



NUCLEAR REGULATORY COMMISSION NEWS SUMMARY

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NRC NEWS:

White House Asks NRC To Review Safety Of US Nuclear Plant Fleet.

Network and print coverage of the crises in Japan continues to dwindle due to the spike in coverage of the war in Libya. Last night, for example, the two networks that broadcast evening news programs (NBC and ABC) devoted a combined 7 minutes of airtime to Japan and the attendant debate over the future of nuclear power. The AP (3/21) reported that President Obama asked the NRC to "conduct a 'comprehensive review' of the safety of all US nuclear plants following what US officials are calling the dangerous and complicated situation at Japan's damaged Fukushima Dai-ichi reactors." Obama "took the rare step and

called upon the independent commission to conduct the review" as he tried to "reassure a worried nation that 'harmful levels' of radiation from the Japanese nuclear disaster are not expected to reach the US, even as other officials conceded it could take weeks to bring the crippled nuclear complex under control." White House spokesman Jay Carney noted the fact that Obama had asked the NRC – "an independent regulatory agency that is not under the president's control – to undertake the review and said it 'only adds to the urgency of that mission.'"

ClimateWire (3/18, Behr) noted that NRC Chairman Gregory Jaczko said at the White House "We're going to take a look at what happened, we're going to do a systematic and a methodical review of the information, and if we need to

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make changes to our program, we'll make changes to our program."

Jaczko's Grasp Of Physics And Politics Called Fortuitous. MarketWatch (3/18, McNeil) profiled NRC Chairman Gregory Jaczko, who is "suddenly America's most visible nuclear expert as the world grapples with the implications of the unprecedented nuclear crisis in Japan," and whose "Jaczko's unique background of science and politics is fortuitous. 'Dr. Jaczko seeks to build consensus positions,' said David Lochbaum of the Union of Concerned Scientists and head of the group's Nuclear Safety Project. 'Along the way, Dr. Jaczko sometimes will make a concession to gain some broader goal.'" MarketWatch said Jaczko generated "worldwide headlines" in presenting "a more dire scenario than had been reported by Japanese officials and advising Americans in Japan to get at least 50 miles away from the power plant, and finally assuring the US public that any radioactive emissions reaching this nation would not pose any health risks."

White House Said To Be Relying On Jaczko To Avoid Gulf Oil Spill PR Troubles. Under the headline, "White House: In Gregory Jaczko We Trust," Politico (3/18, Samuelsohn, 25K) reports that while the White House has been touting the NRC as a "trusted, independent arbiter of what's happening during the crisis in Japan," relying on "the NRC makes perfect sense at the moment of such a major crisis." The Obama team is "leaning on Jaczko" to avoid "the game of musical chairs that plagued the PR response to the Gulf of Mexico oil spill." While "Obama wasn't so keen on NRC's abilities while running for president, he's now relying on it to do the right thing with information gleaned from Japan, especially with about two dozen reactors in the US that have similar design features to Fukushima Daiichi."

Jaczko Highlights Redundant Safety Systems On US Reactors. On its "E-2 Wire" blog, The Hill (3/21, Geman, 21K) reports that NRC Chairman Jaczko "said Sunday that the upcoming study of US reactor safety will unfold in two phases to allow a near-term review while awaiting detailed information that will emerge from the crisis in Japan." Speaking to C-Span, Jaczko said the Commissioners "will probably do some kind of short look in the near-term just to reexamine the existing fleet of reactors, and then probably a much longer look based on the accurate information we get eventually from Japan about what really happened and what is most important going forward." Jaczko noted safety systems inherent among US reactors, "noting for instance requirements to have redundant system to ensure that a loss of power will not cripple the ability ensure cooling in spent fuel pools."

NRC Chairman Says US Spent Fuel Pools Are More Secure Than Japan's. The New York Times (3/21, Wald, Berger, 1.01M) reports NRC chairman Gregory Jaczko said

yesterday "that the spent fuel pools at American nuclear reactors are less vulnerable than the ones in Japan because of steps ordered by his agency after" 9/11, "including having utilities prepare to use fire hoses to pump in extra water in the event ordinary cooling systems are knocked out." According to the Times, the NRC has "been reluctant to disclose details, because some preparations against terrorist attack are classified, but indicate that the preparation includes locating emergency generators, diesel-driven pumps, hoses and diesel fuel, as well as setting up procedures."

