health, the distribution was held at the Lower Alloway Creek Township Municipal Building, just a few miles from the Artificial Island generating operated by PSEG Nuclear.

The action was in direct response to concerns of residents following the March 11 earthquake and tsunami in Japan which damaged several nuclear reactors there and released radiation, according to Salem County Deputy Administrator Robin Weinstein.

The potassium iodide (KI) pills help block the absorption of radiation in the thyroid. They are to be taken only when directed by emergency response officials in the case of the release of radiation from a nuclear plant.

Salem County Freeholder Dale Cross, chair of the county's Health Committee, said a total of 735 doses of KI pills, both in doses for adults and children, were distributed free of charge at the LAC Municipal Building.

Emergency planners designate the 10-mile radius around the Island as the Emergency Planning Zone where, in case of the release of radiation, the impact would be the greatest and actions to prevent exposure to radiation by residents would take place first.

Areas in Salem County that are included in the 10-mile radius are Elsinboro Township, Lower Alloways Creek Township, Salem City and parts of Pennsville Township, Mannington Township and Quinton Township.

In December, the Health Department also held a KI distribution at the Salem County Vo-Tech School in Mannington Township. At that event, 667 doses were distributed to the public.

The three reactors at Artificial Island comprise the second largest commercial nuclear power complex in the US

For more information about KI or how to get the pills, call the Salem County Health Department at (856) 935-7510, Ext. 8302 or visit www.cshealth.org.

The Future Of Nuclear Energy Around The World (NYORKER)

The New Yorker, April 4, 2010

The age of atomic energy could be said to have begun, literally, with the wave of a wand. On September 6, 1954, President Dwight D. Eisenhower, who was vacationing in Denver, passed a pole with a gleaming tip over a cabinet full of electronic equipment. This "neutron wand" supposedly sent a signal that was then conveyed to an unmanned power shovel, twelve hundred miles away, in Shippingport, Pennsylvania. The shovel lurched forward and scooped up three tons of dirt, breaking ground for the country's first commercial nuclear power plant. "My friends, through such measures as these, and through knowledge we are sure to gain from this new plant we begin today, I am confident that the atom will not be devoted exclusively to the destruction of man, but will be his mighty servant and tireless benefactor," the President said.

The Eisenhower Administration subsequently did just about everything it could to promote nuclear energy; in 1955, the President went so far as to propose that the United States build a reactor-powered ship that would cruise around the world and

act as a floating P.R. campaign. (The ship was constructed but was mothballed after eight years, owing to high operating costs.) Even so, the hazards of commercial nuclear power could not be entirely ignored. Private companies were willing to insure nuclear plants only up to sixty-five million dollars, which was estimated to be just a tenth of what a major accident, in 1956 dollars, would cost, and utility companies weren't interested in building plants without coverage. Then Congress stepped in and—metaphorically, this time—waved another wand. The Price-Anderson Act, approved in 1957, in effect created a government-run insurance pool for the industry.

In the half century since, the risks of nuclear power have alternately preoccupied Americans and been ignored by them. Concern spiked after the partial meltdown at Three Mile Island, outside Harrisburg, Pennsylvania, in 1979, and again after the disaster at Chernobyl, in 1986. It then receded, picked up once more after 9/11, and receded again, to the point where many in the industry had begun to speak of a "nuclear renaissance." Just last month, President Barack Obama, who has advocated "building a new generation of safe, clean nuclear power plants," called for thirty-six billion dollars in federal-loan guarantees for new reactors. Now it looks as if the renaissance will have to be postponed.

The still unfolding catastrophe at Japan's Fukushima Daiichi power station differs from previous crises in that it began with a natural disaster, or, really, two. The station was designed to withstand a powerful earthquake and also to resist a tsunami. But it seems not to have been designed to cope with an earthquake combined with a tsunami, even though earthquakes are generally what cause tsunamis. What many have described as a "one-two" punch left the complex without its normal power supply (electricity from the grid) and also knocked out its backup power supply (a set of diesel generators), a condition known as a "station blackout." The station has six reactors, three of which were operating at the time of the quake; the others were off-line. The operational reactors—Nos. 1, 2, and 3—automatically shut down, but a reactor core, even after shutdown, generates a huge amount of heat, and must be continuously cooled. When the cooling systems at all three units failed, a series of escalating crises ensued: explosions and, it appears, partial meltdown of the reactor cores. With radiation levels soaring, workers couldn't complete crucial tasks. At the time of writing, a complete meltdown at one or more of the reactors was still deemed to be a risk. Japanese officials seemed particularly alarmed by conditions at No. 3, which uses a form of fuel, known as MOX, that contains plutonium.

Meanwhile, as the cores in Nos. 1, 2, and 3 began to overheat, different, but potentially no less catastrophic, problems arose at Nos. 3, 4, 5, and 6, in the aboveground pools where spent fuel rods are stored. Spent fuel also requires cooling, and cooling water apparently boiled away in No. 4, leaving the rods exposed and, according to some reports, burning intermittently. A spent-fuel pool can hold many more fuel-rod assemblies—and thus much more radioactive material—than a reactor core. And while a reactor core is isolated by thick layers of steel and concrete, a spent-fuel pool is largely unshielded. Concerns about the situation at No. 4 prompted US officials to advise Americans to stay at least fifty miles away from the plant.

Every time there's an accident, proponents of nuclear power point out that risks are also associated with other forms of energy. Coal mining implies mining disasters, and the pollution from coal combustion results in some ten thousand premature deaths in this country each year. Oil rigs explode, sometimes spectacularly, and so, on occasion, do natural-gas pipelines. Moreover, burning any kind of fossil fuel produces carbon-dioxide emissions, which, in addition to changing the world's climate, alter the chemistry of the oceans. Among those who argue most passionately for nuclear power these days are some environmentalists, who see the uncertain threat that it presents as preferable to the certain harm of climate change. An objective comparison might indeed suggest that a well-designed and vigorously regulated nuclear power plant poses less danger than, say, a coal-fired plant of comparable size. Such a comparison, however, ignores the fact that the regulation of nuclear power in the US still relies on wand-waving.

Consider the prospect of a terrorist attack. After 9/11, it would seem only prudent for nuclear plants to be prepared for an assault by a large, well-armed group. But the Nuclear Regulatory Commission, in revising its security rules, decided not to require that plants be able to defend themselves against groups carrying the most dangerous sort of weapons, even though these were just the sort of weapons the N.R.C.'s staff had concluded that terrorists could be expected to possess. (The exact weapons in question are classified information.) According to a study by the Government Accountability Office, the N.R.C. appeared to have based its revised rules "on what the industry considered reasonable and feasible to defend against rather than on an assessment of the terrorist threat itself."

Or consider the requirement, instituted in response to the accident at Three Mile Island, that emergency-evacuation plans be drawn up for a ten-mile zone around all nuclear plants. As anyone who has driven through Westchester County knows, the idea that the area around the Indian Point plant, in Buchanan, New York, could be safely evacuated after an accident is, to say the least, implausible. (More than three hundred thousand people live within ten miles of the plant, and nearly twenty million live within fifty miles.) Nevertheless, the N.R.C. believes that Indian Point has a workable evacuation plan, and is contemplating relicensing the plant for twenty years.

Or, finally, consider the problem of spent fuel. After several decades and billions of dollars' worth of studies, the US still does not have a plan for developing a long-term storage facility for radioactive waste, much of which will remain dangerous for millennia. (The Obama Administration rejected the idea of creating a repository at Yucca Mountain, in Nevada, but has yet to put forward or, it seems, really consider an alternative.) Instead, spent-fuel rods are stored at each of the country's hundred and four nuclear power plants. More than two dozen reactors in the US have aboveground storage pools similar to those that have failed at Fukushima—the only difference is that the American pools contain far more waste than their Japanese counterparts. In a conference call with reporters the other day, David Lochbaum, a nuclear engineer and the director of the Nuclear Safety Project of the Union of Concerned Scientists, called the risks currently posed by spent-fuel pools in the US "about as high as you could possibly make them."

As the disaster in Japan illustrates, so starkly and so tragically, people have a hard time planning for events that they don't want to imagine happening. But these are precisely the events that must be taken into account in a realistic assessment of risk. We've more or less pretended that our nuclear plants are safe, and so far we have got away with it. The Japanese have not. ♦

Nuclear Sites Must Be Examined (ONEONTA)

Oneonta (NY) Daily Star, March 28, 2011

Our hearts go out to the people of Japan. The damage the country has seen from the March 11 earthquake and tsunami is catastrophic. The death toll is now at 9,800, with 17,500 people missing.

Meanwhile, Japan has an ongoing nuclear crisis it must deal with. Damage from the tsunami is threatening a nuclear meltdown at the Fukushima Dai-ichi power plant. The facility was evacuated, but some workers have stayed to try to prevent a nuclear disaster.

The people inside that power plant are heroes. They are risking their lives to try to save many more lives. The Independent reported that in one hour those workers are exposed to more radiation than the typical worker might be exposed to in his career.

This crisis in Japan has reopened the debate on nuclear power worldwide. Germany is set to abandon nuclear power, and Italy has placed a one-year moratorium on plans to revive its nuclear energy program, which was shut down more than 20 years ago.

The Nuclear Regulatory Commission has launched a safety review of US power plants at the request of President Barack Obama. The NRC voted Wednesday to set up a task force to analyze lessons learned from Japan. NRC chairman Gregory Jaczko said the review would determine if changes need to be made at the 104 nuclear power reactors at 65 sites nationwide.

We feel this is the right approach. Japan's situation must be a learning experience for the rest of the world. We need to re-evaluate our nuclear sites and decide what, if any, changes need to be made.

Abandoning nuclear energy in the US would be a knee-jerk reaction and something our country isn't ready to do. According to the US Energy Information Administration, nuclear energy makes up about one-fifth of the nation's power. We would love to see a shift toward cleaner, renewable energy, but that's a process that would take years to complete.

It's troubling that some of our nuclear power plants are located on seismic fault lines. California's two plants are located in areas prone to earthquakes and are near the Pacific Ocean. Lawmakers in that state raised concerns this week that recent evidence shows a higher earthquake risk for both plants than anticipated when designed.

Gov. Andrew Cuomo had previously voiced concerns about the Indian Point nuclear plant in New York state. As attorney general, Cuomo wanted the plant closed. Following the Japan crisis, Cuomo has asked the NRC to study the plant's vulnerability to an earthquake. The plant is located near a fault line in Westchester County.

The NRC must study the Indian Point facility and every other plant in the country. Now is the time to take a good, hard look at our regulations.

Nuclear Reprocessing In US Should Be Revisited, Senators Say (BLOOM)

By Mario Parker

Bloomberg News, March 25, 2011

March 25 (Bloomberg) – Research on the reprocessing of spent nuclear waste should be revisited in the US as Japan battles to avoid a meltdown at its earthquake-damaged Fukushima power plant, Illinois's Senate delegation said today.

The country needs a plan for storing or recycling radioactive waste from fission used to generate electricity, Senators Dick Durbin, a Democrat, and Mark Kirk, a Republican, said at a forum in Chicago to address nuclear-plant safety in the state most reliant on atomic power.

Investment in recycling capacity stalled after President Jimmy Carter banned reprocessing over concerns of nuclear-weapons proliferation. A storage site at Yucca Mountain in Nevada was canceled by President Barack Obama in 2009 after 20 years of planning and a cost of $9 billion.

"I have voted for Yucca Mountain," said Durbin, the chamber's No. 2 Democrat. "It's been a serious mistake that we have backed off this reprocessing issue."

The forum took place a day after Japan's Nuclear and Industrial Safety Agency said there may be a leak from one of the reactor cores at Tokyo Electric Power Co.'s Fukushima Dai- Ichi nuclear station.

The plant was damaged in a March 11 magnitude 9.0 earthquake and tsunami, the worst in Japan's history. It left the plant without power needed to cool nuclear fuel rods. Repair work at the site of the worst nuclear disaster since Chernobyl has been hampered by explosions, fires and leaks.

Illinois, with 11 reactors at six sites, has more than any other state and gets about half of its electricity from nuclear plants. As of 2009, the state had about 7,000 metric tons of nuclear waste, according to the Nuclear Regulatory Commission.

Exelon Corp., owner of the largest group of US nuclear plants, operates all 11 sites in Illinois.

The US has 104 reactors that provide about 20 percent of the nation's electricity.

Kirk said Representative John Shimkus, an Illinois Republican, is working to generate votes in the House to address storage at Yucca Mountain.

The Republican-American State Should Demand A Refund (WRA)

Waterbury Republican American, March 28, 2011

Last September, President Obama scuttled plans to build an underground storage facility for nuclear waste at Yucca Mountain in Nevada by eliminating funding for it in his 2011 budget. This decision is problematic for Connecticut.

There are two sites in Connecticut used to store spent nuclear fuel: the active Millstone Nuclear Power Plant in Waterford and Haddam's Connecticut Yankee Nuclear Power Plant, which serves only as a storage facility. For many years, plant operators intended for spent fuel rods to be stored in Connecticut until a permanent repository — Yucca Mountain — was built.

Last August, the Hartford Business Journal reported Connecticut ratepayers have paid $8 million per year to support the storage of 1,920 metric tons of spent nuclear fuel at the state's two nuclear facilities. And this is in addition to the $383 million Connecticut ratepayers have contributed toward a permanent storage facility since 1982.

Then-Gov. M. Jodi Rell mentioned this in a letter to Secretary of Energy Steven Chu just weeks before work was stopped at the unfinished Yucca Mountain facility. "To now reverse developing Yucca Mountain as a permanent storage site as a matter of policy is a disservice to Connecticut ratepayers," Mrs. Rell wrote.

The Obama administration obviously did not listen, and Connecticut residents needlessly lost a lot of money as a result.

Therefore, state Attorney General George C. Jepsen should consider suing the federal government for the costs its dilly-dallying has incurred on Connecticut ratepayers, already struggling with some of the country's highest electrical rates.

We don't make this suggestion lightly. In the past, we decried the many suits resulting from former Attorney General Richard Blumenthal's "Sue first, ask questions later" mindset, and the trouble they caused the state.

In this case, however, the people of Connecticut were clearly cheated and deserve their money back, especially since they are likely to be faced with the largest tax increase in state history and electrical rates are not likely to decrease anytime soon.

Such a lawsuit also could pressure the federal government to resume work on Yucca Mountain. Having watched news reports from Japan that illustrate the dangers of keeping spent fuel rods on site, many Americans are wondering if a similar disaster could happen here, where the radioactive waste material is stored in much the same way. Since residents of Connecticut have been paying for the repository's construction all along, the feds would be motivated to try to deflect at least part of the lawsuit by resuming work on Yucca Mountain.

The following are comments from online readers like you. In no way do they represent the view of The Republican-American.

We encourage your feedback and dialog.

Please be civil and respectful.

Registered users comments will be posted automatically.

All other comments will be reviewed by our staff before appearing on the Web site.

If you're witty, to the point and quotable, your reader comments may also be included on the Around the Towns page of The Sunday Republican.

The Nuclear Waste Issue (SDUT)

San Diego Union-Tribune, March 27, 2011

This editorial page holds California's senior senator, Dianne Feinstein, in high regard. She is smart, thoughtful and generally puts her 18-plus years of experience in the Senate to good use. So it seemed oddly out of sync when Feinstein, at the end of a tour this week of California's San Onofre and Diablo Canyon nuclear power plants, said she "had always thought we didn't need" a national repository for nuclear waste.

At least she recognizes the need now. Better late than too late.

Nuclear power plants are driven by uranium-filled fuel rods. When the fuel is spent, the rods must be replaced. The old rods become waste, but remain highly radioactive for, in Feinstein's words, "nobody knows how long."

At present, that waste is generally kept on-site at each of the more than 100 nuclear plants throughout the nation. But almost nobody thinks that is a safe, permanent solution.

The federal government had planned to open a repository for nuclear waste deep inside Yucca Mountain in Nevada. But, facing intense political opposition to the project, President Barack Obama pulled the plug on it last year.

Along with so many other questions regarding nuclear power in the wake of the Japan crisis, it is time to rethink the Yucca Mountain decision, or at least come up with a better idea.

In Tour, US Nuclear Plant Opens Doors To Make Case (NYT)

By Matthew L. Wald

New York Times, March 27, 2011

ATHENS, Ala. — The Tennessee Valley Authority opened the doors to its Browns Ferry nuclear plant on Friday to present perhaps the most detailed case so far that American reactors of the same design and vintage as the ones damaged in Japan do not face the same risks.

The agency seemed to be seeking to project a balance of confidence and openness to improvements, a challenge now faced by the entire American nuclear industry as the nation watches the Japanese struggle to contain their crisis.

The containment buildings surrounding the three reactors at the Browns Ferry plant here, all of the Mark 1 variety made by General Electric, are almost identical to the ones at the Fukushima Daiichi Nuclear Power Station, which were wrecked by a tsunami on March 11. But the T.V.A. says that the devil is in the details, and that, in many small ways that could be crucial, Browns Ferry is better prepared for the unknown than Fukushima was.

In the decade since the Sept. 11 attacks, the Nuclear Regulatory Commission says, all American reactors have made preparations to limit damages from potential threats like airplanes piloted by terrorists. Some details have been released.

Yet it is clear that from fire hoses to batteries on wheels to components like a strobe light, the three reactors at Browns Ferry have preparations in place that operators say would help in a nightmare situation like Japan's, a loss of electricity for running its pumps, valves and safety systems. While a tsunami is not an issue in northern Alabama, more than 300 miles from the sea, the loss of all power is always a threat. The plant sits on the banks of the Tennessee River, where floods can reasonably be anticipated, although plant officials say that water levels have never risen high enough to threaten the reactors.

Still, Browns Ferry is ready for "a one-in-a-million-year flood, or however many zeroes you want to go out," said Preston D. Swafford, the T.V.A.'s chief nuclear officer, who led a group of reporters on a three-hour tour through the plant.

Inside the reactor building, near the entrance to the primary containment structure, are carefully marked spaces with two lime green carts about the size of hand trucks that a supermarket worker might use to roll cases of soda cans to the proper aisle. Each is loaded with batteries.

One cart could power the instruments that measure the water level in the reactor vessel, an ability that Japanese operators lost a few hours after the tsunami hit. Another could operate critical valves that failed early at Fukushima.

"They're like a backup to the backup," said Keith J. Polson, the T.V.A.'s vice president for the Browns Ferry site. "That's what we think the Japanese didn't have."

In the best tradition of an industry whose terminology is ever more impenetrable to outsiders, the battery carts are known as E.D.M.G.'s, a label for hardware derived from the industry's Extensive Damage Mitigation Guidelines, largely put into effect after the Sept. 11 attacks.

Deeper into the building, in an odd-shaped space in the basement between a corner of the square reactor building and the round containment shell is a steam-driven pump. This is something that the designer, General Electric, intended to be available to deliver up to 600 gallons per minute of cooling water into the reactor core even if the electrically driven pumps failed for want of power. An overheating reactor would be likely to have ample supplies of steam to run it.

That worked at Fukushima for a while but appears to have stopped functioning later; the Japanese plant's operator, the Tokyo Electric Power Company, has not provided an explanation. Again, the T.V.A. suggests that it has backup tools that the

Japanese utility, known as Tepco, probably lacked: a battery-powered strobe light stored in a nearby cabinet, and a valve that usually runs on electricity but also has a hand crank.

While the details of the Fukushima catastrophe may be months in reaching plant operators elsewhere, the T.V.A. hypothesizes that Tepco ran out of battery power to control the steam pump. But T.V.A. engineers say they could use the strobe light to determine how fast the pump's shaft was turning, enabling workers to adjust its speed with a hand-cranked valve nearby.

In plant stairwells, there are fire hoses attached to hydrantlike fittings that could hurriedly be connected to a reactor's spent fuel pools. Water would be fed in from the outside — either the purified water normally used around the plant or, in a pinch, raw water from the Tennessee River, operators say.

Fukushima sprayed seawater into its spent fuel pools but appears to have had problems getting the hoses and pumps in place before the water level in at least one of the pools, at the plant's Unit 4 reactor, became dangerously low or possibly reached the bottom.

Officials at the Alabama plant concede that they do not know exactly what went wrong in Japan. "They let the spent fuel pools get away from them; it's kind of hard to fathom how," Mr. Swafford said. "I'm glad I'm not living in their shoes," he added.

Perhaps more than most American nuclear plant officials, executives at Browns Ferry should realize they can expect the unexpected. In 1975, an electrician looking for an air leak in a cable room lighted a candle to see which way the smoke would blow and set off a fire that disabled most plant systems at Reactor No. 1. The plant was shut down for 18 months. And in 1985 the T.V.A. shut all of its reactors because of a variety of safety problems that industry experts say mostly boiled down to bad management. The others reopened, but Browns Ferry 1 stayed closed for 22 years.

Restarting it required a five-year effort to rip out and replace much of the electric cabling, among other improvements.

The authority also operates two nuclear plants in Tennessee: Sequoyah, in Soddy-Daisy, and Watts Bar, near Spring City. Combined with Browns Ferry, the plants make enough electricity to power more than three million homes in the Tennessee Valley, the T.V.A. says.

The plants have massive, robust structures that assure safety, and many features have been added since they were opened in the 1970s to further reduce the risk of an accident, said William R. McCollum Jr., the authority's chief operating officer. "Having said all that, we are not going to be complacent or satisfied," Mr. McCollum added.

Japan's crisis has already prompted a shift in the T.V.A.'s strategic thinking, said Mr. Swafford, the authority's chief nuclear officer. "We've started doing the what-ifs, what we've started calling 'stacked' events," he said. "What clearly has shown up in Japan is multiple, stacked events. We've not analyzed for all those things."

He said the authority would keep exploring "until we're comfortable we've gotten every one that's humanly imaginable."

Yet Mr. McCollum said there were limits to the contingency planning. "There has to be a reasonableness to each one of these," Mr. McCollum said of the plans, "or I think you could take it out to the 10th degree."

The Herald-News - News Story (RHEAHER)

By Reneau

Rhea County (TN) Herald News, March 28, 2011

Federal prosecutors have charged an area electrician for lying about a report he filed at Watts Bar Unit 2 - the country's only new nuclear reactor currently being constructed - in August 2010.

Matthew David Correll, 31, was indicted on two counts of falsifying federal reports Thursday in Chattanooga federal court.

US Attorney Bill Killian alleged in a press release Thursday that Correll said he took measurements of electrical cables that would supply power to emergency systems at Watts Bar when in fact he didn't.

TVA Says Its Reactors, Pools Safer (KNOXNS)

By Ed Marcum

Knoxville News Sentinel (TN), March 25, 2011

As TVA officials understand it, the Fukushima Dai-ichi nuclear plant reactors began shutting down as designed when a 9.0 earthquake hit Japan on March 11, and the situation seemed under control until a tsunami hit about 40 minutes later, wiping out the diesel generators that provided a backup power supply to run the reactors' cooling system.

"A couple of things happened," said Bill McCollum, TVA chief operating officer. "The emergency diesel generators obviously had fuel tanks. The fuel tanks at this plant were above ground and the wave knocked them away so the emergency diesel generators would not run anymore."

Electric switch gears for the generators also were above ground and were ruined by the water. With no way to cool the reactor during the shutdown process, problems cascaded out of control.

McCollum on Thursday responded to questions about how TVA is responding to the nuclear plant crisis in Japan. TVA has established an agency-wide Centralized Response Center that is working through teams of employees to see what lessons should be learned from events at the Japanese reactors and how those lessons can be applied at TVA, McCollum said. Information from Japan still is sketchy, sometimes contradictory and will take time to sort out, he said.

TVA has equipment similar to that which failed in Japan, but with some differences that McCollum said are very important. For example, TVA's Browns Ferry plant, near Athens, Ala., also has emergency diesel generators, but they are in flood-protected buildings with watertight doors. Each generator has a seven-day fuel supply that is buried underground, as are the wiring and breaker panels for the generators.

The three General Electric Mark I reactors at Browns Ferry are the same basic design as the reactors at Fukushima. These are boiling water reactors - an earlier design compared to the pressurized water reactors at other TVA facilities. Boiling water reactors have been criticized as vulnerable to build up of potentially explosive hydrogen gas if reactor fuel overheats. Explosions at the Fukushima plant are believed to have been caused by high concentrations of hydrogen in the secondary containment part of the structure that encloses the reactors.

In the mid-1980s, the Browns Ferry reactors and other US boiling water reactors were modified to address this problem. McCollum said this involved fitting a "hardened" vent system that channeled hydrogen outside the containment areas to be quickly dispersed into the air.

Another concern with boiling water reactors is that the cooling pools for spent nuclear fuel are inside the containment structure with the reactor, posing the possibility they could become part of an accident involving the reactor. But McCollum said that with the reactor inside a pressure vessel, separated from spent fuel pools by walls of concrete and with the hardened vent system, the boiling water reactor design is safe.

"I don't think you could have an event that goes from the reactor area over into the spent fuel area," McCollum said.

With pressurized water reactors like those at TVA's Sequoyah and Watts Bar nuclear plants - in Soddy Daisy, Tenn., and Spring City, Tenn., respectively - the spent fuel pools are outside the reactor containment structure.

There have been reports that the Fukushima plant was using mixed oxide fuel (MOX) at the time of the disaster. MOX is a type of nuclear fuel that uses uranium and plutonium recycled from nuclear warheads. MOX is touted as a more potent and inexpensive fuel that reduces the number of nuclear weapons, although critics claim this fuel would produce worse radioactive contamination in an accident.

The Department of Energy has surveyed nuclear plant owners to gauge interest in starting a MOX program, and TVA responded that it would consider using the fuel, McCollum said. Sequoyah and Browns Ferry would be the most likely candidates to use it, but it is too early to make any decisions, he said.

"We are far from making a decision on a program like that because - is there going to be a program like that?" McCollum said.

Concerns over MOX appear to be exaggerated, he said.

"In terms of mixed oxide fuel, all of our information and calculations would say that the impact and issues from spent fuel that originated as mixed oxide fuel is not significantly different in any of its characteristics from spent fuel that originated as uranium dioxide fuel," McCollum said.

Business writer Ed Marcum may be reached at 865-342-6267.

Chris Peck: Tied To The World, In Good And Bad (memphiscomm)

Memphis Commercial Appeal, March 27, 2011

Memphis, never forget you are part of a larger world.

Don't think we're too big, too small, too special or too insignificant to just ignore events elsewhere and go along our merry Memphis way.

This city is tied into the world economy and world events more than most cities our size. That's because of FedEx, number one. But also because of International Paper, St. Jude Children's Research Hospital and a whole lot more.

Consider how events far away have rippled through Greater Memphis in just the last few days.

The news that Delta Air Lines is cutting 25 percent of the flights out of Memphis International Airport came as a jolt.

The cut means 800,000 fewer passengers will travel through the Memphis airport next year, passengers who on average spend about $8 a person for airport coffee, trinkets and meals, according to Larry Cox, president and CEO of the Memphis-Shelby County Airport Authority. That's a $6.4 million hit that comes out of the cash drawers of businesses at the airport.

And why is Delta cutting back in Memphis? The price of jet fuel is up 45 percent since September.

And why is jet fuel more expensive?

Because of unrest in Libya, Egypt, Bahrain and elsewhere in the Middle East. The Middle East is where America gets 27 percent of its oil. When Middle East jitters ripple across the world of oil speculation, Memphis feels the wave. At the airport. In the cash drawers of vendors there. Among all the households of pilots, flight attendants and support crews that no longer are working out of Memphis.

And that's just one example of how everyday Memphis plugs into the larger world.

Here's another.

Look at your bill from Memphis Light, Gas and Water Division this month. Then, think of Japan and what the earthquake and tsunami in that nation 6,000 miles away may do to your utility bill down the road.

The disaster at the Japanese nuclear power plants has shaken the world's confidence in nuclear power. Memphis gets 35 percent of its electricity from nuclear power plants operated by the Tennessee Valley Authority, the region's massive utility provider.

Yes, TVA wants to keep building nuclear plants. In fact, a big TVA nuclear plant, known as Watts Bar No. 2, is scheduled to come online next year with enough capacity to power every home in Memphis.

But what if spooked politicians, regulators and the public get scared off of nuclear because of the disaster in Japan?

Well, Memphis, likely we'll pay more for electricity. "Because the TVA alternative to nuclear is coal, which will be much more expensive," said Ashok S. Bhatnagar, TVA's senior vice president of nuclear generation development and construction.