The Wall Street Journal (3/21, Power, Zibel, 2.09M) quotes Jaczko as saying, "We think we have a program in place that would deal with the kind of situation we're seeing in Japan," but "if there are changes we need to make...we'll proceed to do that." Jaczko added, "Five days ago, everybody was worried about earthquakes and tsunamis and the reactors cooling. Today everybody is worried about the spent fuel pools."

Former NRC Commissioner Says Nuclear Expansion Is "Terribly Unlikely". A "Greenwire" story appearing on the New York Times (3/18, Northey, 1.01M) website reports that while NRC Chairman Gregory Jaczko and Energy Secretary Steven Chu "have stood firm behind assertions" that the nuclear regulatory process for existing and new nuclear plants will proceed "unscathed," former NRC Commissioner, Peter Bradford, "said the process of reviewing and potentially updating the safety of plants does not go hand in hand with the current pace of NRC oversight. 'Continuing a nuclear expansion in parallel with learning the lessons is just a terribly unlikely scenario,' Bradford said. 'The NRC can't divert resources that it's going to have to do for a 'lessons learned' process and still continue trying to have design approvals and construction and operating licenses on the original schedule.'"

Chu: Plant Sites Will Be Reevaluated. Energy Secretary Steven Chu's appearances on the Sunday morning talk shows receive a smattering of attention this morning, but tend not to be the focus of the coverage.

The AP (3/20, Daly) reports Chu "suggested Sunday that Japan's nuclear crisis might make it less likely that new nuclear reactors are built near large American cities. ... 'Certainly where you site reactors and where we site reactors going forward will be different than where we might have sited them in the past,' Chu said in response to questions about the Indian Point nuclear plant near New York City."

Asked on Fox News Sunday (3/20, Wallace) about the "more than 21 million Americans" that live within 50 miles of Indian Point, Chu said, "The evacuation plans of the Indian Point reactor will be looked at and studied in great detail. The Indian Point reactor is not in the situation like in Japan, but I think, again, we will be looking at whether those evacuation plans are adequate."

The Huffington Post (3/20, Terkel) notes that Fox News Sunday's Chris Wallace "pointed out to" Chu that the NRC "has called for a 50-mile evacuation zone around the reactor in Japan," but the Indian Point plant is much closer than that to New York City." Chu said, "We're going to have to look at whether this reactor should remain." The Washington Times (3/21, Eldridge, 77K) also covers Chu's comments from Sunday morning.

According to NBC Nightly News (3/20, story 8, 2:10, Holt, 8.37M), "A government report has found the plant with the highest risk of core damage from an earthquake here is about 35 miles from our studio here in New York City," and "just today...Chu said the government needs to take a closer look at safety plans at Indian Point." New York Gov. Andrew Cuomo: "This plant, in this proximity to the New York City, was never a good risk." Another brief AP article (3/20) notes that "more than 21 million people live within 50 miles of the plant." Former DHS Secretary Michael Chertoff, on ABC's This Week (3/20, Amanpour), said the federal government "has a general plan for catastrophic incidents."

Top Democrats Differ On Future Of Nuclear Power In US. Sen. Carl Levin said on NBC's Meet The Press (3/20, Gregory), "I don't think that we can say that we're not going to continue to use nuclear power. Europe depends heavily on it, and they have found it to be safe. We use it a lot. We have found it, since Three Mile Island, to be safe."

Rep. Ed Markey (D MA) said on CBS' Face The Nation (3/20, Schieffer, 168K), "I've called for a moratorium on the siting of new nuclear power plants on earthquake-prone areas of our country. ... Unbelievably, the nuclear industry was able just three weeks ago to convince the Republican House representatives to zero out the loan guarantee money for wind and solar and geothermal and to put in \$18 billion in taxpayer-guaranteed loan guarantees for the nuclear industry. Well, that's ancient history already, because it's pretty clear that the nuclear industry as an electrical-generating part of our mix for the future is now going to meet its maker in the marketplace."

Former energy secretary Bill Richardson said on ABC's This Week (3/20, Amanpour), "We have to look at licensing of new nuclear power plants. The President wants to proceed with 20 in the next decade. We want to have loan guarantees. But I think we have to have a timeout on nuclear power... [to] review the safety and cost of all these plants."

Analysts Expect Only Temporary Nuclear Development Slowdown. The Christian Science Monitor (3/20, Clayton, 48K) reports that nuclear energy experts believe the crisis in Japan is "unlikely to kill development of nuclear power. ... '[The Fukushima disaster] is going to slow things down, but not stop them,' says Charles Forsberg, head of the nuclear fuel cycle project at the Massachusetts Institute of Technology." However, the CST adds, "The Japanese

disaster, say experts, probably will slow deployment of new plants by increasing safety regulations, heightening public opposition, and vastly increasing the cost of capital to finance hugely expensive construction."

California Radiation Remains Below "Levels Of Concern." The Los Angeles Times (3/20, Simmons, Vives, 681K) reports, "Environmental officials reassured residents Saturday that radiation in Southern California's air remained below levels of concern as workers in Japan struggled to contain releases from a stricken nuclear power plant." Los Angeles County Fire Department officials "also sought to debunk an e-mail hoax that predicted acid rain would result from Japan's nuclear accident." But the Boston Globe (3/20, Russell, 253K) reports on "a spike in demand for potassium iodide pills" as far away as Massachusetts.

Crisis Brings Economic Concerns In Both Japan, US. The New York Times (3/20, Onishi, 1.01M) says Japan's economy "is likely to suffer, at least in the short term, as power disruptions hobble its industries. If the reactors do melt down, in the worst case, or even if there is a steady release of radioactive vapor, there are implications for public health." The Hill (3/19, Schroeder, 21K) reports a majority of Americans also "expect the aftermath of the Japanese earthquake will drag down the US economy, according to a new poll." The Rasmussen Reports survey finds that 60 percent of Americans "expect the earthquake and resulting problems will hurt the United States economically."

Crisis Brings Reminder Of Three Mile Island. Meanwhile, the AP (3/19, Hebert, Scolforo) reports the Japanese crisis "has transported residents of central Pennsylvania back 32 years, when the partial meltdown of the Three Mile Island nuclear plant raised fears that a massive amount of radiation could be released into the atmosphere or the Susquehanna River. But there are stark differences between the disasters." Former Director of the Office of Nuclear Reactor Regulation Harold Denton said, "It's probably not politically correct to say it, but TMI was a piece of cake compared to what they're facing over there in Fukushima, in terms of the problem."

The Philadelphia Inquirer (3/20, Flam, 373K) reports that "with attention focused on tons of radioactive spent fuel that may have ignited, some experts say the Japanese will be lucky if the stricken Fukushima plant creates a disaster only the size of Chernobyl in 1986." The Inquirer also reports that the spent fuel rods "are now being blamed for the radioactive release over Japan" and that the storage system is also being "widely used in the United States."

The Washington Post (3/20, Morello, Mufson, 605K) has a feature on those "who live in the shadow of the reactor's cooling towers" in Middletown, Pennsylvania, where many "stock potassium iodide pills" and the town "maintains a

'disaster room' lined with evacuation route maps that are updated to reflect every road repair."

More Commentary. Thomas Friedman, in his column for the New York Times (3/20, 1.01M), writes, "At a time when Japan is suffering a nuclear catastrophe that is likely to make the world even more dependent on oil and gas, at a time when the world's top oil and gas producers are entering what will be, at best, an unstable, and, at worst, a viciously violent transition from autocracy to, one hopes, democracy, and at a time when the combination of the two could slow down global growth while we're still trying to climb out of recession, America has no energy policy, no climate policy and no long-term plan to deal with its unsustainable deficit."

Astrophysicist Satoru Ikeuchi, in an op-ed for the New York Times (3/20, 1.01M), writes, "Although earthquakes are so frequent in Japan that it has been described as 'a nation lying atop a block of tofu,' we have built some 54 nuclear reactors along the coast, vulnerable to tsunamis. It should have been foreseen that an earthquake of this magnitude might occur, and if the plant could not withstand such an event, it should not have been constructed."