He visited Memphis a few days ago to buck up public support for nuclear energy. "Nuclear power can play a key role in the future of Tennessee energy needs," he reminded Memphians. "It has significant benefits." Like being cheap, clean and reliable.

There's more, of course.

The European debt crisis has meant the value of a US dollar has dropped more than 15 percent.

That has driven up the cost of a used Prius in Memphis by more than $1,000 since last fall.

Borrowing money to buy that Prius could become much more difficult this summer if Europe's troubled banks and China's slumping economy wreak havoc again on the American credit markets.

No man is an island. No city, either.

Chris Peck is editor of The Commercial Appeal. Contact him at 529-2390 or at peck@commercialappeal.com.

Readers Tell 'Hot Button': Should TVA Expand Its Nuclear Program? (memphiscomm)

Memphis Commercial Appeal, March 27, 2011

Today's question: What do you think about TVA's plan to expand its use of nuclear power in the Tennessee Valley over the next two decades?

As someone who works closely with the power industry, but who will not benefit directly from the industry moving more heavily into nuclear power, I would like to speak up for the necessity that the US move strongly toward the use of nuclear power plants. Frankly, I am stunned that we have fallen so far behind so many other countries in the use of nuclear energy.

All forms of energy have their safety issues, as does nuclear, but the plants can be built and operated safely and efficiently. We must invest in this energy resource by building new plants. We should also continue our use of coal; however, we do not want to put all our resources into just one or two energy categories. Let the various types of energy fuel fight to become the favored resource. Our nation will be more competitive as a result of our action.

Carlton Sumner

Germantown

I applaud TVA for not including new construction of coal-fired plants in its plan and for idling the most polluting of existing coal-fired plants. It is, of course, to avoid high costs of complying with stricter new air-quality regulatory standards. But thanks anyway!

However, TVA's plan to expand nuclear-generated power is a move in the wrong direction. Like coal, oil and natural gas, nuclear power is not a renewable source of energy. Like fossil fuels, it too has a long and troubled supply chain. However, the most troubling issue for me is the storage of spent fuel. We continue to store large quantities of radioactive materials at sites designed for temporary storage because we have no designated long-term storage. Like the plant at Fukushima, we are storing the spent fuel on-site, in cooling ponds or dry caskets outside the containment area.

We must have a viable, safe option for the long-term (as in millenniums) storage before we continue to produce additional sources of radioactive waste.

Another issue with nuclear power relates to costs. There are enormous start-up, operating and decommissioning costs. Private investors are unwilling to invest in the absence of government loan guarantees due to the high risks associated with

nuclear power. So if things don't work out, the taxpayers pay the bills; if things go well, the investors reap the profits. We take all the risks and the billionaires have a no-lose situation.

Let's be smart and invest in solar, wind, tidal and other truly sustainable sources of energy instead.

Keven W. Routon

Atoka, Tenn.

I don't have a problem with nuclear power expansion if it's done slowly and very carefully. However, hydro-kinetic is safe, clean, cheap and virtually limitless.

Think about it. Water that turns turbines at Knoxville and Chattanooga would turn turbines at Memphis and New Orleans and all points in between as well. How much more efficient can it get than the same water turning turbines in Minnesota also turning turbines at St. Louis and Vicksburg?

The technology already exists (all that's needed is moving water, not dams) but is being stifled by a gaggle of state and federal regulations.

Jerome Sterling

Holly Springs, Miss.

Tell us what you think about this week's question

The Memphis City Council may discuss a proposal in April to borrow $25 million from the Capital Improvement Program budget to pay for demolition of the Mid-South Coliseum and improvements at Liberty Bowl Memorial Stadium -- including the installation of two JumboTron video screens and luxury suite upgrades. The proposal calls for the short-term loan to be repaid with revenue from retail sales at a planned "urban retail village" the city hopes to develop on the site of the Mid-South Fairgrounds.

The loan amount that has been proposed, $25 million, represents more than a third of the CIP budget for the next fiscal year.

We'd like to know:

Should city officials approve a $25 million loan from the Capital Improvement Program budget to pay for improvements to the Liberty Bowl and demolition of the Mid-South Coliseum? Why or why not?

E-mail your response to hotbutton@commercialappeal.com by March 30. Keep it short and include your name, home address and daytime/evening telephone numbers where you can be reached. We'll publish responses on April 3.

Take Statements From TVA Leaders With A Grain Of Salt (CHATNOOG)

The Chattanoogan, March 25, 2011

After the recent events in Japan, the Tennessee Valley Authority leadership touted its nuclear plants as "robust" and without the design flaws of the Japanese nuclear facilities. Whether TVA nuclear facilities lack the design flaws of the Japanese nuclear facilities is not the real question here. The real question is whether or not the TVA leadership can be trusted to tell the public the truth. The history would suggest TVA leadership cannot be trusted when it comes to the truth.

In 2005, TVA leadership assured the State of Alabama and the US Environmental Protection Agency that the Widows Creek Fossil Plant was not emitting untreated flue gas into the atmosphere. In 2008, the state of Alabama fined TVA $150,000 for illegal emissions at Widows Creek from 2003-2005. Recently, the US EPA fined TVA $450,000 for the same illegal emissions at Widows Creek Fossil Plant during 2003-2005. The TVA Office of Inspector General reported that TVA management was more focused on obtaining (undoubtedly un-merited) bonuses than telling the truth to the public and being good environmental stewards.

In December 2009, TVA leadership assured the public that the dike rupture at the Kingston Fossil Plant was the result of rain instead of a lack of maintenance. A week later a dike ruptured at the Widows Creek Fossil Plant, and a few months later the TVA Office of Inspector General reported that the dike failures were the result of poor management, and again referenced a lack of transparency on the part of TVA leadership.

The appointment of new members to the TVA board of directors was thought to have been a start in a new direction for TVA. Instead, it seems that the only new direction that has been taken is the hiring of senior executives from other power companies who have recently been bankrupted, or have terrible safety and environmental records. There is no way that any statement from the present TVA leadership should be accepted as the truth, without intense scrutiny.

Stephen Durham freethinker1963@yahoo.com

* * *

"After the recent events in Japan, the Tennessee Valley Authority leadership touted its nuclear plants as "robust" and without the design flaws of the Japanese nuclear facilities. Whether TVA nuclear facilities lack the design flaws of the Japanese nuclear facilities is not the real question here."

If it's not the real question, why even reference the statement - especially when you offer no evidence that it was a false statement.

The same goes for your comment on senior executives hired by the board of directors: "It seems that the only new direction that has been taken is the hiring of senior executives from other power companies who have recently been bankrupted, or have terrible safety and environmental records."

Okay, show me the evidence. Give me references, facts, specific examples. You know, those little things that everybody else usually acquires and presents when making such an all-encompassing statement. Without those things, you truly are a "freethinker" with a vivid imagination and, apparently, an axe to grind.

Tom Donelson
Hixson

Southern Co. Nuclear Project Clears Hurdle (MRKTWTCH)

By Steve Gelsi
MarketWatch, March 28, 2011

NEW YORK (MarketWatch) -- The Nuclear Regulatory Commission on Friday said it completed its final supplemental environmental impact statement for the Vogle Units 3 and 4 proposed by Southern Co. (NYSE:SO) . The document concludes that "there are no environmental impacts" that would preclude issuing a limited work authorization and combined licenses for the nuclear reactors, planned for a site near Waynesboro, Ga. The NRC said its staff continues to complete its final safety evaluation report, which will include recommendations from an advisory committee on nuclear safeguards. The NRC said its final licensing decision will be partly based on the committee's findings, and a ruling from the five-member commission that heads the agency.

New Reactors Clear Hurdle Amid Nuclear Review (WSJ)

By Naureen Malik and Tennille Tracy
Wall Street Journal, March 26, 2011

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

Southern's Nuclear Expansion Wins Enviro Review (REU)

By Tom Doggett
Reuters, March 28, 2011

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

Environmental Study Looks At Plant Vogtle's New Reactors (WRDW)

WRDW-TV Augusta, GA, March 28, 2011

BURKE COUNTY, Ga. -- Plans are moving forward to build two new nuclear reactors are Plant Vogtle.

The US Nuclear Regulatory Commission has completed a study and found the new reactors will not have a negative impact on the environment that should stop them from being built.

Southern Nuclear Operating Company, which owns Plant Vogtle, wants to build two AP1000 reactors.

It will still be some time before the NRC issues its final license for Plant Vogtle to actually start building the reactors.

Do US Nuclear Plants Have Defective Parts? NRC Finds Reporting Flaws. (CSM)

An NRC report finds that 28 percent of US nuclear power plant operators did not share information on defective parts with federal regulators. 'Confusion' over reporting rules is blamed.

By Mark Clayton
Christian Science Monitor, March 28, 2011

A large fraction of the nation's nuclear power plant operators -- 28 percent -- did not tell federal regulators about failures of defective parts that could lead to major safety problems in other reactors across the country, according to a new report Friday by the Nuclear Regulatory Commission's inspector general.

As a result, industry watchdogs say, some power plant operators may unknowingly be operating nuclear reactors with defective parts.

Under federal regulations, power plant operators are required to report certain types of part failures that could jeopardize nuclear plant safety – even if backup systems prevent any dangerous condition from occurring at the plant.

Such requirements were intended, in part, to help operators of the 104 US nuclear reactors send up a red flag and identify suspect parts that could trigger dangerous failures. A 1990 Government Accountability Office study found counterfeit and substandard parts were rife in the nuclear power industry, the military and other government systems.

In that old GAO study, nuclear power companies were found to have unwittingly "installed nonconforming products in, or are suspected of having received them for, about 64 percent of the 113 domestic nuclear power plants," the GAO study found.

But two decades later such problems were thought to have been patched -- until the new inspector general's report Friday. Based on interviews in 2009 and 2010, the office of the inspector general (OIG) found that the nuclear power operators who did not issue the reports they should have apparently failed to do so because of "confusion" over two parallel sets of reporting requirements.

"Based on interviews and analysis, OIG determined that licensees representing at least 28 percent of the operating reactor fleet do not, as standard practice, notify NRC of defects" unless mandated by both sets of reporting requirements. As a result, a number of incidents went unreported, the OIG found.

But to some long-time critics and observers, the industry failure to report the parts defects are part of a larger pattern of weak enforcement of otherwise sturdy rules that makes the nuclear power industry's safety margins less robust than they should be.

"The OIG report shows that owners and NRC are not abiding by this regulation," says David Lochbaum, a nuclear engineer with the Union of Concerned Scientists, a nuclear watchdog group based in Cambridge, Mass. "Thus, reactors may be operating today with parts known by some, but not by all, to be defective."

Still, he noted that while the reporting problem is serious, it is "not quite a clear and present danger." That, he explains, is because all nuclear power plant owners have other inspection programs to find defective parts or parts that have just worn out. So, the notification process is a supplement to those programs for added assurance against defective parts that could undermine safety, he says.

Paul Gunter with Beyond Nuclear, an anti-nuclear group in Tacoma Park, Md., is not persuaded that the reporting error was due simply to confusion.

"They claim there's confusion," he says. "But we've seen this argument used as cover for noncompliance and an end run on regulatory enforcement."

The Nuclear Regulatory Commission did not return calls and e-mail requests for comment by press time. But a nuclear industry spokesman said he welcomed the report as a way to correct a reporting mistake and move forward.

"The report just came out so we're taking a look at it," says Bryant Kinney, a spokesman for the Nuclear Energy Institute, a Washington nuclear industry trade group. "The broader process shows the nuclear reactor industry in the US continues to operate safely.... But if it adds clarity to the process between us and the Nuclear Regulatory Commission we welcome it."

But some in Congress said they were troubled that the OIG did not give any specific examples -- and promised to probe further.

"This troubling study by the NRC's inspector general raises serious questions about the self-policing allowed at nuclear facilities with regard to reporting of safety concerns," said Rep. Edward Markey (D) of Massachusetts, in a statement. "While there are no specific examples listed in the report, it is apparent that confusion and omissions regarding the reporting of defects at nuclear facilities are commonplace."

Limerick Fuel Storage Will Be Part Of New NRC Review (POTTMER)

By Evan Brandt

Pottstown (PA) Mercury, March 28, 2011

LIMERICK – In addition to undercutting national support for the construction of new nuclear power plants, the ongoing nuclear disaster in Japan has had another effect on US nuclear policy. It has dragged a nagging nuclear by-product back into the spotlight: spent fuel.

Much of the escaped radiation and other concerns from the damaged Fukushima plant in Japan has come from the deep pool in which the plant's spent fuel rods were stored, although news emerged Friday that even more radiation may be spilling from a breached reactor core there.

Spent fuel is a subject familiar to neighbors of Exelon Nuclear's Limerick Generating Station. In 2007, ground was broken on a spent fuel facility that takes older, colder fuel from the plant's spent fuel pool and stores it in a dry cask storage system.

At the time it was built, that system was described by Exelon as temporary until the federal repository beneath Nevada's Yucca Mountain was completed.

But President Barack Obama made good on a campaign pledge to stop that project, leaving the future location of spent fuel storage in limbo.

What is not in limbo is including spent fuel storage, both in pools and in dry casks, in a "quick-look review" that the federal agency overseeing nuclear plants plans to take of the Limerick facility.

Neil Sheehan, a spokesman for the Nuclear Regulatory Commission, has said that before the earthquake even struck Japan, his agency had planned to include the Limerick plant among those it intended to review for susceptibility to earthquake damage as the result of new geologic data about the region.

Since the Japanese disaster, NRC has agreed to Obama's request to do a 30-day "quick look" review of all 104 US plants as well as a longer 90-day review.

"Spent fuel storage will certainly be encompassed by the 'quick-look' review as well as other lessons-learned assessments based on the Japan reactor events," Sheehan wrote in a March 23 e-mail answering questions posed by The Mercury.

It won't be the first time NRC has taken a look at the safety of spent fuel storage. Continued...

"After 9/11, the NRC revisited the safety and security of spent fuel storage at US nuclear power plants," Sheehan wrote. "We determined that the spent fuel continues to be properly protected at all of the sites. However, we will consider whether the events involving the Japanese reactors call into question any of those earlier evaluation results."

One thing that is different is that spent fuel pools in the US are much more densely filled than in Japan, according to Edwin Lyman, a physicist with the watchdog group, the Union of Concerned Scientists who spoke with National Public Radio on the subject.

About 80 percent of the 63,000 metric tons of used fuel in the United States is stored in pools like the one at Limerick. With the amount of waste generated by regular operation increasing the amount of waste by 2,000 metric tons per year, most plants are turning to dry cask storage.

Made of incredibly thick steel and concrete, these casks hold the fuel used when the plants first opened and no longer need water to keep cool.

Although cooler, it should be noted that this fuel nevertheless remains radioactive for hundreds of years.

But the "temporary" solution to the problem of storing spent fuel may have a beneficial side effect.

Lyman told NPR that the casks may turn out to be safer than the fuel pools.

"Each cask holds much less fuel than a spent-fuel pool," Lyman told NPR. "You would have to breach multiple casks to get the kind of radiation leak that you might get in a single spent fuel pool accident."

When the dry cask facilities at Limerick were built, the threat of earthquake to that aspect of the plant was evaluated using the seismic data used for the plant's "initial design review," Sheehan wrote.

Sheehan also pointed out that a "fresh assessment" of the vulnerability of US nuclear plants was done in the wake of the 9/11 attacks, although this was prior to the 2007 construction of Limerick's dry cask facility. Continued...

"These evaluations have provided assurance that both the circulating water pools at each site and dry cask units at those plants quipped with them are safe methods of storing this material," Sheehan wrote.

According to the Exelon website, "every US nuclear power plant performs in-depth seismic analyses and the NRC regularly reviews new information on earthquake sources and ground motion models," the Exelon site noted. "Regulations are modified accordingly."

It is exactly that scenario which led to the earthquake vulnerability review the NRC will conduct on Limerick and a number of other plants.

New data, developed and analyzed by the US Geologic Survey in 2008, has concluded the risk of an earthquake in the area around Limerick, although still small, is not as small as was once thought.

NRC currently considers the general chances of an earthquake striking any US plant in the central or eastern US being in excess of what it is designed to handle to be about 1 percent.

An analysis by MSNBC.com, based on new NRC data, puts the chance of Limerick plant being damaged by an earthquake at 1 in 18,868. The prior risk assessment had the odds at 1 in 45,455.

The MSNBC.com analysis ranked Limerick as nation's nuclear plant third most at risk from earthquake damage.

According to information posted on Exelon's website, its plants "are designed to withstand substantial earthquakes even though none of our plants is in a significant earthquake zone."

With 10 plants and 17 reactors, Exelon has the largest US fleet of nuclear power plants, but all its plants are in Illinois or Pennsylvania, with the exception of Oyster Creek in New Jersey.

As a result, tsunamis are not considered a threat at any of its plants, the website said. Continued...

"Depending on the location, Exelon plants are engineered to withstand earthquakes between 6.0 and 6.9 on the Richter scale at the plant site, which translates into larger earthquakes as measured at the epicenter," according to the company website.

But as the new USGS information makes clear, it turns out science may know less about this seismology than once thought.

Scientists interviewed by The New York Times said in a story published last week that current models did not anticipate the fault near the damaged Fukushima plant could produce a quake and subsequent tsunami as large as it did.

Shinji Toda, a professor of geology at Kyoto University in Japan was quoted as saying a government committee had concluded while there was a 99 percent chance that fault could product a 7.5 magnitude earthquake in the next 30 years, it warned an 8.0-magnitude quake was possible.

What arrived was a 9.0-magnitude quake, which released about 30 times more energy than an 8.0 quake.

The article also noted that scientists had been surprised by the earthquakes in New Zealand this year, in Haiti last year, as well as two California quakes in 1989 and 1994.

Ross Stein, a geophysicist with the USGS told The Times that about one in three earthquakes occur on previously unknown faults.

There is at least one known fault within 100 miles of the Limerick plant.

Called the Ramapo fault, it parallels the East Coast's northeast/southwest orientation and stretches from Lebanon County through New Jersey and is in close proximity to the Indian Point nuclear plant 25 miles north of New York City on the Hudson River.

On the heels of the Japanese crisis, and the MSNBC.com analysis of NRC earthquake data that ranked Indian Point as the plant most at risk from quake damage in the nation, New York Gov. Andrew Cuomo has called on the NRC to close that plant, despite the fact that it provides about 30 percent of New York City's power.

In Europe, several countries are talking about phasing out all nuclear power.

But there have been no official calls for Limerick's closure — quite the contrary.

Like Indian Point, Exelon has applied for an extension of Limerick's license. In 2009, it applied for the license for Unit 1, which entered commercial service in 1986, to be extended to 2024; and for Unit 2, put on line in 1990, to 2029.

Appearing on C-Span, NRC Chairman Gregory Jaczko said the longer-term review NRC will conduct should not delay the processing of license renewals for US nuclear plants.

In fact the NRC announced last week it had issued a 20-year license extension for the Vermont Yankee nuclear plant, whose design is almost identical to one of the Fukushima reactors.

But while Limerick's license renewal does not seem to be in question, the science which allows scientists and the NRC to assess the risk posed by earthquake seems to be in flux.

And while NRC re-evaluates Limerick's earthquake vulnerability, "spent fuel storage will clearly be one of the areas evaluated," Sheehan wrote.

By Evan Brandt, ebrandt@pottsmerc.com

Nuke Reboot: Physicists List Lessons To Be Learned From Japan's Nuclear Crisis: Scientific American (SCIAMER)

By Castelvecchi

Scientific American, March 28, 2011

STILL SAFE? The Browns Ferry Nuclear Plant in Alabama, where three reactors came online in the 1970s, is one of many US facilities to use the same design as the crippled reactors at Fukushima Daiichi. Image: TVA

DALLAS—It can't happen here. Or can it?

Many reactors in the US have a similar design to the General Electric units that are spewing radioactive clouds into Japan's skies and keeping the world on edge. So, the US should learn lessons from that ongoing disaster and seriously consider retrofitting at least some of its reactors, Raymond L. Orbach, former undersecretary for science at the US Department of Energy, said here this week at a meeting of the American Physical Society.

"We're trying to learn from Fukushima," said Orbach, who now directs the University of Texas at Austin's Energy Institute.

Orbach and other physicists warned about the current "hysteria"—caused in part by human errors and a lack of transparency on the part of plant owner Tokyo Electric Power Company—and the possible consequences of abandoning nuclear power, such as the environmental impact that would result from producing the same electricity with fossil fuels. Instead, more research and better engineering are called for, he says, adding: "I'm hopeful that cooler heads, wiser heads, will prevail."

Nuclear engineers have long promoted intrinsic safety features that could make future reactors safer, but retrofits at existing nuclear power plants could make intrinsic safety features available at old reactors, too, Orbach said. Such improvements would particularly pertain at 23 reactors in the US that are based on the same 1970s General Electric design as the Fukushima reactors.

For example, one of the worst scenarios at Fukushima would be the release of radioactive material not from the reactor itself but from the pools of water where "spent" fuel is kept. Spent fuel still produces copious heat from its ongoing radioactivity. A failure to refill water lost to evaporation or, worse, from a leak, could lead to a complete boil-off and large releases of radioactive materials into the atmosphere. "They need to figure out a way so that if water level drops, you inject new coolant passively," without the need for pumping, Orbach later told Scientific American in an interview.

Passive cooling systems could be powered by the very heat produced by the spent fuel. Upgrading nuclear plants is expensive, Orbach admitted in his talk, but these plants have long ago paid for themselves and are now producing electricity at a very low cost, which would "seem to have a bit of headroom" for paying for retrofits.

Scott Burnell, a spokesman for the Nuclear Regulatory Commission, says that Mark I reactors have had repeated safety retrofits over the decades, and in particular since 9/11. After the attacks in 2001, "all US plants have incorporated additional resources and procedures to compensate for the possible loss of large areas of the plant due to fires and explosions—these mitigative measures include actions to ensure spent fuel pools are kept cool."

Orbach also called for increased funding for nuclear power research. In a separate presentation here, Robert Rosner, an astrophysicist at the University of Chicago and the former head of the Argonne National Laboratory, pointed out that funding for nuclear energy research precipitously declined between the late 1970s and the late 1990s and has not recovered much since then.

Orbach and Rosner spoke here at a session on nuclear power that had been scheduled long before the world woke up to the new threat at Fukushima Daiichi. With the nuclear crisis still unfolding, the physicists tailored their talks to address issues raised by the crisis in Japan and a predictably renewed wave of public skepticism toward nuclear power.

Rosner cited several arguments in favor of nuclear power. If the US abandoned nuclear power, the nation might end up forfeiting economic opportunities in an industry dominated by a handful of companies that are now reaping profits around the world.

Nuclear energy also provides energy security and diversity with a source that is largely insensitive to fuel price fluctuations and thus to market shocks. "Even if you're anti-nuke," Rosner said, "you might want to think twice about completely abandoning nuclear."

In the absence of any tax on carbon emissions, however, it is hard for nuclear to compete with coal and gas, and therefore "it's very difficult to make economic case for it."

MOX Battle: Mixed Oxide Nuclear Fuel Raises Safety Questions: Scientific American (SCIAMER)

Scientific American, March 28, 2011

MIXED REVIEWS: Plutonium produced for US nuclear weapons is now headed toward use in nuclear power plants as mixed oxide fuel. Image: US Department of Energy

The nuclear reactors at the Fukushima Daiichi power station in Japan that were crippled by the March 11 earthquake and tsunami are a lot like reactors in the US They are a common, if not exactly modern, General Electric design that harnesses nuclear fission to boil water and drive steam turbines to generate electricity. The same reactor designs and containment system are in use across the US, for instance at the Browns Ferry Nuclear Plant near Athens, Ala., and the Vermont Yankee facility in Vernon, Vt.

But reactor No. 3 at Fukushima Daiichi, one of the units that has experienced severe problems in the past two weeks, has one characteristic that differentiates it from its neighboring reactors and from any operating reactor in the US Among the hundreds of standard nuclear fuel assemblies in its core, which rely on the splitting of uranium atoms to release energy, are some that contain a mix of uranium and plutonium. This so-called mixed oxide, or MOX, fuel was loaded into Fukushima Daiichi reactor No. 3 in 2010 and has found use in several other countries' power plants as well. And a big-budget US government project is scheduled to begin producing MOX for domestic utilities in 2016.

But, as with most issues relating to nuclear energy, the use of MOX is a source of some controversy. Proponents say that burning MOX in nuclear reactors is a sensible way to dispose of weapons-grade plutonium from Cold War nuclear stockpiles, as the US plans to do with 34 metric tons of surplus plutonium at its planned Mixed Oxide Fuel Fabrication Facility (MFFF) in South Carolina. (Some countries also reprocess spent nuclear power plant fuel to produce MOX.) Critics say that MOX is riskier than standard fuel and that there are better ways to dispose of excess plutonium.

"I think it's a magnificent solution," says David Jones, senior vice president for the back-end business group at Areva, a Paris-based nuclear fuel manufacturer with US headquarters in Bethesda, Md. Areva is half of a partnership that is the prime contractor to the US Department of Energy (DoE) on the $5-billion MFFF project. "You're taking something that was designed to be dangerous, and you're turning it into something that benefits society," Jones says.

Ordinary low-enriched uranium fuel contains primarily uranium 238, the most common natural isotope of the element, along with about 5 percent uranium 235, a rarer isotope that splits, or fissions, more readily. MOX fuel, on the other hand, substitutes plutonium 239 as the fissionable component, reducing the need for uranium 235.

"It's a fairly well established technology, especially overseas," says Jess Gehin, a nuclear science and engineering researcher at Oak Ridge National Laboratory, where MOX fuel rods have undergone testing. "All of our analyses show that it can be used without significant differences to uranium dioxide."

But Robert Alvarez, a senior scholar at the Institute for Policy Studies, a Washington, D.C., think tank, says that MOX is not the best way to irreversibly render plutonium unsuitable for weapons use. "If you really want to pursue the path of irreversibility, there are probably cheaper, easier ways to do it," he says. One way would be to blend the plutonium down to a low concentration and put it in the DoE's Waste Isolation Pilot Plant in the New Mexico desert. With the price tag attached to the MFFF, "it's certainly not something you'd think you could make money off," Alvarez says. "I kind of see it as a nuclear equivalent to a bridge to nowhere."

And Edwin Lyman, senior scientist for global security at the Union of Concerned Scientists in Washington, D.C., argues that MOX is more likely to cause nuclear accidents than ordinary uranium fuel and is liable to release more harmful material in the event of an accident. "Plutonium has different properties than uranium 235 that generally tend to degrade some of the safety systems in nuclear plants," Lyman says. For instance, because weapons-grade plutonium fissions more readily than uranium 235, reactors may need more robust control rods—neutron absorbers that shut down the nuclear chain reaction when inserted into a reactor's core. "You never get quite as much margin even after doing all that as you do with uranium," Lyman says.

Jones counters that MOX has a proved track record. "You'll hear some folks say that MOX is experimental," he says. "Over 6,000 MOX assemblies have been safely used in reactors around the world." Jones notes that MOX has passed muster with several different regulatory bodies in Europe and Japan, where the fuel has found use in dozens of nuclear power plants. "They found that it does not pose a significant, unacceptable level of risk," he says.

Lyman authored a study in 2001 in Science & Global Security showing that radioactive leakage from a meltdown with MOX fuel, which in addition to plutonium has higher levels of radioactive isotopes such as americium 241 and curium 242, would be deadlier than a low-enriched uranium meltdown. "Because plutonium is so much more radiotoxic than many of the other radionuclides, even if it's released in relatively small concentrations it can have an impact on the effects," Lyman says. He adds that it is not possible at the moment to identify how much the MOX fuel in Fukushima reactor No. 3 has contributed to the radioactive plumes emanating from the plant.

Oak Ridge's Gehin argues that the flavor of nuclear accident is more important than the flavor of fuel in the reactor. "The uncertainty of what would happen [in an accident] is not driven by MOX fuel versus uranium dioxide," he says. "It is driven in what happens in the event itself."

And Jones points out that low-enriched uranium fuel and MOX fuel become more similar as the fuel is consumed in fission reactions. "Folks try to cast a pall over MOX fuel because it has plutonium in it," he says. "We're trying to make sure people understand that uranium fuel, once it goes in the reactor, starts producing plutonium as well as fissioning plutonium and generating energy from it."

Even reactors loaded with straight uranium fuel, such as those in the US, end up with a mix of radioactive elements in the core, essentially a lower-plutonium version of MOX. "I don't know why people keep trying to make MOX an issue, because every reactor in the world burns MOX fuel," Jones says. "It goes in as uranium fuel, but once it starts going it has plutonium in it."

Even as the South Carolina fabrication plant progresses toward start up, the future of MOX fuel remains somewhat uncertain in the US "The DoE still can't find a utility that's willing to take this stuff," Alvarez says. Duke Energy had signed an agreement with the DoE to load four of its reactors with MOX fuel, but the utility let the contract lapse in 2008. The federally owned Tennessee Valley Authority (TVA), which operates the Browns Ferry Nuclear Plant and two other nuclear facilities, has expressed some interest in trying MOX and may step up to take fuel from the MFFF. But Lyman questions whether even TVA will be a willing taker. "I don't see why any utility, even a government-owned one like TVA, would want to dabble with this stuff," he says.

Minuscule Amounts Of Radiation From Japan Detected In Nevada: Scientists Say No Health Risk (WP/AP)

Associated Press, March 28, 2011

RENO, Nev. — Minuscule amounts of radiation from Japan's damaged nuclear plant have reached Las Vegas, but scientists say it poses no health risk.

Extremely small amounts of the radioactive isotopes iodine-131 and xenon-133 reached a monitoring station by the city's Atomic Testing Museum this week, said Ted Hartwell, manager of the Desert Research Institute's Community Environmental Monitoring Program.

Hartwell said he's certain the isotopes came from Japan because they're not usually detected in Nevada. But he said the readings were far below levels that could pose any health risks.

"Unless you have an accident like this (in Japan) you wouldn't expect to see this. No doubt it's from Japan," Hartwell told The Associated Press.

Minuscule amounts of radiation from Japan have been reported elsewhere in the West, including California, Colorado, Hawaii and Washington. Officials have said those levels also were not harmful.

Nevada health officials have said they do not expect any risk to the state from Japanese radiation releases because of the distance the materials would have to travel.

"Any material released must travel 10,000 miles across the Pacific Ocean, during which time it will be dispersed and diluted in the atmosphere to levels that might eventually be detectable, but which will not present a health hazard nor require any protective actions," said Eric Matus, radiation physicist for the Nevada State Health Division.

Scientists say they weren't surprised that radioactive isotopes from Japan were detected in the Western states.

"They get caught up in the right wind pattern and they'll move across the ocean," said Jeff Daniels, an environmental scientist with Reno-based DRI.

Tiny amounts of the radioactive isotope cesium-137 were detected at a University of Nevada, Las Vegas laboratory between March 17 and 21, but haven't been reported since then, Hartwell said.

The Desert Research Institute operates 29 stations that monitor the air for radioactivity around the Nevada National Security Site, formerly the Nevada Test Site, about 65 miles northwest of Las Vegas. The institute plans to release the results of testing at the other stations and post them online at http://cemp.dri.edu/ by late in the week, Hartwell said.

The vast majority of the monitoring stations are in Nevada, with four in Utah and one in California.

Mass. Official: Low Amount Of Radiation In Rainwater, Likely From Japan Nuke Plant, No Threat (WP/AP)

Associated Press, March 28, 2011

BOSTON — Health officials said Sunday that one sample of Massachusetts rainwater has registered very low concentrations of radiation, most likely from the Japanese nuclear power plant damaged earlier this month by an earthquake and tsunami.

John Auerbach, the Massachusetts commissioner of public health, said that radioiodine-131 found in the sample — one of more than 100 that have been taken around the country — is short lived. He said the drinking water supply in the state was unaffected and officials do not expect any health concerns.

Nevada and other Western states also have reported minuscule amounts of radiation, but scientists say those presented no health risks.

The Massachusetts Department of Public Health said the in-state sample was taken in the past week, but they did not say where. The testing is part of a US Environmental Protection Agency network that monitors for radioactivity.

State officials said similar testing was done in California, Pennsylvania, Washington and other states, and showed comparable levels of I-131 in rain.

Massachusetts testing last week of samples from the Quabbin and Wachusett reservoirs showed no detectable levels of I-131, health officials said.

Energy and Environmental Affairs Secretary Richard K. Sullivan Jr. directed the Department of Environmental Protection to collect additional samples for testing from several water bodies across Massachusetts. Results will be available over the next several days.

In Japan, mounting problems, including miscalculated radiation figures and inadequate storage tanks for huge amounts of contaminated water, stymied emergency workers Sunday as they struggled to bring the country's nuclear complex back from the

edge of disaster. Workers were trying to remove radioactive water from the nuclear compound and restart the regular cooling systems for the dangerously hot fuel.

Gaps In US Radiation Monitoring System Revealed (AP)

By Garance Burke, Noaki Schwartz, Associated Press

Associated Press, March 26, 2011

SAN FRANCISCO – Part of the nation's key radiation warning system was out of service as the US braced for possible exposure to the fallout from a nuclear crisis in Japan.

While no dangerous levels of radiation have reached American shores, the test of the monitoring network has spurred some lawmakers to question whether it can adequately safeguard the country against future disasters.

The system is crucial because federal officials use the monitors' readings to validate the impact of nuclear incidents, then alert local governments and the public.

In California, home to two seaside nuclear plants located close to earthquake fault lines, federal officials said four of the 11 stationary monitors were offline for repairs or maintenance last week. The Environmental Protection Agency said the machines operate outdoors year-round and periodically need maintenance, but did not fix them until a few days after low levels of radiation began drifting toward the mainland US

About 20 monitors out of 124 nationwide were out of service earlier this week, including units in Harlingen, Tex. and Buffalo, N.Y. on Friday, according to the EPA.

Gaps in the system — as well as the delays in fixing monitors in some of Southern California's most populated areas — have helped to prompt hearings and inquiries in Washington and Sacramento.

"Because the monitoring system ... plays such a critical role in protecting the health and safety of the American people, we will examine how well our current monitoring system has performed in the aftermath of the tragic situation in Japan," said Sen. Barbara Boxer, a California Democrat who chairs the US Senate Environment and Public Works Committee, which plans a hearing in the coming weeks on nuclear safety.

EPA officials said the program effectively safeguarded the country against a threat that did not materialize. They said they put portable monitors in place as backups and repaired the permanent ones in Los Angeles, San Bernardino, San Diego last weekend.

"The network as a whole continues to detect even the slightest traces of radiation in the air," the agency said in a statement to The Associated Press.

The EPA's independent watchdog, Inspector General Arthur Elkins, told the AP he is considering reviewing the agency's emergency response planning, including the agency's RadNet system.

The network, launched after the Cold War and upgraded following the 9-11 attacks, measures radiation nationwide through dozens of monitors that suck in air samples periodically and pump out real-time readings about radioactive isotopes.

The EPA's data, as well as samples that numerous federal agencies are collecting in Japan, is sent to the Department of Energy's National Atmospheric Release Advisory Center in California. Teams there check it against sophisticated computer models that predict how releases at Fukushima could spread across the Pacific.

To save money, EPA relies in part on trained volunteers to regularly change out air filters on the RadNet monitors and mail them to a federal lab in Alabama where the data gets a detailed analysis a few days later. Volunteers are also tasked with alerting EPA if something goes wrong with the machine.

"It sounds sort of loosey goosey, but we already operate our network on a very rigid schedule so we just sort of fit it into our lifestyle," said Eric Stevenson, a director of technical services who oversees operation of the monitor from his office at the Bay Area Air Quality Management District near San Francisco's domed city hall. "We've been operating this thing for years and no one has really said boo about it. Something like this comes along and all of us realize `Hey, gee, that's a relatively smart program.'"

One RadNet monitor in Fontana, Calif. stopped transmitting data in November, and regional air quality officials alerted EPA, said Philip Fine, an atmospheric measurements manager with Southern California Air Quality Management District. The repairs happened last weekend, when EPA made fixing California monitors a priority, he said.

In San Diego, an air district official who oversees one RadNet monitor, said they "babysit" the machine for the EPA and were unaware it had problems until agency officials showed up to fix it last weekend.

"We thought it was running," said Bob Kard, the air pollution control officer for the San Diego Air Pollution Control District.

EPA officials say the system has more than enough monitors to detect any radiation problems even if individual machines break down.

"We have plenty of data coming in across the country to see the potentials on health and safety," said Ron Fraass, who directs EPA's National Air and Radiation lab in Montgomery, Ala. "If you were going to keep your pc operating outdoors in all weather, it's going to break once in a while."

California lawmakers have questioned the adequacy of the EPA monitoring, noting there are no sensors along the coast between San Francisco and Los Angeles.

"The question remains unanswered as to why we have gaps," said California Senate Majority Leader Ellen M. Corbett, (D-San Leandro), who chairs the state committee on earthquake and disaster preparedness "The radiation monitors that we do have in California must be properly checked and maintained."

Daniel Hirsch, a nuclear watchdog who lectures on nuclear policy at the University of California, Santa Cruz, said he was uneasy about malfunctioning monitors.

"The fundamental concern is that we're being offered bland assurances that everything is ok but much of the monitoring system was broken," Hirsch said.

Low Levels Of Radiation Detected In US (WRAL)

WRAL, March 28, 2011

Raleigh, N.C. — Very low levels of radioactive Iodine 131 have been detected in the air throughout the US as a result of nuclear leaks at the Fukushima plant in Japan, Progress Energy officials said Saturday.

Iodine 131 is a form of radiation typically released into the air by nuclear reactors.

Progress Energy spokesman Drew Elliot said very sensitive equipment at the utility's Robinson and Crystal River nuclear plants, in South Carolina and Florida, respectively, detected iodine radiation in the atmosphere, but said it did not pose a health threat for US residents.

A news release from the utility stated that similar readings were expected at the Harris plant near New Hill, N.C., and the Brunswick plant near Southport, N.C. in the coming days.

Elliot said iodine travels through the air very easily, which is why it can be detected across the world from Japan, but he reiterated that levels were too low to "affect public health or safety."

An email alert was sent to all nuclear employees, as well as to county and state leaders in the affected areas, on Friday, Elliot said.

Tiny Amounts Of Radiation From Japan Reach Nev. (AP)

By Martin Griffith, Associated Press

Associated Press, March 27, 2011

RENO, Nev. – Minuscule amounts of radiation from Japan's damaged nuclear plant have reached Las Vegas, but scientists say it poses no health risk.

Extremely small amounts of the radioactive isotopes iodine-131 and xenon-133 reached a monitoring station by the city's Atomic Testing Museum this week, said Ted Hartwell, manager of the Desert Research Institute's Community Environmental Monitoring Program.

Hartwell said he's certain the isotopes came from Japan because they're not usually detected in Nevada. But he said the readings were far below levels that could pose any health risks.

"Unless you have an accident like this (in Japan) you wouldn't expect to see this. No doubt it's from Japan," Hartwell told The Associated Press.

Minuscule amounts of radiation from Japan have been reported elsewhere in the West, including California, Colorado, Hawaii and Washington. Officials have said those levels also were not harmful.

Nevada health officials have said they do not expect any risk to the state from Japanese radiation releases because of the distance the materials would have to travel.

"Any material released must travel 10,000 miles across the Pacific Ocean, during which time it will be dispersed and diluted in the atmosphere to levels that might eventually be detectable, but which will not present a health hazard nor require any protective actions," said Eric Matus, radiation physicist for the Nevada State Health Division.

Scientists say they weren't surprised that radioactive isotopes from Japan were detected in the Western states.

"They get caught up in the right wind pattern and they'll move across the ocean," said Jeff Daniels, an environmental scientist with Reno-based DRI.

Tiny amounts of the radioactive isotope cesium-137 were detected at a University of Nevada, Las Vegas laboratory between March 17 and 21, but haven't been reported since then, Hartwell said.

The Desert Research Institute operates 29 stations that monitor the air for radioactivity around the Nevada National Security Site, formerly the Nevada Test Site, about 65 miles northwest of Las Vegas. The institute plans to release the results of testing at the other stations and post them online at http://cemp.dri.edu/ by late in the week, Hartwell said.

The vast majority of the monitoring stations are in Nevada, with four in Utah and one in California.

Central Virginian,Louisa,Breaking News,Newspaper,Mineral,Lake Anna,Goochland,Fluvanna,Orange,Zions Crossroads,Dining,Boating,Fishing,Trevilians,Green Springs, Shenandoah Crossing In VA, Virginia (CENTVA)

By Jimmy LaRoue

Central Virginian, March 25, 2011

The two operating nuclear reactors at North Anna Power Station are reported to be among the nation's 10 most likely to suffer core damage due to a seismic event.

Although North Anna's reactors are located atop an ancient fault line and have recently received a heightened risk factor, federal regulators and Dominion officials counter that the claim is misleading and ill-informed.

In a report produced by MSNBC this past week, North Anna's operating reactors individually ranked 10th in the nation for their likelihood to suffer core damage due to ground motion. The rank was based on data compiled by the Nuclear Regulatory Commission, which set the annual chances of the accident scenario at one in 22,727.

But Joey Leford, NRC spokesperson, countered that the data was not intended to provide comparison between plants and that the odds generated do not reflect actual likelihood of the occurrence.

"It was a conservative preliminary screening tool to help us determine which plants needed additional seismic analysis," Ledford said.

He added that the calculations, by design, represent the worst-possible case scenario because they don't factor one of the most important means to prevent damage-operator action.

North Anna Power Station operators, as well as those at other reactors, drill on the protocol to respond to an earthquake or other natural force, with the goal of safely shutting down the reactor, according to Richard Zuercher, Dominion spokesperson.

"The core would not immediately be damaged," Ledford said of earthquake accident scenarios. "The core would be damaged, as you've seen in Japan, because of an inability of operators to cool the reactors."

For the entire story, see The Central Virginian now available on newsstands.

Our View: Despite Japan's Disaster, Nuclear Energy Still Cleanest (HUDSONST)

Hudson (WI) Star Observer, March 25, 2011

We all sympathize with the victims of the recent earthquake in Japan. The earthquake, and following tsunami, was devastating. What may mostly impact our country, state and region is how Americans react to the nuclear power problems facing the Japanese.

While those of us in Wisconsin will not be directly affected by radiation from Japan, the disaster has again opened the nuclear power debate.

The truth of the matter is — nuclear power is a very clean, efficient and cost-effective source of energy. As we discovered from the earthquake, nuclear power facilities, however, are not foolproof; things can, and do, go wrong.

According to most experts, however, the modern nuclear facility is about as safe as anything available. Of more concern might be some of the older facilities throughout the United States. Those sites may need some upgrades.

We would hate to see nuclear power, however, taken off the table because of the situation in Japan. After many years of nuclear power being ignored, the energy source has again been gaining favor in both conservative and liberal camps. For environmentalists, it is the clear answer to cutting carbon emissions.

The Obama administration has designated $36 billion in loans available for new reactors in the 2012 budget proposal.

Wisconsin has had a nuclear moratorium since 1983. That came about after the 1979 accident at Three Mile Island. Wisconsin has two nuclear plants, near Kewaunee and Point Beach on the eastern side of the state. They provide about 19 percent of the state's electricity.

In Hudson, we are actually closest to a couple of Minnesota facilities – Prairie Island near Red Wing and Monticello, just west of Minneapolis.

In Wisconsin, there has been a growing movement to bring nuclear energy back into the picture as an energy option.

With Republicans in charge in Madison, it was expected that there could be a movement to lift the statewide ban. Concerns over the Japanese situation, however, will make that job more difficult.

Hopefully, we can learn from the Japanese disaster. When it comes to nuclear energy, we should be able to correct the mistakes that were made in the relatively old facilities in Japan — in fact, most of those changes have already been made in newer nuclear facilities.

Unless we can perfect wind and solar energy quickly, nuclear energy is by far the cleanest and most environmentally friendly, especially when compared to oil, coal and other so-called "dirty" sources.

Tags: opinion, editorials, energy

All Forms Of Energy Have Risk (HC)

By Brett Clanton

Houston Chronicle, March 26, 2011

The Japanese nuclear crisis undoubtedly will be a setback for nuclear energy. But it also highlights a hard truth about energy: that every source — no matter how clean, low-cost or seemingly safe — carries risk.

Indeed, if nuclear suddenly falls out of favor in the US and abroad, the question becomes: What fills in the gap?

Coal is abundant but dirty. Natural gas is cleaner but under fire for the way it's extracted. Renewables such as wind and solar are cleaner still but remain expensive and hard to deploy at the necessary scale. And so on.

Meanwhile, global demand for energy is increasing. Largely fueled by growth in the developing world — but also by ever-growing desire for convenience and reluctance to conserve — demand could jump nearly 40 percent by 2035, according to the International Energy Agency.

Keeping pace with that surging growth will require every available energy source — including nuclear — range of energy experts said.

"You can't shut off any major piece of energy and expect to make it up with the rest," said John McDonald, chief technology officer at Chevron Corp.

And while steps can be taken to improve safety and to reduce environmental impacts of leading energy sources, consumers also have to be realistic about the trade-offs that come with the luxury of having the lights come on every time they flip a switch or gasoline available when they pull up to the pump.

"There's nothing free. There's risk associated with every source. We just have to learn to get used to it," said Raymond Orbach, director of the Energy Institute at the University of Texas at Austin, who contends more could be done to lower risks if funding for scientific research were a bigger priority.

The discussion about the future of energy supplies has come to the fore because of Japan's March 11 earthquake and tsunami that crippled the Fukushima Dai-ichi nuclear power plant and sparked fears of a widespread radiation leak.

As the catastrophe unfolds, the outlook once again has dimmed for nuclear power, a low-emission energy source that had been poised for a comeback decades after high-profile accidents stalled expansion.

A look at reactor siting

In recent days, officials in Germany and China have said they're reassessing nuclear programs. US Energy Secretary Steven Chu suggested Sunday it might be less likely that new reactors are built near large American cities.

"Where we site reactors going forward will be different than where we might have sited them in the past," Chu said, according to the Associated Press. He previously has said it is "probably premature" to halt US nuclear expansion plans based on the Japanese disaster.

Analysts with Houston investment bank Tudor, Pickering, Holt & Co. were blunter: "The worse the radiation leak becomes, the more likely new global nuke construction is toast."

But no one can watch the Japanese disaster play out on TV without getting the sense that we've been here before.

Last year in the US alone, three other major energy sources experienced horrifying accidents of their own.

The Upper Big Branch coal mine explosion in West Virginia killed 29 workers; BP's Macondo well blowout in the Gulf of Mexico killed 11 workers and launched a devastating oil spill; and a natural gas pipeline explosion and fire in San Bruno, Calif., killed eight people and destroyed dozens of homes.

The incidents were reminders of the potential dangers tied to finding, extracting and transporting the fuels that underpin our economy.

They've also contributed to what some oil and gas industry officials criticize as an "energy policy no-fly zone," which they say blindly supports alternative energy sources over conventional fuels without appreciating the vast scale involved in meeting the nation's energy needs.

"Too many people in high positions believe that energy comes from the socket on the wall," said Ken Cohen, vice president of public and government affairs at Exxon Mobil Corp., the world's largest publicly traded oil company.

"We all understand that energy needs to be produced in an environmentally responsible way, and that's actually the grand challenge," he said. But fossil fuels must have a place at the table in any discussion about the nation's energy future, he said.

Fossil fuels in 2035?

Even if there are long-term concerns about the safety of nuclear or the supply of fossil fuels, a robust energy system depends on a diverse mix of options, said Branko Terzic, executive director of Deloitte Center for Energy Solutions in McLean, Va. "The all-your-eggs-in-one-basket scenario is just not realistic."

Even by 2035, fossil fuels still are projected to meet about 80 percent of global energy needs despite rapid growth of renewables such as wind power and biofuels.

To keep up, oil companies will need to tap reserves being gobbled up today and find new sources of oil, gas and coal. Given that challenge, more oil companies have begun stressing energy efficiency. They're also highlighting the role technology can play in reducing the cost, risk and emissions of fossil fuels and in making alternative energy sources more feasible.

Government regulation could help hasten a shift to cleaner energy options, said Ashok Gupta, senior energy economist with the Natural Resources Defense Council, a leading environmental group. It also could improve the safety and emissions of the fuel sources available today.

The challenge is to regulate gradually enough that new rules don't add such onerous costs that they impede economic growth, he said.

Easier said than done. Americans often fight the smallest attempts by government to rein in energy usage. A planned phaseout of certain incandescent light bulbs in favor of more efficient compact fluorescent lights, for example, has met resistance.

Yet, given the vastness of the world's energy needs and growing questions about how they will be met, letting go of old light bulbs soon may seem like a small sacrifice to make.

NJ, Home To Oldest US Nuke Plant, Reviewing Safety (AP)

New Jersey, the most densely populated state and home to the nation's oldest nuclear power plant, created a task force Friday to review safety and emergency response plans at nuclear plants in light of the disaster unfolding in Japan.

By Wayne Parry

Associated Press, March 25, 2011

New Jersey, the most densely populated state and home to the nation's oldest nuclear power plant, created a task force Friday to review safety and emergency response plans at nuclear plants in light of the disaster unfolding in Japan.

The state Department of Environmental Protection appointed the panel, composed of homeland security, state police and utility officials. It will start work next week and plans to visit the 41-year-old Oyster Creek plant in Lacey Township, as well as the three reactors in Lower Alloways Township in Salem County, called Hope Creek and Salem I and II.

Oyster Creek is a General Electric reactor, similar to the Fukushima Daiichi complex in Japan, whose reactors were damaged by an earthquake and tsunami that knocked out power to cooling systems, allowing radiation to escape. The same boiling-water reactor design at the Japanese plants is also used at Hope Creek.

"We want to ensure all proper safety protocols and preventative measures are in place to protect the residents of New Jersey from ever having to experience a nuclear emergency," Gov. Chris Christie said. "There may be lessons to be learned from what is happening in Japan that could make our preparedness even better and make the state's residents more secure. We have an obligation to explore those facts and will make necessary adjustments to our safety plans as appropriate."

Exelon Corp. and PSE&G, which own the reactors, have pledged to participate in the reviews. In December, Exelon and the state reached a deal to close Oyster Creek in 2019, 10 years earlier than called for under its current license.

Potential impacts from reactors in neighboring Pennsylvania and New York also will be examined.

Oyster Creek went online Dec. 1, 1969, the same day as the Nine Mile Point Nuclear Generating Station near Oswego, N.Y. But Oyster Creek's original license was granted first, technically making it the oldest of the nation's 104 commercial nuclear reactors that are still operating.

It has had problems including leaks of radioactive tritium from underground pipes, as well as malfunctioning electrical components. Environmentalists also say the metal containment liner has worn too thin, but Exelon and the NRC say the plant can be operated safely.

The early shutdown deal was reached to let the plant avoid having to build costly cooling towers that New Jersey officials insisted upon to vastly reduce the number of fish and small marine creatures the plant's operations kill each year.

Located about 60 miles east of Philadelphia and 75 miles south of New York City, Oyster Creek generates 636 megawatts of electricity, enough to power 600,000 homes a year, and provides 9 percent of New Jersey's electricity.

The task force will explore emergency response plans at all the state's reactors, technical reviews of plant operations, the chain of command and control at each nuclear facility, evacuation plans, and plans for emergency communications to the public.

Led by DEP Commissioner Robert Martin, the task force includes Charles McKenna, the state's homeland security and preparedness director; State Police Superintendent Col. Rick Fuentes, and Lee Solomon, president of the state Board of Public Utilities. It will submit a written report to Christie once the review is completed.

"We already have an excellent response system in place, one that is continuously updated as we gather new science and facts," Martin said. "We also have excellent cooperation from the owners of nuclear facilities in our state. But you can never be too prepared. If there are lessons for New Jersey from what is happening in Japan, we should draw from that information."

The federal Nuclear Regulatory Commission requires nuclear plants to meet federal specifications to withstand natural disasters, such as earthquakes, hurricanes and tsunamis.

In Japan, it was not so much the force of the earthquake but rather water from the tsunami that inundated the plant and knocked out crucial electrical and backup power systems to run cooling systems. The fires and explosions believed to have been caused by uncooled nuclear fuel have released high amounts of radiation into the atmosphere, and the situation still has not been brought under control nearly two weeks later.

The DEP said backup generators and fuel supplies at New Jersey's reactors "are far better protected than at facilities now in jeopardy in Japan."

The agency also added, "There is virtually no possibility of a tsunami striking New Jersey."

It said no radiation levels "of concern" have reached the US or New Jersey. But radiation monitors from California to Virginia have measured trace amounts of radiation from the Japanese accident.

Piketon Lawsuit Finally Settled After 21 Years (COLUMDIS)

Columbus (OH) Dispatch, March 26, 2011

A $300 million federal lawsuit by neighbors of the former Piketon uranium-processing plant finally has been settled - 21 years after it was filed.

Neighbors of the Portsmouth Gaseous Diffusion Plant sued plant owner Divested Atomic Corp. in 1990, saying the plant had contaminated their neighborhood.

Louise M. Roselle, who has represented the neighbors since 1990, said today that the settlement is confidential. It was reached in recent months and the case was dismissed today.

"These clients have waited a long time for a resolution and I'm glad they're going to get something," Roselle said. "It's been a long 21 years."

The lawsuit originally asked for medical monitoring for residents of the Pike County town, and charged that people living around the plant suffered emotional distress and lower property values from radioactive and chemical contamination.

In 2007, Judge Walter Herbert Rice of US District Court threw out the portion of the lawsuit that involved radioactive material, but allowed claims regarding the release of non-radioactive, hazardous substances.

Roselle said the lawsuit lasted so many years for a number of reasons: It was certified, then decertified, as a class-action lawsuit. The original company that ran the plant, Goodyear Atomic, changed ownership. The case was switched from one judge to another. And other cases were filed that affected the Piketon one.

Unlike some lawsuits against plants involved with nuclear weapons, plaintiffs in this case did not ask for damages based on cancer. Although the number of plaintiffs varied over the years, 169 were involved in the settlement, according to court documents.

The other defendants in the case were Goodyear Tire and Rubber Co., and Lockheed Martin Energy Systems Inc.

The attorney for Divested Atomic could not be reached for comment.

Ohio Uranium Plant Contamination Lawsuit Dismissed (AP)

By Kantele Franko, Associated Press

Associated Press, March 26, 2011

COLUMBUS, Ohio – Residents living near a Cold War-era nuclear weapons facility in southern Ohio settled a two-decade-old federal lawsuit over alleged hazardous chemical contamination in their neighborhoods, a lawyer for the plant's operators said Saturday.

The undisclosed settlement was "substantially less" than the $300 million lawsuit and didn't include all the plaintiffs, said attorney Gail Ford, who represented Divested Atomic Corp. and other operators of the former Portsmouth Gaseous Diffusion Plant in Piketon, about 65 miles south of Columbus.

Neighbors filed suit in 1990 and alleged that the facility, which was used to produce enriched uranium until 2001, released hazardous substances into the surrounding environment, thus decreasing their property values and causing them emotional harm as they worried about adverse health effects.

Ford said the plant's operators deny any wrongdoing or liability.

The Columbus Dispatch reported nearly 170 plaintiffs were involved in the settlement.

"These clients have waited a long time for a resolution, and I'm glad they're going to get something," Louise Roselle, an attorney who represented some residents, told the newspaper. "It's been a long 21 years."

The defendants, which included Goodyear Tire and Rubber Co. and Lockheed Martin Energy Systems Inc., are satisfied with the deal, Ford said.

"It's simply a settlement to terminate the litigation and get the claims resolved after all these years," she said Saturday.

Roselle told the Dispatch that the lawsuit dragged on because other cases affected it, as did changes in judges, in the lawsuit's class-action status and in the ownership of a company that ran the plant.

Plaintiff Sarah Chandler said she's not surprised the case lasted so long.

"We were fighting the government, and I didn't really think anything would come out of it," said Chandler, 75, who has lived in Piketon since 1958, a few years after the plant began production.

She blames the facility for health problems that affected her family and friends in the area, including several relatives who had cancer. Chandler said she doesn't think the "small settlement" makes up for that.

All claims in the case have been dismissed, Ford said. It's possible plaintiffs who didn't settle — it was unclear how many there were — could choose to pursue other legal action.

Group At SRS Switches Focus To Japan (AUGC)

By Rob Pavey

Augusta Chronicle, March 28, 2011

A new consortium managed by Savannah River National Laboratory will offer Japan important expertise on risk modeling and the spread of radiation.