Ian Jared Miller, an assistant professor of history at Harvard, in an op-ed for the New York Times (3/20, 1.01M), writes, "In 2003 Taro announced that it would become a 'tsunami preparedness town,'" but "despite the substantial infrastructure and technological investments in Sanriku, the wave on March 11 overwhelmed large portions of Taro and Miyako. Some of the evacuation points were not high enough. The walls were not tall enough."

Nicholas Kristof, in his column for the New York Times (3/20, 1.01M), writes, "Maybe we can learn something from Japan, where the earthquake, tsunami and radiation leaks haven't caused society to come apart at the seams but to be knit together more tightly than ever. ... The Japanese government has been hapless. And the Japanese people have been magnificent, enduring impossible hardships with dignity and grace."

In his Chicago Tribune (3/20, 488K) column, Steve Chapman writes that "Nuclear has two major challenges. The first is cost, and the second is safety. Neither has been solved, and neither is about to be." In terms of cost, Chapman adds that "In the United States, it's hard for atomic energy to compete with fossil fuels, which are plentiful and cheap." Chapman also writes that there are also, still concerns over the safety of atomic energy as some are worried about the "prospect of uncontrolled leaks of deadly radiation across large geographic areas." Chapman concludes by saying "It's comforting to hear that modern reactors are better designed and that the Japanese experience will help prevent future accidents. But if overly stringent safety regulation is what's keeping nuclear energy down, down is where it's going to stay."

Heather Long of the Harrisburg (PA) Patriot-News (3/20, 83K) writes that "President Obama, Energy Secretary Steven Chu and officials on down the line have spent the week reassuring anxious Americans that nuclear energy is safe and our country's nuclear reactors aren't likely to experience anything like Japan's" which "has been calming – to a degree." However, Long adds that "Some of America's 104 nuclear reactors were made by the same manufacturer and around the same time as those in Japan" and "while magnitude 9.0 earthquakes are extremely rare, that does not mean it could never happen here." Long concludes by saying that Americans should be "looking around at all of our energy sources and asking the tough questions about safety and oversight," especially after what has taken place in Japan.

Faint Traces Of Radiation Hit US West Coast, But No Health Threats Expected. NBC Nightly News (3/18, story 5, 3:25, Williams, 8.37M) reported, "In this country, the Federal government says no radiation levels of concern have been detected." The AP (3/19) reports US and California officials "sought Friday to dispel fears of a wider danger from radioactivity spewing from Japan's crippled nuclear reactors, saying testing indicated there were no health threats along the West Coast."

The New York Times (3/19, Broad, 1.01M) reports, "Faint traces of very low levels of radiation from the stricken nuclear complex in Japan have been detected in Sacramento, European officials reported Friday, bringing the distant atomic crisis to American shores for the first time." But health experts "said the plume's radiation had been diluted enormously in its journey across thousands of miles and – at least for now, with concentrations very low – would have no health consequences" in the US. The Los Angeles Times (3/19, Brown, Hennessy-Fiske, 681K) reports, "Though scientists said they believed that this came from the Fukushima Daiichi reactors, the levels were so 'minuscule' they posed no threat to human health," according to the DOE and EPA.

The Washington Post (3/19, Wallsten, Yang, 605K) reports President Obama has repeatedly "peppered public remarks on Japan with assurances that US reactors are safe and that nuclear energy remains a key component of his energy agenda." His stance "puts him in direct opposition to many in his political base, with some environmentalists and a plurality of Democratic voters in a new survey saying that nuclear power is not safe." The New York Times (3/19, Kaufman, 1.01M) says according to US anti-nuclear activists, "more Americans seem to be rethinking their position on nuclear power" since the disaster.

The Wall Street Journal (3/19, Power, Lee, 2.09M), New York Daily News (3/19, Boyle, Dillon, 527K) and The Hill (3/18, Laing, 21K), also have reports.

Cuomo, New York Officials To Meet With NRC About Indian Point Earthquake Risks.