Formed in January, the National Center for Radioecology had an initial goal to resurrect waning interest in studies of how radiation affects plants and animals, said SRNL scientist Tim Jannick.

Since the March 11 disaster that spawned Japan's nuclear crisis, however, the partners in the group have found themselves far busier than they anticipated.

"We will be getting food and vegetable samples sent here for analysis," Jannick said. "There will also be a team going over there that will include people from SRS (Savannah River Site), mainly nuclear power folks."

Because the current focus in Japan is to provide cleanup assistance and humanitarian relief to displaced residents, much of the center's work will likely occur after the area is stabilized and will involve modeling and projections to refine data on the extent of radiation's impact on food, animals and plant life.

The partners in the radioecology group – six US universities and two research centers in France and Ukraine – are also collaborating on a new white paper to be presented to the US Department of Energy and Nuclear Regulatory Commission to offer guidance on issues ranging from cleanup and food analysis to homeland security.

"We are trying to gather our best resources to help Japan," said Eduardo Farfan, a nuclear health physicist at the lab whose research experience includes work at Chernobyl, the site of a deadly 1986 accident that spread radiation over thousands of miles.

Farfan studies radiation impacts in urban environments that would be the most likely areas affected by a "dirty bomb."

He has also studied how radiation affects concrete and building materials.

"After a detonation, we have to have a way to make that city clean again, so people can live there," he said, adding that knowledge from such studies also could benefit radiation-affected cities in densely populated Japan.

The heightened interest in radioecology could also help the group's other goals.

"We have a long history of radioecology, but we need to re-establish it as a science," Jannick said. "With the revitalized interest in nuclear programs, there is still a core need for research."

Many US schools no longer offer those programs, and the pool of experts in the field is getting older and closer to retirement age.

Their absence could create a void in fields such as immobilization of radiation, molecular and genetic effects and urban radiation mitigation, he said.

Partners in the center, in addition to SRNL, are the University of Georgia and its Savannah River Ecology Lab, the University of South Carolina, Clemson University, Oregon State University, Duke University and Colorado State University; along with the International Radioecology Laboratory of the Chernobyl Center in Ukraine and France's Institut de Radio_protection et de Surete Nucleaire.

The Japan Crisis Heightens Interest In Tours Covering The Dawn Of The Atomic Age (WP/AP)

Washington Post, March 28, 2011

NEW YORK — Peek into a 320-foot blast crater in the Nevada desert or descend a Titan II missile silo in Arizona for a look at two of many "atomic tourism" sites around the world that offer history and sometimes lessons from the deadly aftermath of the nuclear age.

The crisis in Japan has boosted interest in nuclear-related museums and plants, once-secret Manhattan Project complexes and areas laid waste by disaster.

"Anecdotal evidence suggests that there is a great interest in things nuclear in general, and specifically about the Japanese situation," said Allan Palmer, executive director of the Atomic Testing Museum and Nevada Test Site Historical Foundation in Las Vegas.

Attendance was up 12 percent on a recent weekend at the museum, located minutes from the Strip that came into its own at the dawn of the Atomic Age.

At the National Museum of Nuclear Science & History in Albuquerque, N.M., attendance jumped about 20 percent on a recent weekend as work continued at the Fukushima Dai-ichi reactors after the earthquake and tsunami wiped out power to northern Japan.

"Folks definitely want information about nuclear reactors and nuclear radiation," said Jeanette Miller, a spokeswoman for Albuquerque museum.

One of the museum's docents, retired physicist Duane Hughes, said inquiring visitors aren't jittery but seem confused about reports of the dangers in Japan. The museum hosted a specialist to brief docents on what's going on.

"We try to give people a balanced, factual, truthful response," Hughes said. "I didn't see anyone who is showing any emotional situations like, 'Oh my God, the sky is falling.'"

Miller and other museum officials said spring break, along with special events like the NCAA basketball tournament in Tucson, Ariz., are contributing to increased foot traffic.

Other locations that played important roles in the development of nuclear technology stay busy for tours much of the year.

Elsewhere, the Japan disaster coincides with the expected start of government-sponsored tours of Chernobyl in Ukraine later in the spring. They'll include a look at nearby Pripyat 25 years after the worst nuclear power plant accident in history turned it into a ghost town. Tours through private operators began about a year ago and can cost up to $250 per person.

Visitors to Chernobyl see both activity and desolation.

Heavy trucks and other machinery cross the grounds, working on the early stages of a project to build a gargantuan hangar-shaped shelter over the building housing the exploded reactor. In Pripyat, which once housed the plant's workers, high-rise apartment blocks stand empty and are slowly disintegrating.

In Japan, Nagasaki and Hiroshima have museums covering war, reconstruction and peace efforts. The Nagasaki Atomic Bomb Museum — http://bit.ly/ho3e5P — and the Hiroshima Peace Site — http://bit.ly/gM6pUT — offer minute-by-minute accounts, artifacts and memorials.

Is a virtual tour more your thing? Traffic on nuclear engineer Joseph Gonyeau's website, Nucleartourist.com, has skyrocketed. The site usually has about 94,000 unique visitors a month. The number of visits in March is up 119 percent, he said.

"People are asking a lot more questions," Gonyeau said. "This usually happens when problems occur at some plant."

Some atomic tourism stops:

TITAN MISSILE MUSEUM

The only Titan II missile silo open to the public — http://bit.ly/gn5jze — in what was once among the most secret locations in the country. About 20 miles south of Tucson, take a guided tour into a Titan II silo about 35 feet underground. Experience a

simulated launch. Among special tours: Museum staff will lead you and a group on a desert hike to explore the ruins of a missile site virtually untouched since it was abandoned more than 20 years ago.

NATIONAL MUSEUM OF NUCLEAR SCIENCE & HISTORY

In Albuquerque, the museum — http://www.nuclearmuseum.org — spans the dawn of the Atomic Age through the Cold War to modern nuclear medicine. Covers the secret Trinity test in the New Mexico desert. Has planes, rockets and missiles on display outside. Features casings of Fat Man and Little Boy bombs — the types dropped on Nagasaki and Hiroshima. Learn about the uranium cycle and take "Radiation 101." Little Albert's Lab offers hands-on science for kids.

TRINITY TEST SITE

Site of first atomic bomb test on July 16, 1945, located on the northern end of the White Sands Missile Range in south-central New Mexico. The 19-kiloton explosion led to a quick end to the war in the Pacific and ushered in the Atomic Age. White Sands hosts two "open houses" on the Trinity site every year, in April and October. Tours are self-guided. This year's dates are April 2 and Oct. 1. Included is ground zero, where the bomb was placed on a 100-foot steel tower. Contact the base public affairs office — http://bit.ly/hhQKUI — for visitor details.

THE ATOMIC TESTING MUSEUM

Minutes from the Las Vegas Strip, the museum — http://bit.ly/eoa05F — covers the Nevada Test Site, now the Nevada National Security Site, where atmospheric weapons tests were conducted from 1951 to 1962. Tours of the site — http://1.usa.gov/h4hPiO — 65 miles northwest of the city start at the museum but book up more than six months in advance. See remnants of a house and bridge used for tests, peek inside one of the many craters that left the area a moonscape.

HANFORD NUCLEAR RESERVATION

The world's first full-scale nuclear reactor is one stop on tours of the southeastern Washington state reservation created as part of the Manhattan Project to build the atomic bomb. Now, more than two decades after it stopped producing plutonium, Hanford is the nation's most contaminated nuclear site. From a distance, visitors watch white-suited workers bury mercury-tainted soil in a landfill and see cranes building a plant to encase radioactive waste in glass. Tour details — http://1.usa.gov/goLFPL.

AMERICAN MUSEUM OF SCIENCE & ENERGY

In Oak Ridge, Tenn., another Manhattan Project secret city, fuel was enriched for the world's first atomic bomb. A 20-minute video at the museum — http://bit.ly/dECc3H — goes into depth on the town's story. Includes photos, documents, models and hands-on activities. Other energy sources are also covered.

Uranium Processor Still Optimistic About Nuclear Industry (NYT)

By Ian Austen

New York Times, March 26, 2011

OTTAWA — On the same day earlier this month that the Canadian company Cameco, a global leader in uranium mining and processing, gathered its executives from around the world for a strategic planning session, news broke of Japan's staggering earthquake.

The accompanying tsunami, they learned, had swamped a Cameco customer: the Fukushima Daiichi nuclear power plant. Suddenly, this strategy meeting would be anything but routine.

"We had kind of a fortuitous convergence," said Gerald W. Grandey, the chief executive of Cameco, which held the meeting near its headquarters in Saskatoon, Saskatchewan.

Fortuitous, but not fortunate — for Cameco or the rest of the uranium industry, whose products fuel the world's nuclear power plants.

Over the last five years, uranium miners and processors — and their stock prices — have generally benefited from the assumption that rising energy demand in developing countries, and global concerns about greenhouse gas emissions, were creating a new appreciation for nuclear power industry.

Shares of Cameco had reached a recent high of $43.14 in mid-February, reflecting a steady rise from a low of $16 in October 2008. But since the tsunami, shares of Cameco have closed as low as $30.82, and closed Friday at $31.17.

Unusually rich ore deposits, particularly at Cameco's main deep-rock mine in northern Saskatchewan, help make it a low-cost producer. Uranium mining requires costly robotic systems and other measures to protect workers and the environment from radiation.

Cameco produces about 16 percent of the world's uranium supply and dominates the market, along with Areva, a French company with 17 percent of production, and the British-Australian mining giant Rio Tinto, which also holds a 16 percent share. But compared with those more diversified companies, Cameco is essentially a pure-play uranium producer.

The Tokyo Electric Power Company, which owns that power plant, is not only a buyer of nuclear fuel from Cameco, among other suppliers. Tepco, as it is known, also holds a small stake in a Canadian mine that Cameco plans to open in 2013 as part of its goal to double production by 2018, which would make it the global leader in uranium.

Right now, most of the rest of the world is pausing to assess the future of its nuclear power programs. In Germany, a market for Cameco, Chancellor Angela Merkel has temporarily shut down seven nuclear plants and suspended a program for extending the life of aging reactors. And Italy, has suspended a plan to resume its nuclear power program, which it had stopped after the 1986 disaster at Chernobyl.

But for all that, Mr. Grandey said this week that he was still optimistic about the long-term future of nuclear power. He says he thinks the nuclear renaissance is only taking a temporary pause.

"Even with Chernobyl, Three Mile Island and now Fukushima, nuclear still has an impeccable safety record," Mr. Grandey said in an interview. "There will be in time — I'm looking five, seven years — a rapid acceleration of nuclear building putting us back on track to where we would have been, absent Fukushima."

Not everyone, of course, shares Mr. Grandey's optimism, or his assessment of the industry's safety record. But there is no question that Cameco's future depends largely on the world's appetite for processed uranium after Fukushima.

Even if there is a global pullback on developing new power plants, Cameco has something of a cushion with its current customers. The company generally has multiyear contracts with utilities that require them to pay for fuel even if they do not accept delivery. (The company has suspended some contract terms for Tokyo Electric and another Japanese utility with reactors in the heavily damaged north, Tohoku Electric Power. Long-term Japan accounts for about 18 to 20 percent of Cameco's contracted sales.)

Farther out, Mr. Grandey bases his optimism on the inexorable rise in energy demand by developing economies like China and India, which have both indicated that they do not plan to curtail their ambitious rollout of new nuclear plants though they will proceed with a greater sense of caution. Fossil fuels, whether for environmental issues, supply constraints or price uncertainties, simply cannot meet the world's needs, he said.

"It will take us six months a year to digest and learn the lessons of Fukushima," he said. "After we digest the lessons learned, I think we'll get back on the path of nuclear construction."

Joshua M. Pearce, a professor of mechanical and engineering at Queen's University in Kingston, Ontario, said that such analysis omitted an important factor.

"This is not the 1950s when there was just nuclear and fossil fuels," he said, noting that alternative energy sources like solar and wind had become increasingly viable.

Professor Pearce was a co-author of a recent academic paper about indirect subsidies to nuclear power plants. He estimates that insurance liability caps granted to the American nuclear power industry, for example, produce an annual indirect subsidy of $33 million for every reactor in the United States.

He said that the liability costs to the Japanese government arising from Fukushima Daiichi, while still impossible to estimate, were presumably large, and might make other governments see that offering subsidies to renewable energy sources might be a comparative bargain.

Tony Ward, who heads Ernst & Young's power and utility practice in London, agrees that the current crisis will focus new attention on wind and solar power, particularly in China, which has already heavily invested in renewable energy technologies.

But Mr. Ward points to a significant limit to renewable energy as an alternative to nuclear. "The supply chain is not sufficiently deep to provide the sheer scale of capacity that is sufficient," he said.

For Mr. Ward, one potential long-term change for Cameco stemming from the Fukushima Daiichi disaster is the issue of spent fuel storage — which has been a big source of the trouble at that plant. He expects governments to reassess the economics of reprocessing nuclear waste into new fuel rather than allowing its continued storage.

But Cameco's Mr. Grandey, voicing optimism, insists that the nuclear industry's image will suffer no long-term harm.

"The numbers that are questioning safety have gone up but that's inevitable," Mr. Grandy said. "But it certainly can't be described as a mass change in attitude toward nuclear."

He added: "I think the public also understands that these are 35- and 40-year-old plants. So like airplanes that occasionally fall out of the sky, or like other industrial activities that experience disasters, every industry learns and improves."

Senate Panel To Probe Japanese Nuclear Crisis (HILL)

By Ben Geman

The Hill, March 26, 2011

The Senate Energy and Natural Resources Committee will gather Tuesday to hear publicly from Energy Department and Nuclear Regulatory Commission officials about the Japanese nuclear crisis.

The panel will hear from Peter Lyons, the acting head of the Energy Department's nuclear energy office, and Bill Borchardt, executive director for operations at the NRC.

Officials from the Nuclear Energy Institute -- the trade group that has been scrambling to ensure the crisis doesn't erode support for the US industry -- and the Union of Concerned Scientists will also testify.

'Small Modular Reactors' Hold Sway In US Nuclear Future (BBC)

By Jason Palmer, Science and technology reporter, BBC News, Dallas

BBC News, March 28, 2011

Something small is brewing for nuclear power in the US, it seems.

At the American Physical Society meeting this week, a session that was planned months ago to address the "US nuclear Renaissance" has had its tone changed in light of the ongoing nuclear crisis at Japan's Fukushima plant.

What you can frequently hear in the talks and discussions is the phrase "small modular reactors".

The ethos of going smaller is surprising in light of the move toward ever-bigger plants globally - at the Olkiluoto plant in Finland a record-beating 1.6GW plant is under construction.

But here it is an idea that has been gaining ground in the industry and in the halls of power for some time.

Even as the Fukushima situation was at its peak, the US Secretary of Energy Steven Chu told reporters grilling him about the 2012 budget that the US position of backing small modular reactors "has not been changed" -- a position he made clear in a 2010 op-ed piece for the Wall Street Journal.

Attendees of the conference -- ranging from nuclear physicists to policy experts -- all seem to agree on the merits of SMRs.

But in a country that has struggled for decades to get its nuclear Renaissance to a critical mass, talk turns quickly to economics.

Watts up

"Probably the biggest issue for the industry is that the upfront capital construction costs are extremely high," said Bob Rosner, professor of physics at the University of Chicago and former director of Argonne National Laboratory, the spiritual home of the nuclear reactor.

"How do you reduce the upfront cost? Make them much smaller - we're talking about 100 megawatts, a power a tenth of one of the plants at Fukushima," he told BBC News.

"They would be factory-built, not built on site. You could combine them, gang them together - put 10 together and you get a gigawatt plant. The point is the utility could buy into nuclear power in stages, they wouldn't have to come up with the entire cost of a gigawatt plant."

What the Fukushima crisis casts light on, though, is that the SMR idea takes safety into account from the outset, said Victor Reis, senior adviser in the Office of the Undersecretary of Energy for Science.

"This is a reactor that is designed safety first, not one that you do the physics first and then add the safety on," he told the conference.

SMR designs all run on the idea of "passive safety" -- that is, protective measures run without human intervention and even without power; cooling is done by natural convection, rather than with the kinds of pumps that were at the heart of the Fukushima plant's problems.

They are also small enough to be built underground, making them less vulnerable to severe weather, unauthorised access, impacts, and to some degree, seismic events.

Unasked question

These safety measures are being introduced into the latest, large-scale Generation III reactors already, and the concept is quickly becoming an industry standard.

"I think the argument is less toward a small reactor per se than a reactor that is truly passively safe," said Jay Davis, president of the Hertz Foundation and former nuclear weapons inspector.

"That might not be as small as the current small designs, but you're certainly going to see a push toward passive safety," he told BBC News.

As much as SMRs address the large capital expenditure question, what remains to be seen is how expensive they may actually be. It is not yet clear how much, in early stages, the cost of a plant with a tenth the power output will have a price tag more than a tenth that of a conventional, large plant.

"It's not obvious whether it's going to be more or less expensive," said Professor Rosner. "The fact of the matter is the only way we'll know for sure is if they're built."

That will only happen if the designs get approval of the Nuclear Regulatory Commission - and firms are poised to start building if and when that approval comes.

Moreover, Dr Reis told BBC News, some of the financial risk could be borne in the early days by the government.

"That's where I think the Department of Energy and the Department of Defense can play a role," he said.

"We can do what we did with massively parallel computing - [the US government] did the first one, we helped with the R&D, and then we were the first buyer at a sufficient scale of buying to answer the question of economies of scale."

The one issue that Professor Rosner said is conspicuously absent from much of the discussion was that of the security of the nuclear material at SMRs; here again, Dr Davis says the full picture remains an unknown.

"You've got to a full systems analysis, which includes going to the question: is the terrorism problem better or worse if you have multiple small reactors? You have to put all that on the table at the same time."

Robots Designed To Deal With Nuclear Accidents Await Duty In Europe While Japan Asks: Where Are Ours? (WP)

By Brian Vastag

Washington Post, March 28, 2011

Inside a nondescript warehouse south of Mannheim, Germany, a dozen robots, ranging in size from a low-slung inspection bot no bigger than a toy wagon to a 22-ton Caterpillar excavator, stand ready to respond to a nuclear emergency. With their electronics hardened to withstand radiation, the versatile machines can handle fuel rods as well as monitor doses that would kill a human engineer.

A similar robotic quick-response squad is housed near the Chinon nuclear power plant in France.

But in Japan, where the Fu-kushima Daiichi nuclear crisis drags into its third week, the question is: Where are the robots?

The answer is disquieting, say Japan's top roboticists. Instead of building robots that go where humans never could, this country renowned for its robotics expertise invested in machines that do things that humans can already do — like talk, dance, play the violin and preside over weddings.

"The government believed this accident wouldn't happen," said Hirose Shigeo, a robotics researcher at the Tokyo Institute of Technology. "Most of the robot experts are concentrating on humanoid [robots] and home use."

"We should have focused on response and disaster-mitigation robots," said Satoshi Tadokoro, who builds search-and-rescue robots at Tohoku University in Sendai. "The Ministry of Economy, Trade and Industry did not do that. The [power] companies did not do that. It is very strange and inappropriate."

After a 1999 accident at a nuclear fuel processing facility in Tokai in which two workers died from radiation exposure, the Japanese government and the company operating the facility began developing radiation-resistant robots. But after a year, the trade ministry halted the project, said Shigeo and Tadokoro.

Another Japanese agency, the Nuclear Safety Technology Center, constructed two robots equipped with cameras and hazardous-materials monitors. One, called Monirobo, was dispatched to Fukushima last week, according to Japanese news reports. But representatives of Tokyo Electric Power Co., which operates the Daiichi facility, aren't saying how, or even whether, the robot is being used on-site.

The need for robots that can withstand high radiation was made even more evident over the weekend after two workers at Daiichi were hospitalized after wading in radioactive water. Robots sent to the site early in the crisis could have guided key decisions by providing vital data on damage to the facility's reactors and adjacent pools of used uranium fuel.

Instead, official statements from Tepco convey uncertainty about the extent of damage. And the International Atomic Energy Agency has repeatedly pushed for better information.

Shigeo said a robot developed in his lab, called Helios IX, could fill the reconnaissance niche. The machine can climb stairs, open doors, and monitor temperature and radiation. If its cameras aimed at the spent fuel pools, they could show whether water cannons operated by ground crews were refilling the pools or simply splashing streams onto the floor.

After the crisis began more than two weeks ago, Shigeo upgraded the radio communications on Helios IX so it can be guided from longer distances and through the heavy concrete of the Daiichi plant. So far, though, no one has requested his help — or that of his robot.

Another reconnaissance robot, built by Tadokoro and named Quince, may be called into action. The Tokyo Fire Department, which has sent vehicles and workers to Daiichi, is evaluating how the low-slung, tank-tracked machine could assist, Tadokoro said.

American robots are being enlisted as well. A Massachusetts company, iRobot, known for its Roomba vacuum cleaners, sent four of its heavier-duty robots to Fukushima, said Joseph W. Dyer, the company's chief operating officer. Citing the sensitivity of the situation, Dyer declined to discuss which operations the robots might be involved in or whether the Japanese government had requested the shipment.

On Friday, a spokeswoman for the Department of Energy said the agency was evaluating its robotic inventory at the request of the Japanese government. The department has built several remotely operated robots to clean up radioactive waste from former nuclear-fuel processing facilities at its Hanford Site in Washington state and Savannah River Site in South Carolina.

Despite these investments, France (which derives about 80 percent of its electricity from nuclear power), and Germany (25 percent) are the only countries with at-the-ready robots designed for nuclear disasters. The nuclear power industry in each country has funded the operations for decades.

In the United States, the government and the nuclear industry have instead been reactive, building a handful of robots for specific nuclear tasks — but only after accidents.

Four years after the 1979 Three Mile Island crisis in Pennsylvania, the team tasked with cleaning up the mess tapped a robotics pioneer at Carnegie Mellon University, William L. "Red" Whittaker. Whittaker's lab quickly built two robots that provided the first views of the damaged reactor. One of the machines ultimately spent four years chewing on the building's irradiated concrete walls, sucking up radioactive water and scooping up partially melted uranium fuel.

After that success, Whittaker co-founded a company called RedZone Robotics, which in 1998 built a robot for the Chernobyl disaster in the Ukraine. But a few years later the company abandoned the market, said chief executive Eric C. Close. "It's very hard to have a business model that waits for nuclear disaster," he said. RedZone instead builds snake-like robots that navigate and maintain sewage pipes.

Tadokoro said that after Japan's 1999 nuclear accident, regulatory officials and the country's power companies discussed developing a robot response squad like those in Europe. It never happened.

"A decision was made not to invest," Tadokoro said. "It's very frustrating."

Key GOP Leadership Targeted For Backing Nuke Program Cuts (WT)

By Sean Lengell, The Washington Times

Washington Times, March 28, 2011

An arms control advocacy group has launched a media blitz targeting key Capitol Hill Republican leaders, arguing their support for spending cuts to government nuclear security programs will compromise the nation's ability to defend itself against terrorism.

The nonprofit Council for a Livable World has begun running radio advertisements in the home districts or states of Senate Minority Leader Mitch McConnell, House Speaker John A. Boehner and four other top Republicans criticizing them for voting for deep cuts to the Department of Energy's National Nuclear Security Administration (NNSA).

NNSA works to prevent the spread of nuclear weapons around the world, particularly in politically unstable regions.

The ads are narrated by retired Army Lt. Gen. Robert Gard, the senior military fellow at the Center for Arms Control and Non-Proliferation, a sister group of the Council for a Livable World. The group's campaign also includes ads on national media Web sites.

"Speaker John Boehner is making it easier for terrorists to get nuclear weapons," said Mr. Gard in the ad airing in the speaker's Ohio district.

The radio spot aimed at Mr. McConnell in Kentucky calls the cuts "one of the worst decisions ever when it comes to nuclear security."

The ads are expected to continue until about April 8, the final day of a temporary spending measure that is funding the federal government.

The current stopgap spending plan approved by Congress this month cuts the NNSA's defense nuclear non-proliferation budget by $551 million from the $2.7 billion the Obama administration proposed in its 2011 fiscal year budget.

The president's 2012 budget blueprint has tabbed $2.5 billion for NNSA's defense nuclear non-proliferation programs.

Pressure to leave NNSA funding levels alone also is growing within Congress. A bipartisan group of 16 House members on Wednesday sent House Budget Committee Chairman Paul Ryan, Wisconsin Republican and one of the lawmakers targeted in the ad blitz, a letter seeking full funding for NNSA's nuclear non-proliferation efforts.

But with so many other programs facing the budget axe, Rep. Rodney P. Frelinghuysen, the New Jersey Republican who chairs the House Appropriations subcommittee overseeing NNSA's budget, said at a hearing earlier this month the Obama administration's request for an increase was not likely to be met.

"New resources will not be available unless they come from existing accounts," he said.

NNSA, through its Office of Defense Nuclear Nonproliferation, works with a wide range of international partners, federal agencies, the US national laboratories and the private sector to find and dispose of dangerous nuclear and radiological material worldwide.

NNSA programs have been credited with limiting the spread of highly enriched uranium and other weapons-grade nuclear materials from countries in the former Soviet Union, Libya and elsewhere.

Spokespersons for the six Republicans when contacted for a response to the group's accusations either didn't respond specifically to the issue or weren't available for comment.

The NNSA also declined to take sides in the issue.

"We continue to work with our interagency colleagues and congressional leadership to provide the information they need to make informed choices about the resources required to implement the president's nuclear security agenda," said NNSA spokesman Damien LaVera.

Congressmen Seek Y-12, Pantex Contract Extensions (OAKR)

By John Huotari

Oak Ridger, March 27, 2011

Two freshmen congressmen from Tennessee have asked federal administrators to extend management and operations contracts for the Y-12 National Security Complex in Oak Ridge; the Pantex Plant near Amarillo, Texas; and tritium operations at the Savannah River Site near Aiken, S.C.

US representatives Chuck Fleischmann and Scott DesJarlais said the current federal strategy of consolidating operations and construction management at the sites will jeopardize the execution of national security missions.

"Extending the individual contracts would be a more responsible approach," they wrote in March 14 letters to US Energy Secretary Steven Chu and Tom D'Agostino, who serves as administrator of the National Nuclear Security Administration (NNSA).

First elected on Nov. 2, the two Republican congressmen argued that a contract competition would disrupt complicated, critical site operations as well as essential but long-delayed construction projects, including the Uranium Processing Facility at Y-12 and the High Explosives Pressing Facility at Pantex. Those projects, critical to modernizing the nation's nuclear deterrent, are already under way, the congressmen stated.

"Changing contractors midstream will result in delays and additional costs, not savings," Fleischmann and DesJarlais said.

They also said the potential savings from a contract consolidation should be "better analyzed and discussed with Congress prior to any related action by NNSA." NNSA appears to have assumed joint operations will lower the cost of pension and security contracts, the congressmen said.

Fleischmann and DesJarlais also said extending the current contracts, as opposed to consolidating them, would be consistent with the US Department of Energy's extension of nearly every laboratory contract.

"The production plants have increased workloads and are being asked to do more with less," Fleischmann and DesJarlais wrote. "The net benefit of competing these contracts appears to be marginal at best based on your outstanding rating of the contractors currently operating these sites during the last five years and their demonstrated willingness to embrace your drive to increase performance."

They said the contract consolidation would hinder NNSA's ability to modernize the nation's nuclear deterrent, which is more important now under the recently signed New START arms treaty with Russia.

The NNSA announced March 26, 2010, that it would have a competition to select a single contractor to manage Y-12 and Pantex, with an option for the phase-in of tritium operations at Savannah River. As the nation moves to a smaller nuclear weapons complex, the contract consolidation is part of a move to enhance performance, reduce costs, strengthen partnerships, and improve stakeholder confidence, the NNSA said.

The Y-12 and Pantex contracts expired in September, but in October NNSA announced one-year extensions, including two three-month options. Y-12 is managed by Babcock and Wilcox (B&W) Technical Services Y-12 LLC, and Pantex is managed by Babcock and Wilcox Technical Services Pantex LLC.

This year, the NNSA, a US Department of Energy agency, solicited comments from the technical community on key questions regarding key projects, including the UPF. They wanted to know, for example, how contract consolidation would affect the construction of buildings like the UPF.

"We need that input because we want to avoid situations where we're going to impact our mission work," D'Agostino said in an interview at The Oak Ridger in early February.

Besides consolidating operating contracts, NNSA could also have one contractor for construction projects at all major sites.

It's part of an ongoing effort to make sure that NNSA is "moving into the 21st Century," NNSA spokesman Damien LaVera said last month.

ORNL Simulating Japan Nuke Crisis (KNOXNS)

By Frank Munger

Knoxville News Sentinel (TN), March 28, 2011

OAK RIDGE - Some of Oak Ridge National Laboratory's best computer scientists and nuclear specialists are working long hours and weekends on computer simulations that could help in stemming the nuclear crisis in Japan.

Jeff Nichols, ORNL's associate lab director for scientific computing, said Friday that a team was assembled soon after the crisis began and has applied some of the lab's unique resources and capabilities to better understand the evolving problems at the Fukushima Dai-ichi nuclear power plant in northeast Japan that have been occurring since the March 11 massive earthquake and tsunami.

One of the initial tasks involved simulations of what may be taking place in the pools where spent nuclear fuel assemblies are stored at the reactor sites, he said.

According to Nichols, information gleaned from the lab's computer models is forwarded to ORNL Director Thom Mason and transmitted up the chain to the office of US Department of Energy Secretary Steven Chu.

"They also have the ability to inform our Japanese counterparts over there and help guide them in their decision-making," Nichols said.

ORNL boasts some of the world's fastest supercomputers, but initial studies of the Japanese nuclear plant are being done on cluster computers, including an SGI cluster of X86 processors, Nichols said.

"We're working up to do some large-scale simulations (on some of the bigger machines)," he said.

Nichols didn't reveal any details of the findings, and he emphasized that the fidelity of the models and simulations is only as good as the information that's obtained from reports out of Japan and can be fed into the computers.

He said the team is taking some of the computer codes developed for use by the Consortium for Advanced Simulation of Light Water Reactors - a major new initiative at ORNL - and other projects and applying them to models and simulations of what's likely occurring at the Japanese reactors. But he noted that a variety of codes is needed and much of what's being done is being developed on the spot by team members working on the nuclear issues.

The goal is produce quick results, based on the best data that's available, and get that information to those trying to resolve the problems in Japan.

It's not a perfect work situation, Nichols said, "but you can still do it better here than anyplace else."

Senior writer Frank Munger may be reached at 865-342-6329.

Virtual War A Real Threat (LAT)

By Ken Dilanian, Los Angeles Times

Los Angeles Times, March 28, 2011

When a large Southern California water system wanted to probe the vulnerabilities of its computer networks, it hired Los Angeles-based hacker Marc Maiffret to test them. His team seized control of the equipment that added chemical treatments to drinking water — in one day.

The weak link: County employees had been logging into the network through their home computers, leaving a gaping security hole. Officials of the urban water system told Maiffret that with a few mouse clicks, he could have rendered the water undrinkable for millions of homes.

"There's always a way in," said Maiffret, who declined to identify the water system for its own protection.

The weaknesses that he found in California exist in crucial facilities nationwide, US officials and private experts say.

The same industrial control systems Maiffret's team was able to commandeer also run electrical grids, pipelines, chemical plants and other infrastructure. Those systems, many designed without security in mind, are vulnerable to cyber attacks that have the potential to blow up city blocks, erase bank data, crash planes and cut power to large sections of the country.

Terrorist groups such as Al Qaeda don't yet have the capability to mount such attacks, experts say, but potential adversaries such as China and Russia do, as do organized crime and hacker groups that could sell their services to rogue states or terrorists.

US officials say China already has laced the US power grid and other systems with hidden malware that could be activated to devastating effect.

"If a sector of the country's power grid were taken down, it's not only going to be damaging to our economy, but people are going to die," said Rep. Jim Langevin (D-R.I.), who has played a lead role on cyber security as a member of the House Intelligence Committee.

Some experts suspect that the US and its allies also have been busy developing offensive cyber capabilities. Last year, Stuxnet, a computer worm some believe was created by the US or Israel, is thought to have damaged many of Iran's uranium centrifuges by causing them to spin at irregular speeds.

In the face of the growing threats, the Obama administration's response has received mixed reviews.

President Obama declared in a 2009 speech that protecting computer network infrastructure "will be a national security priority." But the follow-through has been scant.

Obama created the position of federal cyber-security "czar," and then took seven months to fill a job that lacks much real authority. Several cyber-security proposals are pending in Congress, but the administration hasn't said publicly what it supports.

"I give the administration high marks for doing some things, but clearly not enough," Langevin said.

The basic roadblocks are that the government lacks the authority to force industry to secure its networks and industry doesn't have the incentive to do so on its own.

Meanwhile, evidence mounts on the damage a cyber attack could inflict. In a 2006 US government experiment, hackers were able to remotely destroy a 27-ton, $1-million electric generator similar to the kind commonly used on the nation's power grid. A video shows it spinning out of control until it shuts down.

In 2008, US military officials discovered that classified networks at the US Central Command, which oversees military operations in the Middle East and Central Asia, had been penetrated by a foreign intelligence service using malware spread through thumb drives.

That attack led to the creation in 2009 of US Cyber Command, a group of 1,000 spies and hackers charged with preventing such intrusions. They also are responsible for mounting offensive cyber operations, about which the government will say next to nothing.

The head of Cyber Command, Gen. Keith Alexander, also leads the National Security Agency, the massive Ft. Meade, Md.-based spy agency in charge of listening to communications and penetrating foreign computer networks.

Together, the NSA and Cyber Command have the world's most advanced capabilities, analysts say, and could wreak havoc on the networks of any country that attacked the US — if they could be sure who was responsible.

It's easy to hide the source of a cyber attack by sending the malware on circuitous routes through computers and servers in third countries. So deterrence of the sort relied upon to prevent nuclear war — the threat of massive retaliation — is not an effective strategy to prevent a cyber attack.

Asked in a recent interview whether the US could win a cyber war, Alexander responded, "I believe that we would suffer tremendously if a cyber war were conducted today, as would our adversaries."

Alexander also is quick to point out that his cyber warriors and experts are legally authorized to protect only military networks. The Department of Homeland Security is charged with helping secure crucial civilian infrastructure, but in practice, the job mostly falls to the companies themselves.

That would've been akin to telling the head of US Steel in the 1950s to develop his own air defenses against Soviet bombers, writes Richard Clarke, who was President George W. Bush's cyber-security advisor, in his 2010 book, "Cyber War: The Next Threat to National Security and What to Do About It."

The comparison underscores the extent to which the US lacks the laws, strategies and policies needed to secure its cyber infrastructure, experts say.

"If we don't get our act together, the consequences could be dire," said Scott Borg, who heads the US Cyber Consequences Unit, which analyzes the potential damage from various scenarios.

The problem, though, is "there's nothing that everyone agrees on," said James Lewis, cyber-security expert at the Center for Strategic and International Studies in Washington.

For example, Lewis and other experts believe the government should mandate cyber-security standards for water systems, electric utilities and other crucial infrastructure. Some contend that major US Internet service providers should be required to monitor patterns in Internet traffic and stop malware as it transits their servers.

But both ideas are viewed with suspicion by a technology industry that wants the government out of its business, and by an Internet culture that sees such moves as undermining privacy.

"There are a whole lot of things that can't be legislated," said Bob Dix, vice president of government affairs for Sunnyvale, Calif.-based Juniper Networks Inc., which makes routers and switches.

Yet Washington may be reaching a moment when the seriousness of the threat trumps political resistance. Sources familiar with the negotiations say the White House has promised Senate leaders that it will offer its own cyber-security legislation in a month. But any proposal that calls for far-reaching regulations would face an uphill battle.

CIA Director Leon E. Panetta told Congress recently that he worried about a cyber Pearl Harbor. Yet many who follow the issue believe that's what it will take to force Americans to awaken to the threat.

"The odds are we'll wait for a catastrophic event," said Mike McConnell, former director of National Intelligence and cyber-security specialist, "and then overreact."

ken.dilanian@latimes.com

FBI Official On Panel For Senate Commerce Cybersecurity Hearing (HILL)

By Gautham Nagesh, The Hill

The Hill, March 28, 2011

The Senate Commerce Committee released the witness list for its March 29 hearing on cybersecurity; the panel features experts from the Federal Bureau of Investigation, IBM and Verizon.

Senate Commerce chairman Jay Rockefeller (D-W.Va.) introduced a comprehensive cybersecurity bill last year with Sen. Olympia Snowe (R-Maine) that would have put the Commerce Department's National Institute for Standards and Technology in charge of creating federal cybersecurity standards for private-sector firms deemed crucial to the nation's physical and economic security.

However, that bill ran into opposition from the Senate Homeland Security Committee, which views the Department of Homeland Security as the best agency to lead on civilian cybersecurity. Senate Majority Leader Harry Reid (D-Nev.) has been unable to settle the standoff between the two sides.

The hearing will take place Tuesday at 2:30pm in Russell Senate office building. The full witness list:

Gordon Snow, assistant director, Federal Bureau of Investigation Cyber Division

Harriet Pearson, vice president security counsel, Chief Privacy Officer, IBM

Sara Santarelli, chief network security officer, Verizon

Thomas Kellermann, vice president of security awareness, Core Security Technologies; Adjunct Instructor, American University

INTERNATIONAL NUCLEAR NEWS:

Power Company Retracts Report Of Extremely High Radiation At Japanese Nuclear Plant (LAT)

Officials had announced earlier that water contamination was 10 million times higher than normal. Progress in restoring power to the stricken Fukushima reactors appears minimal.

By Julie Makinen And Kenji Hall, Los Angeles Times, 1:36 Pm Pdt, March 27, 2011

Los Angeles Times, March 28, 2011

Officials at Japan's stricken Fukushima Daiichi nuclear plant late Sunday retracted their announcement that they had found puddles at the facility's No. 2 reactor containing 10 million times more radioactivity than would be found in water in a normally functioning nuclear reactor.

"The number is not credible," Tokyo Electric Power Co. spokesman Takashi Kurita, said, according to the Associated Press. "We are very sorry."

It was not immediately clear what led to the inaccurate reading of the water, or what the real level was. The company said on its website that there was a "mistake in the assessment of the measurement of iodine-134."

Photos: Sifting through the remains of a home

The initial announcement of the extremely high levels of radioactivity in the turbine building of the No. 2 reactor was made by Japan's Nuclear and Industrial Safety Agency, citing Tepco as the source of the data. The alarming-sounding disclosure raised questions about the source of the radioactivity and the extent of damage to the plant, as well as the threat to workers trying to stabilize the situation at Fukushima, which was crippled by the March 11 earthquake and tsunami that rocked Japan.

The subsequent retraction underscored the pressures Japanese officials and Tepco executives face in reporting information to the public. Government authorities and the company have been criticized for not providing information in a timely fashion to the public.

Engineers do not appear to be making much progress in restoring power to the stricken reactors, Dave Lochbaum of the Union of Concerned Scientists said Sunday. A picture of the control room for reactor No. 2 shows that workers have, indeed, restored lights in the control room, he said, but nothing else seems to be working.

All of the computer monitors are blank and none of the equipment status lights and gauges appear to be functioning. Even the clock is not working.

Tepco's failure to release information about the plant may be occurring because the company doesn't have the information, he said.

A Kyodo News survey released Sunday found that 58.2% of respondents did not approve of the government's handling of the nuclear crisis at the crippled Fukushima Daiichi nuclear power plant, while 39.3% expressed approval.

But now, more than two weeks into the disaster, the updates — via news conferences, press releases, website data charts and Twitter feeds, all laden with technical terms such as "bequerels," "microsieverts," "millisieverts" and "iodine-131" — have become so frequent and so granular as to become essentially indecipherable and meaningless to the average person.

These days, a citizen in Tokyo concerned about radiation from the plant can check the Ministry of Education, Culture, Sports, Science and Technology's website for daily atmospheric radiation readings by prefecture around the country, and in drinking water.

The Ministry of Land, Infrastructure, Transportation and Tourism offers reports on measurement of radiation doses around the Metropolitan Airports, and measurement of radiation doses around the Port of Tokyo, Yokohama, Kawasaki and Chiba.

The Ministry of Health, Labor and Welfare has notices regarding Japanese policy and regulations on the handling of food that might be contaminated by radioactive substances, as does the Food and Safety Commission.

Then there are daily briefings from Tepco itself, nuclear safety agency officials, chief Cabinet secretary Yukio Edano and, less frequently, Prime Minister Naoto Kan. Adding to the din of information are the Tokyo Metropolitan government, daily newspapers, radio, television and websites such as Yahoo Japan, not to mention the amateur nuclear experts who have set up webcams recording their own Geiger counters 24 hours a day around Japan.

Seiji Shiroya, an official with the Nuclear Safety Commission, which acts as a backstop to the Nuclear and Industrial Safety Agency, the nation's regulatory watchdog, said he had doubts about the high radiation readings at the No. 2 reactor turbine building announced by Tepco. "If nuclear fission had occurred Tepco should have detected other radioactive elements but didn't, which I don't quite understand. I don't think the measurement is accurate," he told reporters.

Nuclear and Industrial Safety Agency spokesman Tatsuji Narita said the agency had received word from Tepco that the company thinks its initial reading might have been wrong and that it's rechecking the radiation levels in the turbine building. "We are waiting for Tepco to get back to us with new results," said Narita.

Photos: Sifting through the remains of a home

julie.makinen@latimes.com

Makinen is a Times staff writer and Hall is a special correspondent. Times staff writer Thomas H. Maugh II contributed to this report.

Radiation Levels At Japan Nuclear Plant Reach New Highs (WP)

By Chico Harlan And Brian Vastag

Washington Post, March 28, 2011

TOKYO — Already-grave conditions at the Fukushima Daiichi nuclear plant worsened Sunday with the highest radiation readings yet, compounding both the risks and challenges for workers trying to repair the facility's cooling system.

Leaked water sampled from one unit Sunday was 100,000 times more radioactive than normal background levels — though the Tokyo Electric Power Co., which operates the plant, first calculated an even higher, erroneous, figure that it didn't correct for several hours.

Tepco apologized Sunday night when it realized the mistake; it had initially reported radiation levels in the leaked water from the unit 2 reactor as being 10 million times higher than normal, which prompted an evacuation of the building.

After the levels were correctly measured, airborne radioactivity in the unit 2 turbine building still remained so high that a worker there would reach his yearly occupational exposure limit in 15 minutes.

The latest confusion in the operation to stave off a full-scale nuclear meltdown at the crippled facility underscores the immense challenges for the several hundred workers in a desperate battle to restart the critical cooling systems. Seventeen

workers have been exposed to high levels of radiation, including three who were hospitalized last week, as technicians conducted highly nuanced electrical work in dark conditions that one nuclear industry expert termed "hellish."

Japanese authorities say efforts to control Fukushima's overheated reactors will take months and during that time radiation will continue to leak into the environment, extending a nuclear emergency that already ranks as the most serious in a quarter-century. Several hundred workers now shoulder the responsibility for limiting the crisis, amid potentially lethal radiation levels, and Saturday the chief of Japan's nuclear agency called on Tepco to improve its worker safety.

Evidence of rising contamination in and around the plant has tempered optimism from one week ago, when engineers began work to restore power to the first of the damaged reactor buildings. Japan's Nuclear and Industrial Safety Agency (NISA) said Sunday that a new measurement of seawater taken some 1,000 feet from the facility showed an iodine level 1850.5 times the legal limit, higher than a reading taken the previous day.

The dangers in unit 2 merely add to the growing challenges. Radioactive water is pooling in four of Fukushima's six turbine rooms and engineers have no quick way to clean it up, though they have begun efforts to do so in unit 1.

While a Tepco spokesperson said Sunday he did not know how the radioactive water was leaking from the reactor cores, Yukio Edano, chief cabinet secretary, said in a televised interview on Sunday morning that the reactor itself had not been breached.

He said it was clear that water that could have been inside the unit 3 reactor had leaked, but said the reactor itself had not been breached. But he did say that "Unfortunately, it seems there is no question that water, which could have been inside the reactor, is leaking.

Unlike in newer reactor designs, the older boiling water reactors at Daiichi are pierced by dozens of holes in the bottom of their reactor vessels. Each hole allows one control rod — made of a neutron-absorbing material that quickly stops nuclear fission inside the reactor — to slide into the reactor from below, as happened when the earthquake shook the plant March 11. During normal operations, a graphite stopper covers each hole, sealing in highly radioactive primary cooling water, said Arnie Gundersen, a consultant at Fairewinds Associates with 40 years of experience overseeing boiling water reactors.

But at temperatures above 350 degrees Fahrenheit, the graphite stoppers begin to melt.

"Since it is likely that rubble from the broken fuel rods . . . is collecting at the bottom of the reactor, the seals are being damaged by high temperature or high radiation," Gundersen said. As the graphite seals fail, water in the reactor will leak into a network of pipes in the containment buildings surrounding each reactor — the very buildings that have been heavily damaged by explosions. Gundersen said that this piping is probably compromised, leaving highly radioactive water to seep from the reactor vessels into broken pipes — and from there into the turbine buildings and beyond.

To stabilize the facility, workers are trying to repair the elaborate cooling system, necessary to keep the reactor cores and spent fuel pools from overheating. But for the moment, they are conducting this work in dark, steamy conditions. They must wear respirators, face masks and bulky suits. Nuclear safety experts say they must shift out of the most dangerous areas every 30 minutes to an hour, to prevent radiation overexposure.

Meantime, they're racing to repair motor pumps the size of automobiles. Their environment resembles a cavern of cables. Some of the equipment was damaged during the March 11 earthquake and tsunami. Other equipment has been corroded by saltwater, which was poured into the facility during earlier efforts to cool the reactors.

"To a layman, you'd be scared to death," said Lake Barrett, a nuclear engineer who directed the cleanup of Three Mile Island. "You're working with saltwater around your feet. This is not the way electricians usually work."

The number of workers at the Fukushima plant fluctuates from day to day, ranging between 500 and 1,000. But Tepco employees account for only a part of the labor force. Last Tuesday, for instance, there were 700 people at the plant, a nuclear agency official said. The figure included 500 Tepco employees, 100 subcontracted workers and 100 members of Japan's Self Defense Forces or the Tokyo Fire Department.

One subcontracted worker who laid cables for new electrical lines March 19 described chaotic conditions and lax supervision that made him nervous. Masataka Hishida said neither he nor the workers around him were given a dosimeter, a device used to measure one's exposure to radiation. He was surprised that workers were not given special shoes; rather, they were told to put plastic bags over their street shoes. When he was trying on the gas mask for the first time, he said the supervisor told him and other subcontractors, "Listen carefully, I'm only going to say this one time" while explaining how to use it.

When Hishida finished his work shift, an official scanned his whole body for radiation. He came up clean, except for the very tip of his beard. He was sent into a shower where he lathered up and scrubbed his beard. He was tested again and passed.

A few days later, still worried about the extent of his radiation exposure, he trimmed his beard.

Higher Levels Of Radiation Found At Japan Reactor Plant (NYT)

By David Jolly, Hiroko Tabuchi And Keith Bradsher
New York Times, March 28, 2011

TOKYO — Sharply elevated radiation at the Fukushima Daiichi nuclear complex on Sunday raised the possibility of spreading contamination and forced an emergency evacuation of part of the damaged plant.

The concerns began when two workers were burned Thursday when they stepped in highly radioactive water inside reactor no. 3 of the plant. Late Saturday, a worker attempting to measure radiation levels of the water puddles at another reactor, No. 2, saw the reading on his dosimeter jump beyond a sievert per hour, the highest reading. The worker left the scene immediately, said Takeo Iwamoto, a spokesman for the Tokyo Electric Power Co., the operator of the Fukushima plant.

Michiaki Furukawa, a nuclear chemist and board member of the Citizens' Nuclear Information Center, a Tokyo-based watchdog group, said exposure to a sievert of radiation would induce nausea and vomiting, while exposure of 3 to 5 sieverts could be lethal.

Such high amounts of radiation would clearly make continued recovery work near the reactor very difficult and could hobble attempts to bring the nuclear crisis under control. Tetsuo Iguchi, a professor in the department of quantum engineering at Nagoya University, said that at the sharply elevated levels of radiation, workers would be able to remain on site for only about 15 minutes before health considerations required them to leave.

The Japanese government's top spokesman, Yukio Edano, told an afternoon press briefing Sunday that it appeared the radioactive puddles had developed when the No. 2 unit's fuel rods were exposed to air, but that "we don't at this time believe they are melting. We're confident that we are able to keep them cool."

The higher levels may have suggested a leak from the reactor's fuel rods — from either the suppression chamber under the rods or various piping — or even a breach in the pressure vessel that houses the rods, the Japanese nuclear regulator said earlier.

However, there was also deep concern about initial readings of radioactive iodine 134, which has a half life of only 53 minutes and would not be present in large quantities unless fission had restarted — that would present the alarming possibility of an out-of-control reactor. Several hours after releasing the initial results, the nuclear company said that those readings had been in error, and that retesting had shown negligible amounts of the isotope.

But they confirmed the overall high radiation readings at the plant, and utility officials continued to search for the exact source. And they still may need to retest for other radioactive isotopes that had been found in the seawater around the No. 2 reactor, including troubling quantities of cesium, barium, cobalt and lanthanum. The company has not yet been able to determine the source of those leaks, and confirming the isotopes' exact levels could take much longer.

Sunday's developments came after the world's chief nuclear inspector said that Japan was "still far from the end of the accident" that struck the plant. Yukiya Amano, the director general of the International Atomic Energy Agency, acknowledged that the authorities were still unsure about whether the reactor cores and spent fuel were covered with the water needed to cool them and end the crisis.

Mr. Amano, taking care to say that he was not criticizing Japan's response under extraordinary circumstances, said, "More efforts should be done to put an end to the accident."

More than two weeks after the devastating earthquake and tsunami, he cautioned that the nuclear emergency could still go on for weeks, if not months, given the enormous damage to the plant.

Asked by a journalist Sunday at a news conference what was the company's projected timeline for emerging from the crisis, Sakae Muto, a vice president for Tokyo Electric Power, "We don't have a concrete schedule."

Mr. Muto declined to answer a journalist's question about a possible worst-case scenario, saying: "The important thing is to keep cooling the reactor and prevent the current situation from getting worse."

Mr. Nishiyama, of the Japanese nuclear safety agency, said that it was likely that radiation was leaking from the pipes or the suppression chamber, and not directly from the pressure vessel, because water levels and pressure in the vessel were relatively stable.

All Sunday, the government and company officials fielded questions from the Japanese media about whether plutonium might have escaped from one of the damaged facilities. Mr. Edano said the area around the reactors was being tested for plutonium, but "this is not an easy process." He said that if the presence of plutonium was confirmed, "we will take measures depending on the situation."

The I.A.E.A. cited information from Prime Minister Naoto Kan's office Sunday that Tokyo Electric had begun pumping water out of some of the turbine buildings at the Fukushima plant.

Workers were pumping water from the No. 1 unit turbine to its main condenser and were making preparations to do the same at the No. 2 unit, the I.A.E.A. said, noting that a main condenser's function in a nuclear power plant is to condense and

recover steam that passes through the turbine. The company also was considering ways to remove water from the turbine buildings of the No. 3 and No. 4 units, the agency said.

The No. 5 and No. 6 units are thought to be out of harm's way.

Separately, the I.A.E.A., citing data from the Japanese authorities, reported that two of three workers who were exposed to radioactive water last Thursday suffered "significant skin contamination over their legs."

"The Japanese authorities have stated that during medical examinations carried out at the National Institute of Radiological Sciences in the Chiba Prefecture, the level of local exposure to the workers' legs was estimated to be between 2 and 6 sieverts," the I.A.E.A. said on its Web site.

"While the patients did not require medical treatment, doctors decided to keep them in hospital and monitor their progress over coming days."

Mr. Edano, the government spokesman, said he understood that the injured workers would be released from the hospital on Monday.

Japan's National Police Agency said on Sunday that the death toll from the quake and tsunami had risen to 10,668 persons, with 16,574 still missing.

Meanwhile, radiation in the Tokyo water supply continued to diminish on Sunday, the authorities said. At two of three monitoring stations operated by the municipal waterworks bureau, there was no radiation detected. At a third, the level was 27 becquerels per kilogram, well below the maximum recommended limits for both infants and adults.

The elevated levels of radiation at and around the Fukushima plant will require careful monitoring of seafood in Japan, said Kimberlee J. Kearfott, a professor of nuclear engineering and radiological sciences at the University of Michigan.

"It is extremely important that seafood be carefully monitored," she said in an e-mail. "This is because many of the radionuclides are concentrated in the environment," she added. "For example, iodines are concentrated in kelp (a Japanese food, seaweed) and shrimp.

"Iodines, cesium and strontium are concentrated in other types of seafood," she continued. "Fish can act like tea or coffee presses. When you push down the plungers, the grounds all end up on one side. In this case, that is the fish."

Radioactive Water Slows Reactor Repair Effort In Japan (WSJ)

By Andrew Morse

Wall Street Journal, March 28, 2011

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

Radiation Fears Rise At Japan Crisis Plant (FT)

By Michiyo Nakamoto

Financial Times, March 28, 2011

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

Japan After The Earthquake And Tsunami (NYORKER)

The New Yorker, April 4, 2010

The afternoon of Friday, March 11th, was cool and partly cloudy on the northeast coast of Japan's main island, a serene stretch once known as the nation's "back roads." At 2:46 P.M., as schools were beginning to let out, the ground began to shake. It was violent even by Japan's standards—the thundering went on for five minutes—and before long Japanese television was warning of a wave charging west across the Pacific Ocean at the speed of a jet. Kicked up from the seabed, the tsunami amplified in size and slowed in speed as it moved into the shallows beside the Japanese coastline, and by the time it touched land it was a wall of water, black and smooth. It was as tall in places as a three-story building, moving at fifty miles per hour. It flicked fishing trawlers over seawalls, crunched them against bridges. It sent fleets of cars and trucks hurtling from parking lots, and turned homes into chips of wood and tile, before heading deeper into Miyagi and Iwate Prefectures across a span of six miles. Rampaging through former farming and fishing villages, and the cosmopolitan city of Sendai, the wave slowed, but remained too fast for most people to outrun on foot.

Basho, the most famous poet of Edo-era Japan, once cited a Chinese poet in describing the northern reaches: "Countries may fall, but their rivers and mountains remain. When spring comes to the ruined castle, the grass is green again." Yet when the wave receded, some of the small towns in a region that traced its history to the seventh century had ceased to exist in visible form. Minamisanriku (pop. 17,000) reported that it could not account for half its people. A kindergarten in the city of Ishinomaki

was spared, because of its location on a hilltop, but its school bus was not. It had already left for the day and was engulfed in a fire ignited by the wave. Parents found the bodies of their children huddled together.

One of the first outsiders to arrive from Tokyo was Tetsuo Jimbo. A reporter and the head of Japan's largest Internet television news network, Jimbo had raced north just half an hour after his office stopped shaking. He drove twelve hours in his Toyota minivan on small country roads until the debris and sludge made the roads impassable. Then he continued on foot until he reached a broad, placid rice paddy, with telephone poles protruding from it at odd angles. The paddy, locals said, was the village of Karasu.

A hundred and twenty people were dead, as far as anyone could estimate at that point, and eventually the survivors made their way into the dark, unheated elementary school and other shelters, where classrooms were preferred to gymnasiums. (The large spaces were bone-cold.) At a junior high school near Kesennuma, five hundred people were sleeping on the gymnasium floor, sharing ten toilets with no running water. The mess besieged them, and eventually they resorted to the fields of snow outside. They were overwhelmingly elderly; the tsunami had hit the rural coastline, which, like so much of the countryside in one of the world's fastest-graying societies—more than one in five Japanese citizens are now older than sixty-five—was a land of retirees, the aging children of the postwar baby boom and their parents.

On a hilltop overlooking the ruined city of Rikuzentakata, Jimbo met a semi-retired man in his sixties, who had heard the tsunami siren and packed his mother and dog into his truck and driven two miles inland, the waves churning in his rearview mirror. "He lost his house, and it's not covered by insurance," Jimbo said. "His family, fortunately, survived. I said, 'What will you do next?' He said he would like to think there will be some assistance from the local government. But all he could think was: The city-assembly office is gone. The mayor could be dead. The only thing he can turn to is the government. But his local government is gone."