Bloomberg News (3/21, Hart) reports, "New York Governor Andrew Cuomo said Lieutenant Governor Robert McDuffy and other state officials will meet with the US Nuclear Regulatory Commission to discuss how safe Entergy Corp.'s Indian Point nuclear-power plant" would be in an earthquake. "The meeting on March 22 was set up by the White House at Cuomo's request" and is "intended to gather information about Indian Point's earthquake vulnerabilities, preparedness and risk assessment, according to the statement." Entergy spokesman Jerry Nappi said the Indian Point reactors were "designed to withstand at least a magnitude 6 earthquake," though a "magnitude 7 earthquake in the region is possible, based on the features of the two faults, according to scientists at Columbia University's Lamont-Doherty Earth Observatory."

The AP (3/21) adds, Entergy "says the reactors are safe" and spokesman "Jim Steets said the reactors are built to withstand a magnitude-6 earthquake, and the plant's backup electrical generators are on high ground and safe from any tsunami that might swell the Hudson River. The New York Public interest Research Group plans to request that Cuomo also discuss the state's other aging nuclear plants at the NRC meeting."

The Middletown (NY) Times Herald-Record (3/20, Novinson, 63K) reported briefly on the meeting to "discuss earthquake risks associated with Indian Point nuclear energy plant. Lt. Gov. Robert Duffy and Director of State Operations Howard Glaser will discuss earthquake preparedness and risk assessments for the plant, according to a press release from Gov. Andrew Cuomo."

The New York Daily News (3/21, Boyle, 527K) noted that "Cuomo has repeatedly called for its closure," while NY1 Cable (3/19, Robin) New York Attorney General Eric Schneiderman "voiced concerns Friday" about Indian Point, suggesting NRC "regulators do not even have to take seismic risks into account when they relicense Indian Point." NRC officials said "they do monitor risks of earthquake and have recently been taking closer looks."

E&ENews PM (3/18, Northey) noted that New York Attorney General Eric Schneiderman chimed in against relicensing Indian Point plant, "demanding the Nuclear Regulatory Commission take into account seismic activity in the region before relicensing the 40-year-old nuclear plant." Schneiderman "sent a letter to the NRC today, asserting that seismic activity is a factor that NRC has repeatedly refused to consider in reviewing the relicensing application to extend Indian Point's operation."

Pleasantville (NY) Patch.com (3/21, Kenny) adds that "As Westchester residents witness Japan's waking nightmare, they have begun to reexamine their nearby Indian Point nuclear power plants and reassess whether the plants'

relatively low possibility of risk plus the reward of local non-carbon energy outweighs their potential for catastrophe." While no one predicts "a similar scenario: an 9.0 magnitude earthquake followed by a cataclysmic tsunami" that struck the Fukushima Daiichi Nuclear Power Station, "local residents say they have real reason for fear. Indian Point sits on a seismic zone, has a documented history of safety violations and terrorists flew past it in airplanes they used as bombs to destroy the World Trade Center." Troy (NY) Record (3/21, Sanzone) also covered the story.

Geology Experts Say Fault Near Indian Point Is "Dead". Westchester (NY) Journal News (3/21, Clary) reports, "The debate over Indian Point's vulnerability to a Japan-like earthquake rests — literally — on the Ramapo Fault," which is "actually a geological braid of fault lines running from the area of Clinton, N.J., to a mile or so west of the Buchanan nuclear plant, where it intersects with a second line that recent discoverers say runs between Stamford, Conn., and Peekskill." While the "intersection has created a lot of headlines" after the giant 9.0 Japan quake "the US Geological Survey — one of the nation's foremost research labs — said geologic evidence about the Ramapo Fault is 'insufficient to demonstrate the existence of tectonic faulting or ... slip or deformation.'" According to Geology professor Alec Gates, "The Ramapo Fault is dead." Gates is head of Earth and environmental sciences at Rutgers.

Local Official Compares NRC Oversight To SEC Supervision Of Wall Street Before Economic Crisis. On its website, WCBS-TV New York (3/19, Diamond) notes that a "new report shows federal inspectors logged several 'near miss' accidents at the Indian Point nuclear power plant in Buchanan in 2010. Former Westchester County Assemblyman Richard Brodsky calls the findings troubling. Brodsky questioned whether the Nuclear Regulatory Commission, charged with ensuring the safety of nuclear facilities, was up to the job." Brodsky said the "NRC is to nuclear power today what the SEC was to Wall Street three years ago."