Unlike the Indian Ocean tsunami of 2004, the horrific grandeur of this moment unfolded before the unblinking eyes of Japan's ubiquitous surveillance cameras, mobile phones, and hovering news helicopters, compiling a record of rebuke to the sense of protection once extended by the technology and engineering at the heart of Japanese life. The government predicted that the dead would eventually number more than ten thousand, but survivors were scattered among so many isolated refugee centers that the official toll lagged. Thousands of corpses washed ashore. Body bags grew scarce.

By then, the talk had shifted to radiation. A row of six aging nuclear reactors at the Fukushima Daiichi nuclear power plant had lost their cooling systems, as well as their "backup backup" protections, in the words of one nuclear expert. The prospect of radiation introduced a threat all its own, as invisible as the tsunami was vivid, and throbbing with history. Initially, the Japanese government downplayed the possibility that the ailing plants could leak any significant radiation, but survivors of the atomic bombings of Hiroshima and Nagasaki—the revered generation known as hibakusha—stepped forward to plead for "more sense of crisis." Prime Minister Naoto Kan declared the crisis the worst since the end of the Second World War, and Emperor Akihito delivered his first televised address, an event so unusual that it was compared to the radio broadcast given by his father, Hirohito, announcing the country's surrender, on August 15, 1945. Hirohito had called upon his people to "endure the unendurable, bear the unbearable." On Wednesday morning, the Yomiuri Shimbun, Japan's largest newspaper, carried a story on symptoms of radiation sickness ("damage to lymph tissue, the intestinal tract, and bone marrow, among other organs") and an article headlined "FAQS ON RADIOACTIVITY EXPOSURE, SAFETY," which included advice on what to do in the event that you were separated from a shelter by an area contaminated with radiation ("Wear a hat and cover your nose and mouth with a wet towel or a mask"). Tokyo is a hundred and forty miles from the damaged plants. By nightfall, Britain, France, Italy, and Australia had urged their citizens who weren't required to stay in the capital to get out.

The carnage seemed likely to be greater than any loss of Japanese life since the atom bombs. The economic loss was estimated to amount to three per cent of a full year’s production by the world’s third-largest economy. And yet to be in Japan in the days after the wave, to watch a nation realize the devastation of that instant, was to glimpse a people torn between the instinct for calm and the cry of alarm. For all the tragedies––immediate and myriad on the day of the quake—and the looming sense of nuclear dread that persisted, it was remarkable to observe firsthand, and through the Japanese media, the almost complete sense of national coöperation and purpose: little observable looting or undue panic, and almost no acts of political exploitation. The one distinct exception came on Monday, when the extravagantly nationalist governor of Tokyo, Shintaro Ishihara, said that the quake was an event of tembatsu––divine punishment. But Ishihara had said many foolish things in the past, and no one was surprised. (He apologized the next day.)

Driving at night across desolate streets in Tokyo, as foreigners surged toward the airports, you saw shop signs and giant outdoor television screens darkened by calls to conserve electricity; you passed beneath the arcs of elevated tracks with scarcely a snub-nosed bullet train gliding along them. On a barren stretch of road in central Tokyo, a young businessman named Yota Kamazuka and I pulled up to a red light as an aftershock rippled through the car. While the street lights swayed around us,

Kamazuka flipped on the dashboard television and tuned it to Tokyo Broadcasting System. A news anchor in a white helmet reported that the city had experienced a tremor of magnitude 6.4. Kamazuka shrugged. He was used to earthquakes by now, and he was already worried about other looming problems. “The stock market dropped farther today than any day since Lehman Brothers collapsed,” he said. We sat in the car for a while, watching as the dashboard explained to the rest of Japan that the north desperately needed radios, batteries, and warm clothes. At another moment, it ticked off the names of Western celebrities who sent their condolences: Lady Gaga, the Backstreet Boys, Cyndi Lauper. “She’s extremely popular in Japan,” Kamazuka said.

In the days after the quake, Japan weathered more than three hundred aftershocks. People often mentioned to me that not even one additional house had fallen in the city after the initial quake—as if “the big one” and the tsunami were events beyond even Japan’s abundant familiarity with calamity.

So much of what is ominous about life on the planet, so much of what leads to the catastrophes that we invariably call “Biblical”––earthquakes, tsunamis, volcanoes––is the result of the incessant movement of the plates of the earth. So much of the geological volatility that lurks beneath our everyday awareness occurs along what is known as the Ring of Fire, a vast arc describing the entire Pacific Ocean, taking in the western coasts of the Americas and the eastern coast of Asia. The process of subduction, of one plate sliding under another, is especially cruel along the Ring of Fire.

The Pacific Plate, the major tectonic plate east of Japan, moves three inches or so every year, and as it dips under Honshu, Japan’s main island, the upper plate is pulled down until, ultimately, there is a rupture, an earthquake. The 9.0 quake last week off the coast of the northern city of Sendai was the strongest in Japanese history, and is thought to be, more or less, the fifth-strongest in human knowledge and measurement. Seismologists study geologic events and geological time. They are not always prepared to be conclusive in their assessments for the benefit of the non-geological deadlines of the 24/7 news cycle, and yet Marcia McNutt, the director of the United States Geological Survey, told CBS, “If we could only harness the energy from this earthquake, it would power a city the size of Los Angeles for an entire year.” The earthquake redistributed the planet’s mass, some scientists believe, making it spin faster and shortening a day on earth by 1.8 microseconds.

To geologists, earthquakes are a constant in the planet’s eternal becoming. To the Japanese, they are simply a constant. In a given year, there can be hundreds, usually barely discernible micro-events. They rattle the pictures on the wall, the china on the table, but they rarely stop the conversation. Donald Keene, a professor at Columbia and the dean of Japanese-literature scholars, said, “Very often, when I have been away from Japan for a while and come back, there will be a small earthquake, and I notice it and no one else in the room does. They laugh at me.” He added, “People expect this all the time, that they will be warned. But when a quake of great magnitude happens they are shocked. The world changes.”

The Japanese, perhaps more intimately than any other people along the Ring of Fire, know their earthquake history; they are at once aware of the legacy of destruction behind them and the imminence of what is always, somehow, on the horizon. One scholar in Tokyo guiltily described both the sense of horror at the event and the sneaking sense of relief that at least “the big one”––the latest big one––had not struck the capital.

Until last week, the country’s most devastating earthquake was the September 1, 1923, event. It hit 7.9 on the Richter scale, lasted about five minutes, and flattened Tokyo and the port city of Yokohama, killing a hundred and forty thousand people. Because the quake struck at midday, countless Japanese were at their cooking fires, and most of the physical damage and the casualties came from the conflagrations that swept the cities. Even the Imperial Palace caught fire; the Emperor and Empress were in Nikko at the time. Because it hit the country’s Kanto Plain, the quake is known as the Great Kanto quake. Since 1960, the date has been commemorated in Japan as Disaster Prevention Day. Schools and other organizations hold drills on disaster readiness.

David Leheny, a political scientist at Princeton who is working on a project in Tokyo, said, “Earthquake consciousness is drilled into the young––what you need to do, what you need to have ready. There is an earthquake-oriented gallows humor of daily life. People talk about the areas that would be hit hardest. They live with it in the back of their minds. More than San Francisco, there is a sense of certainty about earthquakes here––the certainty that there will be a massive earthquake in Tokyo. And they live with that.”

In Kamaishi, a steel town of around forty thousand, north of Sendai, scholars from the University of Tokyo’s Institute of Social Science have lately been studying ways that communities persevered in the face of major economic changes and hardship. The study was called the Kibogaku project, the Study of Hope. News reports have said that hundreds in Kamaishi have been killed and many more are missing; an outbreak of influenza threatens the survivors.

The prospect of a nuclear catastrophe lingered, and calmness itself took on a talismanic role in the national conversation. When Emperor Akihito appeared on television Wednesday—silver-haired, immaculate in a charcoal suit, eschewing the courtly language that his father had used and which most of his listeners had not understood—he expressed his “heartfelt hope that the people will continue to work hand in hand, treating each other with compassion, in order to overcome these trying times.” The reverence for perseverance—gaman—was then piped back into Japan by foreign journalists commenting on the stoicism. When I asked the people I met why Japan had seen so little looting, they offered cultural analogies from far afield: the rigorous discipline of ikebana, the art of flower arranging; the elaborate rituals of kendo, Japanese fencing.

A week later, the scrim of aplomb had frayed only slightly. A senior news executive confided to me that he was already planning where in western Japan to take his family, if necessary. Even before the worst-case scenario, he had intended to use an upcoming national holiday to move his aging mother out of the region, and to slip back to Tokyo in time for work. “Everyone has their plan, but I don’t think people are going to say so,” he said. At convenience stores, the first things to disappear were the instant noodles and the toilet paper, then rice balls, bread, and batteries. The liquor and cigarettes remained. The empty shelves owed far less to disrupted supplies than to the quiet hoarding that people hated themselves for doing. (To hoard is potentially to deprive your neighbor.) In the northeast, the government began restoring electricity, but lagged so much in delivering basic supplies—blankets, heating oil, gasoline, medicine—that some survivors were subsisting on nothing but bananas and complaining about something scarcely imagined in today’s Japan: hunger.

Prime Minister Kan appeared overwhelmed; he largely receded from public view, save for a report that he had demanded that power-company executives tell him “what the hell is going on” in their frantic attempts to repair the failing nuclear reactors.

Fearful that rumors would ignite a panic, the government irritated foreign diplomats by jealously guarding information about the quake and the nuclear crisis. In the vacuum, fantastical stories circulated: that the Emperor and the Empress had been secreted away from the capital to Kyoto, in advance of a nuclear cloud; that a private citizen with a Geiger counter had tested the area around the Fukushima plant and recorded levels of radiation higher than those at Chernobyl. Catastrophes in Japan, as elsewhere, have always given rise to phantom information. After the 1923 quake in Kanto, rumors swept Tokyo and Yokohama that Koreans were committing arson and poisoning wells. And so, amid the still smoking ruins of those cities, angry mobs, some including members of the police force and other officials, murdered thousands of Koreans—a massacre that remains a source of shame today.

In the days after this quake, intellectuals were divided between the impulse to hold fast with the government at a time of crisis and the urge to point out failures in leadership. I frequently heard comparisons of Japan’s nuclear lobby to the American entanglement with defense contractors. As Tetsuo Jimbo, the Internet TV reporter, put it, “In the US, you have a big military industry. Well, we don’t have a big military, but we have a big nuclear industry.” He added, “Nuclear is a big industry with a few large companies, so there is a circle of industry leaders and regulators who try to protect and promote the nuclear program in Japan.” The two most important players were the Ministry of Economy, Trade, and Industry and the Tokyo Electric Power Company (TEPCO), with bureaucrats in one confident of post-retirement perches in the other under the tradition known as amakudari. “People call them the ‘nuclear mafia,’ ” Jimbo said. “They tend to hide and distort information, and you can understand it, because there is such a negative attitude toward nuclear issues in Japan that they try to hold on to and not release information that will make them look bad.”

In the north, a wet snow fell on nearly half a million newly homeless people. One evening, I stopped by to see Yukio Okamoto, a former diplomat and high-ranking adviser to Prime Ministers, who works in the Minato Ward of Tokyo, in a spacious office stocked with memoirs by Margaret Thatcher and Bill Clinton and policy think books like Samuel Huntington’s “Who Are We?” Okamoto is an elegant man, in a white collar and cuffs, who speaks fluent English. He runs Okamoto Associates, a political and economic consultancy that keeps him in touch with leaders on both sides of the Pacific. He slumped into a chair at his conference table and swept a pile of papers onto the chair beside him. I asked him how he thought the disaster would alter Japan’s sense of itself. “We were not humble enough to Mother Nature,” he said, and closed his eyes for so long that he could have been asleep. He squeezed the bridge of his nose. A television, set to NHK, murmured in the background. “We were building reactors on the basis of the most hideous earthquake in the Edo period, which was magnitude 8.5. Many experts expected a large earthquake would come, but not 9.0. Nobody said 9.0.”

Okamoto stood and began wandering around the room, peering under piles of paper, but he never stopped talking. “Japan was in a euphoric slumber for two decades,” he said. “Our life has been so comfortable, we

became introverted. We forgot the need for struggle, during which time many top positions were taken over by Chinese and Korean companies.” He stopped and placed a call from his desk. A vibration erupted beneath a stack of magazines, and, with an exhausted shrug, he unearthed a lost cell phone. “It’s too soon to say, with us still facing the threat of nuclear reactors, but perhaps, eventually, this sense of crisis will be the push to the back of many Japanese, and we will regain the strength of the sixties and seventies, when we had a concrete goal. So no doubt our economy will slip down, but then we may bounce back.”

I mentioned a bleaker scenario that I’d heard earlier, a comparison between Japan and the elderly relative who appears to be in fine health until a sudden stumble, a broken hip—and recovery never arrives. He shook his head and drew a distinction between the disaster and the economic slump that preceded it: “Here we have an inescapable objective posed. Except for the leadership, we have strength. It was the fault of the politicians for the last twenty years who led this country.”

He had been on the phone that day with powerful people in Tokyo. He stopped and listened to the television for a moment, and frowned. There were increasing reports of tension between the Prime Minister and TEPCO over the handling of the nuclear crisis. Moreover, diplomats were complaining that the Japanese government appeared unable or unwilling to share reliable information on the nuclear problem. The Austrian Embassy said it was quitting Tokyo for Osaka; the French urged their nationals to move south or return to France. The US Embassy told Americans to evacuate the area within fifty miles of the Fukushima plant—an area four times larger than what the Japanese had ordered—after American officials concluded that the radiation threat could be much higher than the Japanese government had reported. Okamoto, like a remarkable number of people I spoke with, was dispirited about Japan’s political leadership. “The Prime Minister has, unfortunately, been barking at TEPCO. He must place orders and instructions. This is the time to encourage them, because the fate of the nation is in their hands.”

The cell phone rang again, and Okamoto spoke for several minutes about the details of the nuclear crisis. Helicopters had been directed to carry water to the plant. “Dropping water from the air won’t work,” he told his caller. “We must use fireboats from the sea to cool the reactors. That’s the only way.”

He turned back to me and to the subject of Japan’s future. “I was born in 1945,” he said. “When I grew up, there was a very concrete goal of El Dorado: it was called the United States. You listened to songs about girls adopted by families who lived in the US by the seashore. There were G.I.s around, giving me chocolates and comic books. America looked like Heaven. What I’m saying is that the juxtaposition of a totally different world gave our people a very concrete psychology to work toward. We were trying to stand up from the ashes. People were living in miserable conditions, but we had hope.”

Okamoto continued, “The industrial facilities have to be rebuilt. If we are talking about one or two towns, yes, people may desert. But you are talking about a hundred and fifty kilometres of coastline. You cannot possibly abandon it.”

“But can the leaders do it?” Okamoto said. “We need emergency reconstruction of the financial system, because we need money. About fourteen trillion dollars of personal financial assets are in the hands of private citizens. Dormant. But when the Japanese are motivated by this kind of strong mutual help, these people will hopefully spend money to buy special bonds for reconstruction or they will bear the tax rates.”

It was dark by the time I left Okamoto’s office, and the streets were desolate as I crossed town to Tokyo FM, the flagship station of Japan’s largest commercial broadcaster, in time for the night shift. The studio was on the seventh floor of an office tower in the Chiyado Ward. Hunched over a desk in the half-light of a sound booth, working on two hours’ sleep, the program’s co-host Takashi Uesugi took another call.

Uesugi, at forty-two, is a freelance reporter who once worked for NHK Television but has since attracted a large following for his provocative criticism of Japanese news organizations and the government. He has a goatee and wears black rectangular glasses. A Sony headset hung over his left ear. At his feet lay a pale-yellow helmet, for aftershocks. He leaned toward an old Panasonic laptop that was missing two keys and, between calls, scanned the updated tweets from his 146,738 Twitter followers. In the land of technology, the people were returning to radio. A caller, a husky rumble of a voice, was saying, “Houses and utility poles are flattened.” Much of the disaster zone had no phone lines, but the caller, a truck driver, was in Kashima, in Ibaraki Prefecture, at the southern end of the ruined area. “We have no gasoline. People can’t work if they have to wait for gasoline for three days.” His area was battered, but not nearly as severely as other areas. “It’s clear that the government’s actions in Ibaraki have not been enough,” Uesugi said. “It almost seems like they’ve turned a blind eye.”

Okamoto stood and began wandering around the room, peering under piles of paper, but he never stopped talking. “Japan was in a euphoric slumber for two decades,” he said. “Our life has been so comfortable, we

became introverted. We forgot the need for struggle, during which time many top positions were taken over by Chinese and Korean companies.” He stopped and placed a call from his desk. A vibration erupted beneath a stack of magazines, and, with an exhausted shrug, he unearthed a lost cell phone. “It’s too soon to say, with us still facing the threat of nuclear reactors, but perhaps, eventually, this sense of crisis will be the push to the back of many Japanese, and we will regain the strength of the sixties and seventies, when we had a concrete goal. So no doubt our economy will slip down, but then we may bounce back.”

I mentioned a bleaker scenario that I’d heard earlier, a comparison between Japan and the elderly relative who appears to be in fine health until a sudden stumble, a broken hip—and recovery never arrives. He shook his head and drew a distinction between the disaster and the economic slump that preceded it: “Here we have an inescapable objective posed. Except for the leadership, we have strength. It was the fault of the politicians for the last twenty years who led this country.”

He had been on the phone that day with powerful people in Tokyo. He stopped and listened to the television for a moment, and frowned. There were increasing reports of tension between the Prime Minister and TEPCO over the handling of the nuclear crisis. Moreover, diplomats were complaining that the Japanese government appeared unable or unwilling to share reliable information on the nuclear problem. The Austrian Embassy said it was quitting Tokyo for Osaka; the French urged their nationals to move south or return to France. The US Embassy told Americans to evacuate the area within fifty miles of the Fukushima plant—an area four times larger than what the Japanese had ordered—after American officials concluded that the radiation threat could be much higher than the Japanese government had reported. Okamoto, like a remarkable number of people I spoke with, was dispirited about Japan’s political leadership. “The Prime Minister has, unfortunately, been barking at TEPCO. He must place orders and instructions. This is the time to encourage them, because the fate of the nation is in their hands.”

The cell phone rang again, and Okamoto spoke for several minutes about the details of the nuclear crisis. Helicopters had been directed to carry water to the plant. “Dropping water from the air won’t work,” he told his caller. “We must use fireboats from the sea to cool the reactors. That’s the only way.”

He turned back to me and to the subject of Japan’s future. “I was born in 1945,” he said. “When I grew up, there was a very concrete goal of El Dorado: it was called the United States. You listened to songs about girls adopted by families who lived in the US by the seashore. There were G.I.s around, giving me chocolates and comic books. America looked like Heaven. What I’m saying is that the juxtaposition of a totally different world gave our people a very concrete psychology to work toward. We were trying to stand up from the ashes. People were living in miserable conditions, but we had hope.”

Okamoto continued, “The industrial facilities have to be rebuilt. If we are talking about one or two towns, yes, people may desert. But you are talking about a hundred and fifty kilometres of coastline. You cannot possibly abandon it.”

“But can the leaders do it?” Okamoto said. “We need emergency reconstruction of the financial system, because we need money. About fourteen trillion dollars of personal financial assets are in the hands of private citizens. Dormant. But when the Japanese are motivated by this kind of strong mutual help, these people will hopefully spend money to buy special bonds for reconstruction or they will bear the tax rates.”

It was dark by the time I left Okamoto’s office, and the streets were desolate as I crossed town to Tokyo FM, the flagship station of Japan’s largest commercial broadcaster, in time for the night shift. The studio was on the seventh floor of an office tower in the Chiyado Ward. Hunched over a desk in the half-light of a sound booth, working on two hours’ sleep, the program’s co-host Takashi Uesugi took another call.

Uesugi, at forty-two, is a freelance reporter who once worked for NHK Television but has since attracted a large following for his provocative criticism of Japanese news organizations and the government. He has a goatee and wears black rectangular glasses. A Sony headset hung over his left ear. At his feet lay a pale-yellow helmet, for aftershocks. He leaned toward an old Panasonic laptop that was missing two keys and, between calls, scanned the updated tweets from his 146,738 Twitter followers. In the land of technology, the people were returning to radio. A caller, a husky rumble of a voice, was saying, “Houses and utility poles are flattened.” Much of the disaster zone had no phone lines, but the caller, a truck driver, was in Kashima, in Ibaraki Prefecture, at the southern end of the ruined area. “We have no gasoline. People can’t work if they have to wait for gasoline for three days.” His area was battered, but not nearly as severely as other areas. “It’s clear that the government’s actions in Ibaraki have not been enough,” Uesugi said. “It almost seems like they’ve turned a blind eye.”

Okamoto stood and began wandering around the room, peering under piles of paper, but he never stopped talking. “Japan was in a euphoric slumber for two decades,” he said. “Our life has been so comfortable, we

became introverted. We forgot the need for struggle, during which time many top positions were taken over by Chinese and Korean companies.” He stopped and placed a call from his desk. A vibration erupted beneath a stack of magazines, and, with an exhausted shrug, he unearthed a lost cell phone. “It’s too soon to say, with us still facing the threat of nuclear reactors, but perhaps, eventually, this sense of crisis will be the push to the back of many Japanese, and we will regain the strength of the sixties and seventies, when we had a concrete goal. So no doubt our economy will slip down, but then we may bounce back.”

I mentioned a bleaker scenario that I’d heard earlier, a comparison between Japan and the elderly relative who appears to be in fine health until a sudden stumble, a broken hip—and recovery never arrives. He shook his head and drew a distinction between the disaster and the economic slump that preceded it: “Here we have an inescapable objective posed. Except for the leadership, we have strength. It was the fault of the politicians for the last twenty years who led this country.”

He had been on the phone that day with powerful people in Tokyo. He stopped and listened to the television for a moment, and frowned. There were increasing reports of tension between the Prime Minister and TEPCO over the handling of the nuclear crisis. Moreover, diplomats were complaining that the Japanese government appeared unable or unwilling to share reliable information on the nuclear problem. The Austrian Embassy said it was quitting Tokyo for Osaka; the French urged their nationals to move south or return to France. The US Embassy told Americans to evacuate the area within fifty miles of the Fukushima plant—an area four times larger than what the Japanese had ordered—after American officials concluded that the radiation threat could be much higher than the Japanese government had reported. Okamoto, like a remarkable number of people I spoke with, was dispirited about Japan’s political leadership. “The Prime Minister has, unfortunately, been barking at TEPCO. He must place orders and instructions. This is the time to encourage them, because the fate of the nation is in their hands.”

The cell phone rang again, and Okamoto spoke for several minutes about the details of the nuclear crisis. Helicopters had been directed to carry water to the plant. “Dropping water from the air won’t work,” he told his caller. “We must use fireboats from the sea to cool the reactors. That’s the only way.”

He turned back to me and to the subject of Japan’s future. “I was born in 1945,” he said. “When I grew up, there was a very concrete goal of El Dorado: it was called the United States. You listened to songs about girls adopted by families who lived in the US by the seashore. There were G.I.s around, giving me chocolates and comic books. America looked like Heaven. What I’m saying is that the juxtaposition of a totally different world gave our people a very concrete psychology to work toward. We were trying to stand up from the ashes. People were living in miserable conditions, but we had hope.”

Okamoto continued, “The industrial facilities have to be rebuilt. If we are talking about one or two towns, yes, people may desert. But you are talking about a hundred and fifty kilometres of coastline. You cannot possibly abandon it.”

“But can the leaders do it?” Okamoto said. “We need emergency reconstruction of the financial system, because we need money. About fourteen trillion dollars of personal financial assets are in the hands of private citizens. Dormant. But when the Japanese are motivated by this kind of strong mutual help, these people will hopefully spend money to buy special bonds for reconstruction or they will bear the tax rates.”

It was dark by the time I left Okamoto’s office, and the streets were desolate as I crossed town to Tokyo FM, the flagship station of Japan’s largest commercial broadcaster, in time for the night shift. The studio was on the seventh floor of an office tower in the Chiyado Ward. Hunched over a desk in the half-light of a sound booth, working on two hours’ sleep, the program’s co-host Takashi Uesugi took another call.

Uesugi, at forty-two, is a freelance reporter who once worked for NHK Television but has since attracted a large following for his provocative criticism of Japanese news organizations and the government. He has a goatee and wears black rectangular glasses. A Sony headset hung over his left ear. At his feet lay a pale-yellow helmet, for aftershocks. He leaned toward an old Panasonic laptop that was missing two keys and, between calls, scanned the updated tweets from his 146,738 Twitter followers. In the land of technology, the people were returning to radio. A caller, a husky rumble of a voice, was saying, “Houses and utility poles are flattened.” Much of the disaster zone had no phone lines, but the caller, a truck driver, was in Kashima, in Ibaraki Prefecture, at the southern end of the ruined area. “We have no gasoline. People can’t work if they have to wait for gasoline for three days.” His area was battered, but not nearly as severely as other areas. “It’s clear that the government’s actions in Ibaraki have not been enough,” Uesugi said. “It almost seems like they’ve turned a blind eye.”

Radiation Levels Soar At Japan Nuclear Plant (AFP)

By Shingo Ito
AFP, March 27, 2011

KITAKAMI, Japan (AFP) – Very high levels of radiation detected in water leaking from a reactor at a nuclear plant in Japan dealt a new setback Sunday to efforts to bring the stricken facility under control.

The operator of the Fukushima Daiichi plant said it had detected radiation levels 10 million times higher than usual in leaked water at reactor two, as white steam continued to rise from the tsunami-battered facility.

The radiation level was 1,000 millisieverts per hour, making it too dangerous to remain at the reactor turbine building and forcing the evacuation of workers there, plant operator Tokyo Electric Power said.

"It is an extremely high figure," nuclear safety agency spokesman Hidehiko Nishiyama said of the latest reading. "There is a high possibility that (the water) came from the reactor."

A single dose of 1,000 millisieverts can cause temporary radiation sickness, including nausea and vomiting. An exposure of 100 millisieverts per year is considered the lowest level at which an increase in cancer risk is evident.

Amid concerns that fuel rod vessels or their valves and pipes are leaking, chief government spokesman Yukio Edano admitted progress at the site was slow.

"We'd like to be able to give a clear outline as to when this will be resolved," Edano told public broadcaster NHK on Sunday.

"But I can't be any more optimistic than what the reality of it is."

There was also a warning from the head of the world's atomic watchdog agency that Japan's nuclear emergency could go on for weeks, if not months, given the enormous damage to the plant, The New York Times reported.

Japanese authorities were still unsure about whether the reactor cores and spent fuel were covered with the water needed to cool them, Yukiya Amano, director general of the International Atomic Energy Agency, told the newspaper.

Urgent efforts to pump away pools of highly radioactive water near the reactors began Sunday, after several workers suffered radiation burns while installing cables as part of work to restore critical reactor cooling systems.

The incident has heaped yet more pressure on under-fire TEPCO after the workers, aged in their 20s and 30s, were exposed to highly radioactive water while wearing inadequate safety gear.

Edano pledged more effort would be made to improve the reporting of developments at the plant amid growing public unease over a flow of seemingly erratic and opaque information.

"We will have more detailed monitoring in high-risk areas and increase the capability of making forecasts so as not to be late in tackling this problem," he said.

Slow progress at the Fukushima site has added to the gloom hanging over the country since a 9.0-magnitude quake struck on March 11, sending a huge tsunami crashing into the northeast coast in Japan's worst post-war disaster.

The wave easily overwhelmed the world's biggest sea defences and erased entire towns.

The confirmed death toll stood at 10,489 Sunday, with 16,621 missing and 2,777 injured, the National Police Agency said.

The tsunami knocked out cooling systems for the six reactors at the Fukushima plant, leading to suspected partial meltdowns in three of them. Hydrogen explosions and fires have also ripped through the facility.

A worst-case scenario feared at the number-three reactor is that the fuel inside the reactor core -- a volatile uranium-plutonium mix – has already started to burn its way through its steel pressure vessel.

Fire engines have hosed huge amounts of seawater onto the plant in a bid to keep the fuel rods inside reactor cores and pools from being exposed to the air, and prevent a full meltdown.

Several hundred metres offshore in the Pacific Ocean, levels of radioactive iodine some 1,850 times the legal limit were reported on Sunday, up from 1,250 times on Saturday, TEPCO said.

Japan's nuclear safety agency has ruled out an immediate threat to marine life and seafood safety, saying the radiation would be quickly dispersed by tides, amid some signs of gradual progress at the site.

The nuclear safety agency on Sunday said workers planned to start using electric pumps instead of firetrucks for cooling operations at reactor number one.

High-voltage electric cables have been reconnected to the reactors and power has been partially restored to enable lighting in some reactor control rooms.

Worried about the salt buildup in the crippled plant, engineers have started pumping fresh water into some of the reactors. The US military has supported the effort by sending two full water barges from a naval base near Tokyo.

Radioactive vapour from the plant has contaminated farm produce and dairy products in the region, leading to shipment halts in Japan as well as the United States, European Union, China and a host of other nations.

Singapore extended a ban on food imports from Japan on Saturday, suspending imports of all fruit and vegetables from the whole Kanto region, a large area including greater Tokyo.

Higher than normal radiation was last week detected in tap water in and around Tokyo, some 250 kilometres (155 miles) from the plant, leading authorities at one stage to warn against using it for baby milk formula.

Japan has encouraged those living up to 10 kilometres beyond the plant's 20 kilometre exclusion zone to leave. The 30 kilometre zone is below the 80 kilometres advised by the United States.

As More Nuclear Plant Damage Is Found, Japan Presses Repair Efforts (NYT)

By Hiroko Tabuchi, Keith Bradsher, David Jolly

New York Times, March 26, 2011

TOKYO — With new signs having emerged about the severity of the damage and contamination at the crippled Fukushima Daiichi nuclear plant, workers resumed repair efforts Saturday with plans to pump in fresh water after days of spraying the reactors with salt water. At the same time, a new reading of a sample of seawater adjacent to the facility showed an increase in contamination from several days ago.

The developments followed a decision by Japanese officials on Friday to begin encouraging people to evacuate a larger band of territory around the complex, amid signals that bringing the plant under control anytime soon would be difficult.

Speaking to a national audience at a news conference on Friday night, two weeks after the magnitude 9.0 earthquake and the devastating tsunami that followed it, Prime Minister Naoto Kan dodged a reporter's question about whether the government was ordering a full evacuation, saying officials were simply following the recommendation of the Japan Nuclear Safety Commission.

"The situation still requires caution," Mr. Kan, grave and tired-looking, told the nation. "Our measures are aimed at preventing the circumstances from getting worse." The authorities said that they would now assist people who wanted to leave the area from 12 to 19 miles outside the plant, and that they were now encouraging "voluntary evacuation" from the area.

Those people had been advised March 15 to remain indoors, while those within a 12-mile radius of the plant had been ordered to evacuate. The United States has recommended that its citizens stay at least 50 miles away.

"The state of the plant is still quite precarious," Mr. Kan said. "We're working hard to make sure it doesn't get worse. We have to ensure there's no further deterioration."

On Saturday, the Nuclear and Industrial Safety Agency said that a test of seawater taken Friday from a monitoring station at the plant showed the level of iodine 131 at 50 becquerels per cubic centimeter — 1,250 times the legal limit. That was up from 147 times the normal level on Wednesday, the agency said; it did not provide a precise level for Wednesday.

Drinking a half liter of that water would be equivalent to getting a 1 millisievert dose, the agency said, roughly the amount a person gets in one year from natural sources.

Hidehiko Nishiyama, deputy-director general at the safety agency, said that he expected the iodine to dilute rapidly, minimizing the effect on wildlife, and pointed out that fishing had been suspended in the area after the quake and tsunami. "There is unlikely to be any immediate effect on nearby residents," he said.

One sign of possible deterioration in the plant itself came at Reactor No. 3. Workers who were trying to connect an electrical cable to a pump in a turbine building next to the reactor were injured when they stepped into water that was found to be significantly more radioactive than normal. On Friday, officials and experts offered conflicting explanations of what had gone wrong — but all pointed to greater damage to the reactor's systems and more contamination there than officials had indicated earlier.

Two workers were exposed to radiation and burned when water poured over their boots and down around their feet and ankles, officials said. A third worker was wearing higher boots and did not suffer the same exposure.

Like the injured workers, many of those risking their lives are subcontractors of Tokyo Electric Power, who are paid a small daily wage for hours of work in dangerous conditions. In some cases they are poorly equipped and trained for their task.

On Saturday, workers were focused on trying to restore the lighting to Reactor No. 2's central control room, an important step toward restoring the unit's cooling system. They were also preparing to pump fresh water on the No. 1, No. 2 and No. 3 units amid concerns. Days of dumping salt water on the units had raised concerns about potential corrosion.

The National Institute of Radiological Sciences said that the radioactivity of the water that the three injured workers had stepped into was 10,000 times the level normally seen in coolant water at the plant. It said that the amount of radiation the workers were thought to have been exposed to in the water was two to six sieverts.

Even two sieverts is eight times the new 250-millisievert annual exposure limit set for workers at Daiichi in the days after the disaster; the previous limit was 100. Tokyo Electric officials said that water with an equally high radiation level had been found in the Reactor No. 1 building, The Associated Press reported.

Skin exposures of two to six sieverts will cause severe burns, according to Dr. David J. Brenner, director of the Center for Radiological Research at Columbia University. But if those doses reach the whole body and not just the skin "you're at a very high risk of dying," he said.

At a dose of four sieverts, half of the people exposed will die, Dr. Brenner said. But he said that from the information that had been provided, it was not clear whether the dose to the workers reached their skin only, or penetrated their bodies.

Concerns about Reactor No. 3 have surfaced before. Japanese officials said nine days ago that the reactor vessel might have been damaged.

Hidehiko Nishiyama, deputy director general of the Japan Nuclear and Industrial Safety Agency, mentioned damage to the reactor vessel on Friday as a possible explanation of how water in the adjacent containment building had become so radioactive.

Michael Friedlander, a former nuclear power plant operator in the United States, said that the presence of radioactive cobalt and molybdenum in water samples taken from the basement of the turbine building raised the possibility of corrosion as a cause.

Both materials typically occur not because of fission, but because of routine corrosion in a reactor and its associated piping over the course of many years of use, he said.

The aggressive use of salt water to cool the reactor and its storage pool for spent fuel may mean that more of these highly radioactive corrosion materials will be dislodged and contaminate the area in the days to come, posing further hazards to repair workers, Mr. Friedlander added.

The contamination of the water in the basement of the turbine building poses a real challenge for efforts to bring crucial cooling pumps and other equipment back into use.

One other major worry about Reactor No. 3 is the mox, or mixed oxide, fuel it uses. It is an especially dangerous blend of reprocessed fuel and can be more radioactive when melted than the pure uranium fuel used in other reactors, experts say.

The news on Friday and the discovery this week of a radioactive isotope in the water supplies of Tokyo and neighboring prefectures punctured the mood of optimism with which the week began, leaving a sense that the battle to fix the damaged plant will be a long one.

No one is being ordered to evacuate the second zone around the plant, officials said, and people may choose to remain, but many have already left of their own accord, tiring of the anxiety and tedium of remaining cooped up as the nuclear crisis simmers just a few miles away. Many are said to be virtual prisoners, with no access to shopping and immobilized by a lack of gasoline.

"What we've been finding is that in that area life has become quite difficult," Noriyuki Shikata, deputy cabinet secretary for Mr. Kan, said in a telephone interview. "People don't want to go into the zone to make deliveries."

Mr. Shikata said the question of where those who chose to leave would go was still under consideration. The effort to move people comes at a time when there are already hundreds of thousands of Japanese displaced by the quake and tsunami.

Officials continue to be dogged by suspicions from outside the government that they are not telling the entire story about the radiation leaks. Shunichi Tanaka, former acting chairman of the country's Atomic Energy Commission, told The Japan Times in an interview published Friday that the government was being irresponsible in forcing people from their homes around the damaged plant without explaining the risks they were facing.

"The government has not yet said in concrete terms why evacuation is necessary to the people who have evacuated," he said.

The National Police Agency said Friday that the official death toll from the March 11 quake and tsunami had passed 10,000, with nearly 17,500 listed as missing.

There was some good news. Levels of the radioactive isotope found in Tokyo's water supply fell Friday for a second day, officials said, dropping to 51 becquerels per liter, well below the country's stringent maximum for infants.

Radioactivity Rises In Seawater Near Japan's Fukushima Daiichi Nuclear Plant (WP)

By Michael Alison Chandler, Chico Harlan

Washington Post, March 27, 2011

TOKYO — Radioactivity levels have soared in the seawater outside the troubled Fukushima Daiichi nuclear plant, safety officials reported Saturday, igniting fresh concerns about the spread of highly radioactive material and the risks involved in completing an already dangerous job.

Samples taken 360 yards offshore from the plant Friday showed radioactive iodine levels 1,250 times the legal safety limit. Earlier in the week, the levels of iodine-131 in the water had been closer to 100 times the limit.

As of Saturday, some signs of progress were evident at the plant: Fresh water was being pumped in to cool the first three nuclear reactors, rather than seawater, which leaves salt deposits that can impair the cooling process. And the lights were turned on in the control room of the second reactor.

But Chief Cabinet Secretary Yukio Edano told reporters at a news conference Saturday that it is difficult to predict when the crisis at the plant might end. He also urged Tokyo Electric Power Co., which operates the plant, to relay information more promptly to the government and improve its transparency.

On Thursday, three workers at the plant sustained severe radiation burns on their legs; two had been wearing ankle boots instead of higher boots that would have offered more protection. Japan's nuclear agency warned Saturday that Tepco should pay more attention to worker safety.

At the overheated nuclear plant, stricken more than two weeks ago by a 9.0-magnitude earthquake and the resulting tsunami, engineers are awaiting mass shipments of fresh water that can be used to cool the overheated reactors. Two US Navy barges, each carrying 1,100 tons of fresh water, are en route to the plant, and the first of those barges should arrive Monday.

Officials feel a growing pressure to use fresh water rather than seawater for their cooling operations amid concerns that salt deposits left by seawater can corrode the reactors. Water supplied by the US vessels will be pumped into a massive cooling tank at the plant.

Saturday, workers were able to restore lighting in the control room at the unit 2 reactor. Now, only the unit 4 reactor lacks electricity in its control room.

Engineers, meanwhile, turned their attention to cleaning up stagnant, highly contaminated water found in turbine rooms outside the reactors. Pools of the radioactive water have been found at the plant's units 1 and 3. Similar standing water at units 2 and 4 is being tested for radioactivity.

The unusually high rates of radiation found in the turbine rooms — and now in the ocean — have fueled concerns that water may be seeping from at least one of the reactor cores, leaks that could release longer-lasting and much riskier forms of contamination.

"This is currently one of our largest problems," said Hidehiko Nishiyama, deputy director general of the government's Nuclear and Industrial Safety Agency, at a news conference Saturday night.

But government officials said Saturday night that they are not sure whether the primary containment vessels have been breached and are still researching the source of contamination. Analysts say it could be from reactors or from cooling pools where used nuclear rods are stored.

New contamination in the ocean, some nuclear experts say, could also be attributed in part to emissions in the air.

At their highest concentration, near the wastewater outside the plant, the iodine levels in the sea could be dangerous: Half a liter of the water contains the equivalent of the annual approved dosage limit for an adult.

But officials stressed that contaminants would become diluted as currents carry them farther offshore. Fishing has already been banned in the area around the plant. Either way, the spiked radiation levels in the water pose a new concern for Japan's large fishing industry, with the possibility that other countries could impose bans on imports.

"I don't believe the levels we detected today would . . . cause a direct problem," Nishiyama said.

Edano on Saturday announced the appointment of a special adviser to the prime minister, former transportation minister Sumio Mabuchi, to oversee the response to the nuclear crisis.

Intermittent snow and rain covered many of the disaster-affected areas Friday night and throughout the day Saturday, hindering relief efforts and leaving many victims who lack fuel for heating to struggle in the cold.

The government reported that as of Saturday, 10,102 people were listed as dead, 17,053 were missing, 26,646 had been rescued and 246,109 had been displaced from their homes after the March 11 earthquake and the ensuing disasters.

Japan Utility Admits It Failed To Warn Fukushima Workers About Radioactive Water (LAT)

A Japanese government official urges the company that operates the Fukushima nuclear plant to be more forthcoming. Meanwhile, radioactive isotope levels as much as 1,250 times that considered safe are detected in seawater near the complex.

By Julie Makinen, Tony Barboza, Karen Kaplan

Los Angeles Times, March 27, 2011

Tensions between the Japanese government and the company that runs the devastated Fukushima Daiichi nuclear complex surfaced again Saturday after the utility admitted that it had failed to adequately warn workers about dangerous radioactive water at the plant.

Two workers doing electrical cable work at reactor No. 3 were hospitalized Thursday after their legs came into contact with radioactive water. Tokyo Electric Power Co. conceded Saturday that it had known about highly radioactive water at reactor No. 1 days earlier but didn't brief workers that a similar hazard could exist at No. 3.

Chief Cabinet Secretary Yukio Edano chastised the company, known as TEPCO, saying that it needed to share information more quickly and, unless it does so, "the government will not be able to give appropriate instructions and [the company] will make workers, and eventually the public, distrustful," according to Kyodo News.

TEPCO officials apologized for the lapse but also noted that workers had ignored alarms that had alerted them to high levels of radiation in the work area. High levels of radiation were reported again Saturday within the plant.

The Fukushima facility, stricken by the March 11 earthquake and tsunami and several ensuing explosions, continues to leak radiation. Levels of radioactive iodine as much as 1,250 times higher than the benchmark considered safe were found in seawater about 1,000 feet from the complex, officials said Saturday. However, experts said the radiation would quickly disperse and would not pose a threat to people nearby or to sea life.

TEPCO resorted to using more than 5,300 tons of ocean water to keep its reactors and adjacent spent-fuel storage pools cool after the earthquake and tsunami knocked out primary and backup power to the cooling system. But the salt in seawater is corrosive to the reactors, and engineers are trying to pump it out and drain it into the sea.

Graham Andrew, special advisor to the International Atomic Energy Agency, said in a briefing Saturday that the situation at the plant remained "very serious" and that the likelihood of damage to the containment integrity of reactor No. 3 — whose fuel supply includes highly carcinogenic plutonium — is "a cause for concern."

TEPCO began pumping freshwater into reactors No. 1 and No. 3 on Friday, and freshwater may be used to cool the spent-fuel pools at the No. 3 and No. 4 reactors beginning Sunday, said Hidehiko Nishiyama of Japan's Nuclear and Industrial Safety Agency.

So far, radiation in the ocean appears to be limited to the area close to the seaside nuclear plant. Levels of iodine-131 19 miles off the coast were still within acceptable limits, Nishiyama said.

The radioactive particles do not threaten sea life, he added. "Ocean currents will disperse radiation particles, and so it will be very diluted by the time it gets consumed by fish and seaweed," he said.

A US expert agreed that the radioactivity would have minimal effects on marine life and seafood because the particles would be mixed with water up to 300 feet deep.

"Cesium and iodine are soluble, so they will be rapidly diluted by a factor of 100 or more," said Ken Buesseler, a senior scientist who studies naturally occurring and manmade radioactive isotopes in ocean water at the Woods Hole Oceanographic Institution in Massachusetts.

When radioactive substances are released into ocean water, Buesseler said, they dilute and mix into the water so quickly that "it's like dropping a dye in water," and concentrations quickly plummet.

Health authorities should still monitor seawater and seafood for radiation, he said, but it is unlikely to pose as much a risk in the ocean as it does on land, where radioactive isotopes have a more direct pathway to expose humans through such comestibles as milk, vegetables and drinking water.

Ocean currents will further reduce concentrations of the isotopes by carrying them south along the Japanese coast, then farther out to sea.

Buesseler said research after the 1986 Chernobyl nuclear accident showed that although levels of cesium-137 in the Black Sea — a body of saltwater several hundred miles away — elevated sharply, the radiation wasn't high enough to make water exposure or seafood consumption dangerous.

"You still could bathe in the water, you could eat the fish in the water, and if you wanted to drink saltwater, you could drink the water," he said.

The death toll from the earthquake and tsunami now stands at 10,489, with more than 16,600 people still unaccounted for.

Nuclear Rules In Japan Relied On Old Science (NYT)

By Norimitsu Onishi, James Glanz

New York Times, March 27, 2011

TOKYO — In the country that gave the world the word tsunami, the Japanese nuclear establishment largely disregarded the potentially destructive force of the walls of water. The word did not even appear in government guidelines until 2006, decades

after plants — including the Fukushima Daiichi facility that firefighters are still struggling to get under control — began dotting the Japanese coastline.

The lack of attention may help explain how, on an island nation surrounded by clashing tectonic plates that commonly produce tsunamis, the protections were so tragically minuscule compared with the nearly 46-foot tsunami that overwhelmed the Fukushima plant on March 11. Offshore breakwaters, designed to guard against typhoons but not tsunamis, succumbed quickly as a first line of defense. The wave grew three times as tall as the bluff on which the plant had been built.

Japanese government and utility officials have repeatedly said that engineers could never have anticipated the magnitude 9.0 earthquake — by far the largest in Japanese history — that caused the sea bottom to shudder and generated the huge tsunami. Even so, seismologists and tsunami experts say that according to readily available data, an earthquake with a magnitude as low as 7.5 — almost garden variety around the Pacific Rim — could have created a tsunami large enough to top the bluff at Fukushima.

After an advisory group issued nonbinding recommendations in 2002, Tokyo Electric Power Company, the plant owner and Japan's biggest utility, raised its maximum projected tsunami at Fukushima Daiichi to between 17.7 and 18.7 feet — considerably higher than the 13-foot-high bluff. Yet the company appeared to respond only by raising the level of an electric pump near the coast by 8 inches, presumably to protect it from high water, regulators said.

"We can only work on precedent, and there was no precedent," said Tsuneo Futami, a former Tokyo Electric nuclear engineer who was the director of Fukushima Daiichi in the late 1990s. "When I headed the plant, the thought of a tsunami never crossed my mind."

The intensity with which the earthquake shook the ground at Fukushima also exceeded the criteria used in the plant's design, though by a less significant factor than the tsunami, according to data Tokyo Electric has given the Japan Atomic Industrial Forum, a professional group. Based on what is known now, the tsunami set off the nuclear crisis by flooding the backup generators needed to power the reactor cooling system.

Japan is known for its technical expertise. For decades, though, Japanese officialdom and even parts of its engineering establishment clung to older scientific precepts for protecting nuclear plants, relying heavily on records of earthquakes and tsunamis, and failing to make use of advances in seismology and risk assessment since the 1970s.

For some experts, the underestimate of the tsunami threat at Fukushima is frustratingly reminiscent of the earthquake — this time with no tsunami — in July 2007 that struck Kashiwazaki, a Tokyo Electric nuclear plant on Japan's western coast.. The ground at Kashiwazaki shook as much as two and a half times the maximum intensity envisioned in the plant's design, prompting upgrades at the plant.

"They had years to prepare at that point, after Kashiwazaki, and I am seeing the same thing at Fukushima," said Peter Yanev, an expert in seismic risk assessment based in California, who has studied Fukushima for the United States Nuclear Regulatory Commission and the Energy Department.

There is no doubt that when Fukushima was designed, seismology and its intersection with the structural engineering of nuclear power plants was in its infancy, said Hiroyuki Aoyama, 78, an expert on the quake resistance of nuclear plants who has served on Japanese government panels. Engineers employed a lot of guesswork, adopting a standard that structures inside nuclear plants should have three times the quake resistance of general buildings.

"There was no basis in deciding on three times," said Mr. Aoyama, an emeritus professor of structural engineering at the University of Tokyo. "They were shooting from the hip," he added, making a sign of a pistol with his right thumb and index finger. "There was a vague target."

Evolution of Designs

When Japanese engineers began designing their first nuclear power plants more than four decades ago, they turned to the past for clues on how to protect their investment in the energy of the future. Official archives, some centuries old, contained information on how tsunamis had flooded coastal villages, allowing engineers to surmise their height.

So seawalls were erected higher than the highest tsunamis on record. At Fukushima Daiichi, Japan's fourth oldest nuclear plant, officials at Tokyo Electric used a contemporary tsunami — a 10.5-foot-high wave caused by a 9.5-magnitude earthquake in Chile in 1960 — as a reference point. The 13-foot-high cliff on which the plant was built would serve as a natural seawall, according to Masaru Kobayashi, an expert on quake resistance at the Nuclear and Industrial Safety Agency, Japan's nuclear regulator.

Eighteen-foot-high offshore breakwaters were built as part of the company's anti-tsunami strategy, said Jun Oshima, a spokesman for Tokyo Electric. But regulators said the breakwaters — mainly intended to shelter boats — offered some resistance against typhoons, but not tsunamis, Mr. Kobayashi said.

Over the decades, preparedness against tsunamis never became a priority for Japan's power companies or nuclear regulators. They were perhaps lulled, experts said, by the fact that no tsunami had struck a nuclear plant until two weeks ago. Even though tsunami simulations offered new ways to assess the risks of tsunamis, plant operators made few changes at their aging facilities, and nuclear regulators did not press them.

Engineers took a similar approach with earthquakes. When it came to designing the Fukushima plant, official records dating from 1600 showed that the strongest earthquakes off the coast of present-day Fukushima Prefecture had registered between magnitude 7.0 and 8.0, Mr. Kobayashi said.

"We left it to the experts," said Masatoshi Toyoda, a retired Tokyo Electric vice president who oversaw the construction of the plant. He added, "they researched old documents for information on how many tombstones had toppled over and such."

Eventually, experts on government committees started pushing for tougher building codes, and by 1981, guidelines included references to earthquakes but not to tsunamis, according to the Nuclear and Industrial Safety Agency. That pressure grew exponentially after the devastating Kobe earthquake in 1995, said Kenji Sumita, who was deputy chairman of the government's Nuclear Safety Commission of Japan in the late 1990s.

Mr. Sumita said power companies, which were focused on completing the construction of a dozen reactors, resisted adopting tougher standards, and did not send representatives to meetings on the subject at the Nuclear Safety Commission.

"Others sent people immediately," Mr. Sumita said, referring to academics and construction industry experts. "But the power companies engaged in foot-dragging and didn't come."

Meanwhile, the sciences of seismology and risk assessment advanced around the world. Although the United States Nuclear Regulatory Commission has come under severe criticism for not taking the adoption of those new techniques far enough, the agency did use many of them in new, plant-by-plant reviews, said Greg S. Hardy, a structural engineer at Simpson Gumpertz & Heger who specializes in nuclear plant design and seismic risk.

For whatever reasons — whether cultural, historical or simply financial — Japanese engineers working on nuclear plants continued to predict what they believed were maximum earthquakes based on records.

Those methods, however, did not take into account serious uncertainties like faults that had not been discovered or earthquakes that were gigantic but rare, said Mr. Hardy, who visited Kashiwazaki after the 2007 quake as part of a study sponsored by the Electric Power Research Institute.

"The Japanese fell behind," Mr. Hardy said. "Once they made the proclamation that this was the maximum earthquake, they had a hard time re-evaluating that as new data came in."

The Japanese approach, referred to in the field as "deterministic" — as opposed to "probabilistic," or taking unknowns into account — somehow stuck, said Noboru Nakao, a consultant who was a nuclear engineer at Hitachi for 40 years and was president of Japan's training center for operators of boiling-water reactors.

"Japanese safety rules generally are deterministic because probabilistic methods are too difficult," Mr. Nakao said, adding that "the US has a lot more risk assessment methods."

The science of tsunamis also advanced, with far better measurements of their size, vastly expanded statistics as more occurred, and computer calculations that help predict what kinds of tsunamis are produced by earthquakes of various sizes. Two independent draft research papers by leading tsunami experts — Eric Geist of the United States Geological Survey and Costas Synolakis, a professor of civil engineering at the University of Southern California — indicate that earthquakes of a magnitude down to about 7.5 can create tsunamis large enough to go over the 13-foot bluff protecting the Fukushima plant.

Mr. Synolakis called Japan's underestimation of the tsunami risk a "cascade of stupid errors that led to the disaster" and said that relevant data was virtually impossible to overlook by anyone in the field.

Underestimating Risks

The first clear reference to tsunamis appeared in new standards for Japan's nuclear plants issued in 2006.

"The 2006 guidelines referred to tsunamis as an accompanying phenomenon of earthquakes, and urged the power companies to think about that," said Mr. Aoyama, the structural engineering expert.

The risk had received some attention in 2002, when a government advisory group, the Japan Society of Civil Engineers, published recommended tsunami guidelines for nuclear operators.

A study group at the society, including professors and representatives from utilities like Tokyo Electric, scrutinized data from past tsunamis, as well as fresh research on fault lines and local geography, to come up with the guidelines, according to a member of the study group who spoke on condition of anonymity, citing the sensitivity of the situation.

The same group had recently been discussing revisions to those standards, according to the member. At the group's last meeting, held just over a week before the recent tsunami, researchers debated the usefulness of three-dimensional simulations

to predict the potential damage of tsunamis on nuclear plants, according to minutes from those meetings. "We took into account more than past data," the member said. "We tried to predict. Our objective was to reduce uncertainties."

Perhaps the saddest observation by scientists outside Japan is that, even through the narrow lens of recorded tsunamis, the potential for easily overtopping the anti-tsunami safeguards at Fukushima should have been recognized. In 1993 a magnitude 7.8 quake produced tsunamis with heights greater than 30 feet off Japan's western coast, spreading wide devastation, according to scientific studies and reports at the time.

On the hard-hit island of Okushiri, "most of the populated areas worst hit by the tsunami were bounded by tsunami walls" as high as 15 feet, according to a report written by Mr. Yanev. That made the walls a foot or two higher than Fukushima's bluff.

But in a harbinger of what would happen 18 years later, the walls on Okushiri, Mr. Yanev, the expert in seismic risk assessment, wrote, "may have moderated the overall tsunami effects but were ineffective for higher waves."

And even the distant past was yielding new information that could have served as fresh warnings.

Two decades after Fukushima Daiichi came online, researchers poring through old records estimated that a quake known as Jogan had actually produced a tsunami that reached nearly one mile inland in an area just north of the plant. That tsunami struck in 869.

Disaster Aid Puts New Face On US Military In Japan (AP)

By Eric Talmadge, Associated Press

Associated Press, March 27, 2011

SENDAI, Japan – Just one year after tensions over US military bases in Japan forced out a prime minister, a relief mission mounted by American soldiers after the earthquake and tsunami is showing a new and welcome face for troops the Japanese have hosted — sometimes grudgingly — for decades.

Roughly 20,000 US troops have been mobilized in "Operation Tomodachi," or "Friend." It is the biggest bilateral humanitarian mission the US has conducted in Japan, its most important ally in Asia, and it is ramping up fast.

As logistics gradually improve, US troops have been moving farther into hard-hit zones and providing tons of relief supplies and badly needed manpower to help the hundreds of thousands of Japanese whose lives were shattered in the March 11 disaster.

In a part of Japan that hosts few US bases, the Americans in uniform are a high-profile presence.

"To be honest, I didn't think much about the US troops until now," said Arika Ota, 29, who works at an amusement center in the coastal city of Sendai. "But when I see them working at the airport every day, I'm really thankful. They are working really hard. I never imagined they could help us so much."

The Sendai Airport cleanup is one of the troops' most visible — and successful — operations so far.

Sendai is the biggest city in the region hit by the tsunami and its airport was utterly destroyed. The grounds and runways were covered in mud, rubble and more than 1,000 vehicles that were tossed about by the sea. The first floor of the terminal building was caked in sandy sludge, its windows were shattered by the tsunami and its shops were a jumble of garbage and broken souvenirs.

Now, the runways are clear enough to handle large cargo planes, the tossed-about cars have been placed in rows and the second floor houses a command center.

Capt. Robert Gerbract, who is in charge of the US Marines' cleanup operations, said when he arrived last week he felt like he had stepped back in time.

"It looked like if you had left an airport alone for 1,000 years. It was like an archaeological site. It was hard to figure out where to begin," Gerbract, an Iraq veteran from Wantaugh, New York, said as he looked out at the runway from the Marines' makeshift command center in the airport's departure lounge.

For Marines like Gerbract, it's a satisfying assignment.

"I'd much rather be carrying relief food packages than a rifle, to be honest," he said.

The Marines are just one facet of the US operation.

• Within days of the tsunami, the USS Ronald Reagan was stationed about 100 miles (160 kilometers) off Japan's northeastern shore. It had to reposition itself due to radiation from the crippled Fukushima Dai-ichi nuclear facility but is now sending sorties to hard-hit towns. The US Navy has 19 ships, 140 aircraft and 18,282 personnel assigned to assist in the operation. It is sending barges filled with freshwater to help cool the reactor site.