Indian Point Evacuation Plan Faulted. In a commentary for the New York Times (3/21, A18, 1.01M), Peter Applebome writes how it is "fantasy" that officials expect a "50-mile circle around the Indian Point" plant could be evacuated in an emergency similar to that which has befallen TEPCO's Fukushima Dai-ichi plant. "American officials have told citizens of the United States to stay at least 50 miles away from the Fukushima Daiichi Nuclear Power Station in Japan as the nuclear crisis continues." Applebome quoted Daniel P. Aldrich, a professor of political science at Purdue University, who said "Many scholars have already argued that any evacuation plans shouldn't be called plans, but rather 'fantasy documents.'"

Antinuclear Activist Says Indian Point Meltdown Would Be Devastating. Antinuclear activist Helen Caldicott writes in Newsweek (3/28, 2.65M) that a meltdown at the Indian Point complex “just 35 miles from midtown Manhattan” could cause early fatalities of up to 11,500, while “late cancer deaths, which would occur two to 60 years later, could range from 28,100 to a staggering 518,000 people in the 50-mile zone.”

Westchester Journal News Considers Earthquake Risk Question. In an editorial, the Westchester (NY) Journal News (3/21) says that where before last week, the “biggest question mark for Entergy, owner of the Indian Point nuclear plants, concerned the fate of Hudson River fish,” and whether the plant violated law by destroying too much aquatic life in taking water in for cooling. But after “an earthquake and tsunami left a complex of nuclear power plants in ruin in Japan, the focus in the Lower Hudson Valley has shifted from fish and larvae to the fate of all living things – that is, all life within 50 miles of Indian Point. MSNBC reported last week that the plants in Buchanan top a list of US nuclear facilities considered most susceptible — however slight the possibility - to suffer nuclear core damage from an earthquake.” According to an Entergy statement, “Indian Point is designed to withstand an earthquake ‘greater in size than the area has ever experienced.’ The question now is whether that is good enough.”

Blog Coverage. The Albany Times Union's (3/21) “Capital Tonight” blog says Gov. Andrew Cuomo “expressed renewed concern about the facility and ordered a complete safety review. Cuomo said the proximity of the plant to NYC – just 24 miles to the north in Westchester County – makes it too risky to keep open. But Mayor Bloomberg said yesterday that he supports the plant’s continued operation, noting it generates up to 30 percent of the city’s energy.”

MSNBC Defends Use Of NRC Data On Earthquake Risk To Plants. In response to NRC PAO Neil Sheehan’s letter to the editor of the Malvern (PA) Patch.com (3/21, Powell), which pointed out that the “MSNBC [msnbc.com] story has to do with a seismic risk ranking it created. It is not the result of an NRC review. The NRC does not rank plants by seismic risk.” The Patch added, “Bill Dedman of msnbc.com responded to the NRC statement in a comment at West Chester Patch: ‘Our story made clear that the NRC does not rank the nuclear plants. But it does publish its estimates for each plant, by which we ranked the plants.’ Dedman said “NRC hasn’t said our numbers are wrong. I checked my interpretation with Scott Burnell in Public Affairs, who checked with the NRC technical staff before publication. ... After all, they’re NRC’s numbers.”

The Fulton (MO) Sun (3/21, Norfleet, 4K) added NRC spokeswoman Lara Uselding, “said the NRC does not rank

plants based on risk of damage from an earthquake. Uselding said MSNBC reached its own conclusions in its rankings and the NRC did not approve the rankings. ‘It was an incomplete report on the overall research that had been done by the NRC. Somebody at MSNBC took numbers and threw them together to create the rankings. We have said that is not accurate because the NRC does not rank plants by seismic risk,’ Uselding said.”

International Business Times (3/19, Emspak) reported that the NRC “has no plans to retrofit existing nuclear power plants due to seismic hazards, despite an increase in measured seismic risk at some sites. Joey Ledford, of the office of public affairs at the NRC, said nuclear reactors in the US are all designed to take into account historical earthquakes, as well as some additional margin.” IBT added, Ledford said the study from 2008 examined seismic hazards facing nuclear power stations and “was largely a screening tool, to see which plants, if any, require further evaluation.”