• The Air Force has opened its bases for relief flights. Its transport planes have flown dozens of missions and its fighters have flown over the devastation in search of survivors. Two of its aircraft have helped the Japanese monitor the nuclear plant.

• Nearly 500 soldiers with the US Army in Japan, which has fewer troops here than the other branches, have delivered blankets and other supplies and are conducting support and refueling for military helicopter operations.

The US forces stress that they are not taking a lead role. That is being done by Japan itself, which has mobilized more of its troops than at anytime since World War II.

"What we're doing is coordination with the Japanese army," said Gunnery Sgt. Leo Salinas, of Dallas, Texas. "Every mission we do is a bilateral mission. They are all Japanese-led and under Japanese initiative. These guys are our allies and, more than that, they are our friends. Whatever they want us to do, we will do."

The Japanese public is very pro-America and generally sees the military presence as a benefit.

But the relationship is complicated by a strong pacifist undercurrent in public opinion borne from World War II. Japan's own military is strictly limited to national self-defense and many Japanese feel the US presence here could make their country a target or draw Japan into a conflict involving American troops over Taiwan or other flash points.

Even at the shelters where crucial US help is arriving, some Japanese expressed mixed feelings about the troops.

"I feel thankful that they are helping us," Yoko Hiraoka, 40, said as a convoy of US Marines arrived at her evacuation center in the city of Higashi Matsushima on Saturday. The Marines set up showers, which the evacuees have lacked for two weeks.

"But I still have reservations about having US troops in Japan," Hiraoka said. "I'm happy today, and I appreciate their help, but it doesn't fundamentally change the way I feel."

About 50,000 US troops are stationed throughout Japan under a mutual security treaty signed in the 1960s. Tokyo strongly supports the alliance, because it saves Japan money on defense and serves as a powerful deterrent force in the region, particularly as China's military strength and economic clout rise.

But opposition to the bases is high on the southern island of Okinawa, a strategically important outpost that hosts more US troops than any other part of Japan.

That concentration of forces — including the Marines who make up the bulk of the on-the-ground assistance here — is an endemic source of friction with local residents, who complain of overcrowding, the danger of accidents and base-related crime.

Tensions between the Marines and Okinawans boiled in 1995, when two Marines and a sailor raped a local schoolgirl. The outrage from that attack led to an agreement that the US military would reduce its presence in Okinawa.

Both sides agreed to close down Marine Corps Air Station Futenma, an airfield in the middle of a heavily populated area that has long symbolized the military burden for Okinawans.

But after more than a decade, the base remains open. Washington wants to replace Futenma with another facility on Okinawa before relocating 8,500 Marines to the US territory of Guam, as it had agreed to do by 2014.

Okinawans have strongly opposed the construction of any new facilities.

Unable to make any headway in the dispute, Prime Minister Yukio Hatoyama was forced to resign last year.

Koichi Nakano, a political science professor at Tokyo's Sophia University, said he believes the disaster relief mission will help build goodwill, but does not expect it to have much impact in Okinawa.

"The goodwill of the Japanese to the Americans ... even to the American presence in Okinawa, has not really been a problem of the mainland," he said. "The problem remains Okinawa. The Okinawans will be saying, 'Of course it's good what the Americans did, but why do the bases have to be in Okinawa?'"

Japan Nuke Workers Risk Their Lives, Garner Nation's Respect (USAT)

By Oren Dorell, USA Today

USA Today, March 25, 2011

Two weeks into Japan's nuclear crisis, a daily drama continues to unfold amid the crumbled walls and tangled pipes of the stricken Fukushima Dai-ichi nuclear power plant.

Working in bulky suits, exposed to unseen radiation, the quiet heroes of the Japanese earthquake and tsunami toil amid evacuations and plumes of radioactive smoke to try to keep the plant's reactors from melting down and spreading more radiation into the Japanese countryside.

As they work, family members -- many evacuated from tsunami-ravaged homes or because of the nuclear threat -- worry and pray.

"It aches my heart to imagine that in that cramped space, wearing protective clothing and masks, unable to move freely and suffocating, my former colleagues, boss and my cousin are still working so hard and so desperately to not expand any more damage," Isao Sasakawa, a former worker at the Fukushima plant, writes on his blog. "I earnestly hope somehow a miracle happens and hope they all come back safely."

Two workers have gone missing and 25 have been hurt or overexposed to radiation since the magnitude-9.0 earthquake hit March 11, according to the Tokyo Electric Power Co., which owns and runs the plant. Most of the injuries occurred during explosions that resulted from uncontrolled buildups of hydrogen and oxygen in two reactor units.

The latest injuries were reported Thursday, when TEPCO said two workers were sent to the hospital after their legs were contaminated with radiation, indicating the facility remains dangerous. Gregory Jaczko, chairman of the Nuclear Regulatory Commission (NRC), says it could be weeks before the radiation is under control.

"Anybody that voluntarily enters a situation that puts their lives on the line can be called a hero, and those workers certainly meet that definition," says David Lochbaum, director of the nuclear safety project for the Union of Concerned Scientists.

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

The earthquake knocked out electricity to the plant, which houses six nuclear reactors, and its cooling system. The tsunami that followed wiped out diesel generators that provided backup power. Without electricity to operate pumps that keep water flowing over the nuclear fuel, water in the reactor cores and spent fuel pools boiled away, exposing the fuel, which melted and caught fire. That caused hydrogen explosions and released radiation, which has shown up in drinking water, food and industrial goods exported to other countries.

On Tuesday, 1,000 plant workers, subcontractors, defense troops and firefighters were at the scene, Hidehiko Nishiyama of the Nuclear Industrial Safety Agency in Japan told the Associated Press. They were hooking up new power lines to the reactor units, pouring seawater on spent fuel pools and injecting the water into the reactor cores to try to bring temperatures down to more normal levels, according to a TEPCO statement.

"Radiation levels are high; the damage caused by the explosions are not something you train for," says Lochbaum, a former NRC safety instructor. "You have to come up with ad hoc solutions."

In the emergency, Japanese authorities increased the permissible radiation exposure to five times what plant workers normally are allowed in a year.

That move "ethically is a problem," says Irwin Redlener, a pediatrician at Columbia University in New York and director of the National Center for Disaster Preparedness. "On the other hand, there are large-scale population needs and somehow that needs to be balanced. It's basically men and women voluntarily putting themselves in harm's way so thousands of others can be safe."

Such self-sacrifice is not uniquely Japanese, Redlener says. "It is something about human nature in emergencies that people step up to the plate in the interest of the greater good," he says, citing battlefield troops and responders who entered the burning World Trade Center towers on Sept. 11, 2001.

Relatives say the workers worry about their safety but are committed to doing their jobs.

"I hope people understand that every one of them has family," Sasakawa says in an e-mail to USA TODAY. Sasakawa, a Web designer, was involved in operating Fukushima's reactors more than two decades ago. He declined to identify his cousin out of concern the cousin could face repercussions from TEPCO.

Many workers live close to the plant, and their families likely were evacuated, Sasakawa says.

"I imagine those workers are very much worried about their family members who evacuated," Sasakawa says. "But they all lock those concerns and feelings inside. They are focusing on their work."

Toshiki Ashitani, 47, of Saitama, Japan, has a cousin at Fukushima who normally works in technology and research, he says. Ashitani hasn't heard from Masayoshi Hirayama in several days.

"Honestly, I want somebody else to take over his job," Ashitani says. "But if him staying there is his mission, I can't change that. My cousin is a type of person who is dedicated to whatever he does. He keeps on working there for his sense of duty."

Ashitani says he hopes the workers are able to prevent the plant from overheating and spreading radiation across Japan, and he believes that he and his neighbors have a role, too. "This is a test to us Japanese people, to see if we can handle the situation without flying off the handle," he says.

Aya Forster, 32, a Japanese immigrant in Brooklyn, N.Y., searched Japanese websites for relatives of Fukushima workers on behalf of USA TODAY. She found one Twitter post, from a woman who said her father is a senior worker at the plant, that had been copied and pasted into many Japanese blogs and social media sites.

USA TODAY's efforts to track down the woman were unsuccessful, but the tweets and reaction by others in Japan's blogosphere show how deeply the human cost of the rescue effort is affecting much of the nation. Here, as reconstructed by Forster, is an example of discussions she found.

A tweeter, who goes by Gyoku_tama, or Jade, wrote on March 13, after one of the plant's first explosions: "My Dad works there. ... Is he safe?"

Later that day, the tweeter described a phone call from her father: "He said, 'I have no choice but to stay. Be ready for whatever happens.' I was always aware of the nature of his job, and I've been always told the same thing, but never took it seriously."

On the third day, she wrote: "Dad contacted me, telling me he would start getting into work risking his life. He told me to pray that a miracle happens. Please pray everyone. I don't want him to go."

On some Japanese blogs that picked up her tweets, readers left messages of prayer and hope, Forster says. More than 100 people retweeted Gyoku_tama's messages, adding their own.

"Sincere appreciation to the father and his family," wrote amneris84. "I pray for his safety."

Forster says she too was moved. "It brings me to tears because I feel her pain," she says.

Forster was on vacation with her husband and 1-year-old daughter in Miyagi Prefecture on the Japanese east coast on March 10, a day before the earthquake struck. They left a day early to visit her mother in Yokohama, and rode out the quake there.

Two days later, she and her family heard reports that a nuclear plant was in danger. She returned to Brooklyn on March 14. Family members she left behind now talk of the workers and their courage.

"We feel so bad (for them), and for their families too," she says. "We are also very thankful they are working very hard. Without these workers, the situation would be even worse."

In a culture in which workers often stay at the same company for life, Forster says she's not surprised to see employees of the plant be extremely dedicated to their jobs. "Gyoku_tama's father says, 'I have no choice,' " Forster says, "because he feels a responsibility to the company."

The risk from radiation depends on how much of it the workers are exposed to, says Eric Hall, a radiation biologist at Columbia University.

The Japanese government increased Fukushima workers' allowable exposure from 50 millisieverts a year to 250 mSv because of the emergency. US protocols allow workers to be exposed to twice as much, 500 mSv, during an emergency, Hall says.

Exposure to one sievert, or a 1,000 millisieverts, at once is enough to make a few people feel nauseous. Rapid exposure to 3.5 mSv was fatal to half the population when nuclear bombs devastated Hiroshima and Nagasaki during World War II. Many died of infections because radiation weakens the body's ability to produce white blood cells.

At the 1986 nuclear meltdown at Chernobyl, antibiotics helped save half the workers exposed to twice as much radiation, Hall says. "If 250 mSv is spread over several days, they're not going to be sick, but they will have a risk later."

The cancer risk rises 5 percentage points per Sievert. So with 250 mSv, a worker's risk of getting cancer would rise 1.25 percentage points above the population average of 25%, Hall says.

The Fukushima plant, like other boiling-water reactors, is a maze of pipes for cooling water systems, motors, air-conditioning units and steam conduits, interspersed with electrical panels and instrument racks covered with gauges, buttons and knobs. Much of that could have been destroyed or damaged by explosions, and dripping with water that could be radioactive.

Workers are moving through that obstacle course wearing radiation meters that show how much the worker has received to date, says Jon Johnson a former NRC executive now at Lightbridge, a nuclear power consultancy in McLean, Va. The levels are monitored so workers can be pulled out and replaced when doses get too high.

They could be wearing a range of protective suits, from cotton or Tyvek coveralls with hospital-type masks to heavier, rubberized suits with full face masks and self-contained breathing apparatuses, Johnson says. The more protective the equipment, he says, the more cumbersome and hot it is to wear.

"These workers are working in highly stressful conditions," he says.

The myriad problems at Fukushima put nearly all types of workers on the front line, in the most radioactive zones.

Firefighters from the Japanese Defense Forces and cities as far away as Tokyo and Osaka, 180 miles and 490 miles away, respectively, have been putting out fires and pouring water on the cores and spent fuel pools, TEPCO says. Electricians are trying to restore power. Maintenance people are repairing damage. And plant engineers who usually work in a protected control room may be at mini-consoles in exposed areas, Johnson says.

Once the plant is under control, the workers likely will be allowed some well-earned rest, Lochbaum says. Their time in the industry is not necessarily over, he says. "They have a lot of experience."

And the respect of a nation. "I sincerely honor those fighters who are risking their lives at the battlefield," Sasakawa says.

EU Wants Worldwide Nuclear Plant Tests (AP)

Associated Press, March 25, 2011

BRUSSELS (AP) — European Union leaders called for worldwide stress testing of nuclear plants on Friday and committed to putting their 143 reactors through the toughest security checks possible.

France, one of the nations most reliant on nuclear energy, with 58 reactors, said it would immediately close any plant if it failed a test.

At the end of a two-day summit, the EU nations agreed to submit their nuclear plants to tough safety tests by year-end and promised to heed the lessons from the accident at Japan's Fukushima Dai-ichi nuclear complex.

German Chancellor Angela Merkel said the 27 leaders agreed "on uniform euro stress tests and the highest possible safety standards."

"The experience of Japan has to be reflected in the new stress tests. This is not business as usual," she said.

Merkel's comments come two weeks since a magnitude-9 quake triggered a tsunami that knocked out the Fukushima reactor's cooling system. Japanese Prime Minister Naoto Kan said Friday the fight to stabilize the plant remains "very grave and serious," as officials said they suspected there was a breach in the core of a reactor that could mean more serious contamination.

The fallout has set off fears of the biggest radioactive contamination since the 1986 disaster at Ukraine's Chernobyl, which spewed radiation across a wide distance and continues to haunt Europeans.

"European stress tests will be prepared in a coordinated fashion," Merkel said after the summit. "The aim is the highest possible safety standard," she said, insisting the EU would press for other European nations to follow suit.

EU officials will follow up the nuclear issue during talks in Ukraine next month. Nuclear energy is key for Ukraine, a country of 46 million. Ukraine today operates 15 reactors at four power plants, which generate nearly half of all its electricity.

"Because the danger does not stop at our borders, we encourage and support neighboring countries to do similar stress-tests," said EU President Herman Van Rompuy. "A worldwide review of nuclear plants would be best."

There are currently 442 nuclear power reactors in operation around the globe, with 65 more under construction. Five are in long-term shutdown.

French President Nicolas Sarkozy said experts will have to work out the details of the tests.

"Independent nuclear authorities will proceed with the controls, will make them public and the EU Commission and nuclear regulators will say whether they suffice or not," Sarkozy said.

In France, Sarkozy said, "we decided to subject all our plants to a stress tests in the light of what happened in Japan. If any power plant fails the test, it will be shut down. That's clear."

The EU had its own small nuclear problem. Slovenia's only nuclear power plant that shut down automatically earlier this week due to what plant officials called a minor incident failed to restart because of technical problems.

There was no danger of radiation fallout during the stoppage or the attempted restart, Slovenian authorities said.

Japan's nuclear accident continued to have political impact beyond Europe.

In New Delhi, some 100 protesters marched to India's Parliament demanding that the government give up plans to build a large number of nuclear power plants because of safety issues underscored by Japan's nuclear crisis.

"The choice is clear — no nuclear," chanted the protesters from the Anti-Nuclear Struggles Solidarity Forum, a coalition of more than a dozen groups.

Merkel Loses Key German State On Nuclear Fears (NYT)

By Judy Dempsey

New York Times, March 28, 2011

BERLIN — Chancellor Angela Merkel's conservative Christian Democrats on Sunday suffered a major defeat in a historic stronghold in southwestern Germany, where the Green Party appeared poised to head a state government for the first time, according to official preliminary results.

The nuclear calamity in Japan and Mrs. Merkel's subsequent reversal on nuclear power played a key role in the elections in the southwest state of Baden-Württemberg, where the Christian Democrats have governed since 1953, before Mrs. Merkel, 56, was born.

Most Germans have a deep-seated aversion to nuclear power, and the damage at the Fukushima Daiichi plant in Japan has galvanized opposition. On Saturday, more than 200,000 people took to the streets of four big German cities to protest nuclear power. The news from Japan of soaring radiation levels led the major radio and television newscasts on Sunday.

After the catastrophe in Japan, Mrs. Merkel reversed a pro-nuclear policy that she adopted just last year and temporarily shut down seven of Germany's 17 nuclear plants. She apparently did not convince voters that her change of policy was sincere.

At Christian Democrat headquarters in Berlin, there was shock as the preliminary results were announced. "This is very painful for us," said Annette Schavan, federal education and science minister.

At their headquarters across town, the Greens were jubilant over their projected 25 percent of the vote. Winfried Kretschmann, 62, who stands to head a Green-led coalition in Baden-Württemberg, spoke of "a historic change."

According to the preliminary results, the Christian Democrats won the most votes, about 39 percent, down from 44.2 percent in 2006. Yet the weak showing of the Free Democrats, the pro-business party with which Mrs. Merkel governs nationally, left the conservatives no hope of forming the next state government.

The Free Democrats looked likely to squeak into the state Legislature with just 5.3 percent of the vote, the minimum required. In 2006, they got 10.7 percent.

If the polls are confirmed, the Greens are in a comfortable position to head a coalition with the Social Democrats in Baden-Württemberg, which has some 11 million residents and is among the most prosperous and successful of Germany's 16 states.

The Greens were projected to win 24.2 percent of the vote, compared with 11.7 percent in 2006. The Social Democrats were forecast to take 23.5 percent of the votes, little changed from 2006.

"If the results are confirmed, then this is a major breakthrough for the Greens," said Nils Diederich, a political science professor at the Free University in Berlin.

"And it is a huge blow to the chancellor," he added. "For the Greens, the big question is whether such success can be sustained on the federal level. Its opposition to nuclear energy and its environmental policies really did galvanize its support."

In neighboring Rhineland-Palatinate, where the Social Democrat premier Kurt Beck has governed with an absolute majority since 2006, the Social Democrats suffered sizable losses. Their share of the vote fell to 38 percent on Sunday, from 45.6 percent in 2006.

The Green Party, which failed to get elected to the regional parliament in 2006, won 16.8 percent of the vote. Mr. Beck is expected to ask the Greens to join a coalition with the Social Democrats.

The Free Democrats were voted out of the regional parliament in Rhineland-Palatinate, and, in a sign that Mrs. Merkel's party is likely to see as hopeful, the Christian Democrats increased their share of the Rhineland-Palatinate vote to 36 percent from 32.8 percent five years ago. Political analysts credited a good campaign by the regional party leader Julia Klöckner, 38.

In Baden-Württemberg, by contrast, the Christian Democrats suffered not only from Mrs. Merkel's reversal on nuclear power — in a state with four nuclear plants — but also "from a lackluster and unfocused campaign."

The regional party leader and premier, Stefan Mappus, 44, was an unknown local politician until Mrs. Merkel chose him to replace Günther Oettinger, who went to Brussels as European Union commissioner for energy.

Last year, Mr. Mappus was slow to react to a groundswell of opposition to Stuttgart 21, a planned new railway station complex in the state capital that was billed as vital to speed up links between Germany and the rest of Europe.

The Greens led part of the opposition to the project, gaining a larger profile while Mr. Mappus floundered.

But it was the combination of the crisis in Japan, and Mrs. Merkel's reaction, that swung opinion polls from the conservatives — who three weeks ago looked set to eke out a victory — to the Greens and the Social Democrats.

That decision was a U-turn for Mrs. Merkel. Last year she decided to overturn a decision and a relevant law by a former government of Social Democrats and Greens that aimed to close all nuclear power plants by 2022. Mrs. Merkel prolonged the plants' scheduled lifespan by an average of 12 years.

The change did not help Mr. Mappus, who was a staunch defender of nuclear power. He again seemed to flounder, saying at one point that one of the four nuclear plants in his state would be closed permanently. When that did not reverse the drifting polls, he reverted to support of nuclear power.

As soon as Mrs. Merkel shifted her stance, the Greens pounced on the change as a move to win votes, and late last week, her economics minister, a Free Democrat, confirmed to a gathering of industry leaders that it was a tactical shift. That reinforced the impression of disarray in the national government.

German Chancellor's Party Defeated In State Election (LAT)

Chancellor Angela Merkel's Christian Democrats go down in Baden-Wuerttemberg, which bodes ill for her national standing.

By Henry Chu, Los Angeles Times, 7:02 Pm Pdt, March 27, 2011

Los Angeles Times, March 28, 2011

German Chancellor Angela Merkel was dealt a humiliating defeat Sunday when voters booted her party from power in a state election that could bode ill for her leadership on the national stage.

Merkel's Christian Democrats had governed the affluent southwestern state of Baden-Wuerttemberg without interruption for nearly 60 years. But anger over her government's policy on nuclear power and an ineffective campaign by the local party led

voters to deprive conservatives of enough seats to form another ruling coalition in the state assembly, according to projected vote tallies Sunday evening.

Instead, the Green Party is poised to capture its first governorship in Germany. Although the Greens received a smaller share of the vote than the Christian Democrats, the environmental party performed best of the left-leaning groups and holds the strongest claim to head the new government.

"We have secured what amounts to a historic electoral victory," Winfried Kretschmann, the Greens' leader in the state, told party members in Stuttgart, the state capital.

The outgoing governor, Stefan Mappus, who critics said ran an unfocused campaign and made gaffes, conceded defeat. It was particularly bitter because only a few weeks ago, polls showed that the Christian Democrats stood a fair chance of holding onto power, though barely.

The Christian Democrats' coalition partner, the pro-business Free Democrats, also suffered an alarming drop in votes in Sunday's election.

The result is a rude wake-up call for Merkel because her government in Berlin is composed of the same combination of parties as the defeated coalition in Stuttgart. Both the Christian Democrats and the Free Democrats have seen their poll numbers fall in recent months as a result of government missteps and scandals.

In Baden-Wuerttemberg, much of the popular discontent has focused on nuclear power.

A majority of Germans opposes atomic energy, an aversion that has increased since the March 11 earthquake and tsunami in Japan, which damaged several reactors. Earlier this month, tens of thousands of protesters formed a human chain around one of several nuclear plants in Baden-Wuerttemberg.

Merkel announced that Germany would reexamine its nuclear power stations and suspend operations at some of them. The decision was an abrupt about-face from last year, when Merkel incensed many of her compatriots by declaring that her government would extend the life of Germany's nuclear plants by an average of 12 years.

In a second state election Sunday, voters in Rhineland-Palatinate returned the Social Democrats to power, although the Green Party also made gains.

henry.chu@latimes.com

Merkel's Party Suffers Severe Poll Defeat (FT)

By Quentin Peel In Berlin And Jennifer Thompson In Paris

Financial Times, March 27, 2011

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

WikiLeaks Cable Shows US At Odds With ElBaradei (AP)

By George Jahn, Associated Press

Associated Press, March 26, 2011

VIENNA – Washington's differences with Mohamed ElBaradei over his Middle East views and his handling of nuclear investigations in Iran and Syria persisted into the last months of his tenure as head of the International Atomic Energy Agency, according to a US diplomatic cable released Friday on the WikiLeaks website.

The cable, written Jan. 13, 2009, indicates that tensions continued after the US government formally gave up its efforts to unseat ElBaradei.

It also reveals ElBaradei's preoccupation with the Israeli-Palestinian conflict and his belief in the need for democratic change in the Middle East, long before he recently became a driver of Egypt's political reforms and a potential presidential candidate there.

On the Middle East, ElBaradei, an Egyptian, "said the situation is terrible, Arab governments (i.e. Egypt and the Gulf states) lack credibility and there is a growing gap between rich and poor," said the cable, written by Gregory L. Schulte, then chief US delegate to thee International Atomic Energy Agency.

Arab governments "need to work on 'internal reform, not just foreign policy,'" Schulte cited ElBaradei as saying in a private meeting.

Since his return to Egypt last year, ElBaradei has reinvigorated a youth movement that reached out to him as a leader in its calls for reform, seeing him as independent, untainted by state corruption and as a figure who represents international success. A prominent figure in the mass protests that forced out Hosni Mubarak, he appeals to educated and middle-class Egyptians, but lacks a wider popular following.

He has said that as Egypt's president he would restore relations between Cairo and Tehran that were severed in 1979, and has dismissed the Middle East peace process as a "ridiculous joke" — both comments that do not sit well with Washington.

ElBaradei already was outspoken while IAEA chief. Early in 2009, in the aftermath of three weeks of intense fighting between Israeli forces and Palestinian militants in Gaza, he canceled interviews with the BBC over its refusal to air an appeal for victims of the Gaza conflict, saying the decision violated "basic human decency."

During his tenure the Egyptian-born diplomat, who shared the 2005 Nobel Peace Prize with his agency, was criticized by the US, and some other IAEA members for comments on Iran, Iraq or other nations under examination for possible violations of nonproliferation commitments. He was accused of straying from the strictly technical commentary he was mandated for to making politically tinged statements that sometimes clashed with Washington's interests.

His independent streak led to attempts by Washington to have him removed from office. That push was abandoned just before ElBaradei won the Nobel Peace Prize and US officials publicly praised him as he left office last year. But the cable published Friday shows continued differences simmering outside public view.

"Unfortunately, ElBaradei is likely to remain part of the problem, rather than solution, if he becomes increasingly unwilling toward the end of his term" to rein in his views on the Middle East and other issues that hew closer to positions held by developing countries than the US and its allies, wrote Schulte.

Quoting ElBaradei as saying that the IAEA will "go through the motions" of trying to probe alleged secret nuclear work in Iran and Syria, the cable suggested the agency chief was remiss, adding he "seems poised to continue to place the onus on the US and others to 'solve' the Iran and Syria issues."

Iran Only Making Slow Nuclear Progress: Expert (AFP)

AFP, March 26, 2011

WASHINGTON (AFP) – Iran is not making fast progress towards acquiring a nuclear weapon, a US expert said Friday, adding he believed Tehran would still need another two years to achieve that goal.

"Iran is not moving as fast as it could. They've been at it since 25 years since they started the Iranian enrichment program in about 1985," said Mark Fitzpatrick, from the International Institute for Strategic Studies.

He said Iran would still need "a little over two years to have a bomb."

Fitzpatrick also compared Tehran's slow progress to the 11 years it took Pakistan to acquire a nuclear capacity, as he presented an IISS report entitled "Iran's nuclear, chemical and biological capabilities: a net assessment."

But Fitzpatrick, a former State Department employee, added Iran had still not yet completely decided whether to press ahead with making a nuclear bomb.

"As long they haven't made that decision I think there is still a time for diplomacy," he said.

At the end of December, Israeli Foreign Minister Moshe Yaalon said several recent setbacks had delayed Tehran's acquisition of a nuclear capability.

One of them was the Internet virus, the Stuxnet worm, which some suspect was developed by Israel and the United States and which affected the Iranian centrifuges producing enriched uranium -- a vital component of a nuclear bomb.

The New York Times reported in January that US and Israeli intelligence services collaborated to develop the computer worm.

"Stuxnet has had an impact on putting some centrifugues out of operation. But it was not a complete success because they were able to operate," Fitzpatrick said.

UN sanctions against the Islamic Republic have also impacted the alleged Iranian nuclear program, Washington has said.

The Sajil 2 missile -- which would be used to carry a nuclear warhead -- was also "still two years away from being operational," Fitzpatrick said.

But the IISS report said Iran's nuclear program has been making inexorable progress in the past 25 years, and argued that the Iranian regime's insistence that it was for peaceful civilian purposes only were simply not credible.

Iran has been slapped with four sets of UN sanctions for refusing to rein in its suspect nuclear program and for failing to halt uranium enrichment, amid accusations from the United States and other western nations that it is seeking to develop an atomic bomb.

Tehran has steadfastly denied the allegations.

An influential US senator said last week 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.

Qatar Denies Seizing Iran Arms Ships (AFP)

AFP, March 28, 2011

DOHA (AFP) – Qatar on Sunday denied press reports that it had seized two Iranian boats carrying weapons in the Gulf amid mounting tensions in the strategic region.

"The reports about the seizure in territorial waters of two Iranian boats loaded with weapons are inaccurate," the official QNA news agency quoted an interior ministry spokesman as saying.

The Kuwaiti electronic newspaper Al-Aan had reported that the two Iranian boats were intercepted off the Al-Zubara coast, in the northeast of Qatar, and close to the country's territorial waters with Bahrain.

The newspaper's sources provided no details on the crew, the date of the operation or the destination of the boats.

Sunni-ruled Bahrain, where Shiite-led protests broke out on February 14, accuses Shiite-led Iran of meddling in its affairs and elements of the Bahraini opposition of links with foreign powers.