Blog Faults MSNBC Reporter For Misusing NRC Data. On its “Science” blog, Daily Tech (3/18, Mick) said in an opinion piece that MSNBC.com reporter Bill Dedman “mislead” and “sensationalized” the nuclear fault study story. “We wrote a piece on Wednesday criticizing numerous factual inaccuracies in Mr. Dedman’s piece. At the same time we contacted the US Nuclear Regulatory Commission (NRC). On Friday, after two lengthy phone interviews and an email dialogue with the NRC we had the complete story – the NRC backed nearly every one of our assertions.”

UCS Report Suggests 14 “Near Misses” Point To Lax Oversight. The Christian Science Monitor (3/19, Clayton, 48K) reported on the “14 ‘near misses,’” detailed in new report by the Union of Concerned Scientists, which said the mistakes were “serious failures in which safety was jeopardized, at least in part, due to lapses in oversight and enforcement by US nuclear safety regulators, says a new report.” UCS said that while none of the incidents “harmed plant employees or the public, they occurred with alarming frequency – more than once a month – which is high for a mature industry.” UCS said while the chances “of a disaster at a nuclear plant are low,” when the “NRC tolerates unresolved safety problems – as it did last year at Peach Bottom, Indian Point, and Vermont Yankee – this lax oversight allows that risk to rise.” The Christian Science Monitor (3/21, 48K) reports on of the “14 ‘near miss’ examples.”

The Boston Business Journal (3/18, Alspach) added, “Plant owners could have avoided nearly all 14 near-misses in 2010 if they’d corrected the problems in a timely manner, the report says, suggesting that ‘our luck at nuclear roulette may someday run out.’”

UCS Says US Regulations Not Better Than Japan's. Bloomberg News (3/19, Snyder) reported that Union of Concerned Scientists' Dave Lochbaum, the director of the group's nuclear safety project, said it is "unfair for us to say Japan has weaker regulation," of nuclear power. The "Japanese 'just had worse luck,' he said. Japan has a lower threshold for replacing damaged pipes than US regulators, and requires back up power systems to run for twice as long, Lochbaum said."

Kondracke Says Media Adding To "Nuclear-Phobia". In a guest commentary picked up by the Muskegon (MI) Chronicle (3/19, 33K) among several other outlets, Roll Call editor Mort Kondracke wrote, "The danger of a meltdown at Japan's Fukushima Daiichi reactors is real, but the media made it a 'crisis' from the get-go. The New York Times said the crisis had 'veered toward catastrophe.' And on MSNBC's 'Morning Joe' on Wednesday, co-host Mika Brzezinski opined it might prove 'apocalyptic,' which is to say, world-ending." The "real threat here is that nuclear-phobia will take hold in the United States as happened following the partial meltdown and radioactive release at Three Mile Island in 1979, resulting in no new nuclear plant construction for 30 years."

Indiana Lawmaker Urges Halt In Push For Nuclear Power. The AP (3/21) reported an "Indiana effort to promote nuclear power in the state is losing steam as concerns mount about radiation from Japan's crippled nuclear power reactors following the island nation's devastating earthquake and tsunami." Sen. Beverly Gard said that after "the events in Japan, I think you really need to take a step back." Gard "helped author a bill that would encourage the construction of Indiana's first nuclear plant. 'I think it's going to take months, if not years, for an investigation to get to the source of the problem.'"

NRC: US Nuclear Output Rises After AEP Starts Michigan Reactor. Bloomberg News (3/18, McClelland) reported, "US nuclear-power output rose for the fourth day after American Electric Power Co. started the Donald C. Cook 1 reactor in Michigan, the Nuclear Regulatory Commission said." According to a report Friday from the NRC "and data compiled by Bloomberg," US-wide production "increased by 382 megawatts, or 0.4 percent, from" Thursday "to 87,543 megawatts, or 86 percent of capacity, according to a report today from the NRC and data compiled by Bloomberg."

Utah Governor Says 10-Year Energy Plan Will Include Nuclear Power, Renewable Energy. The AP (3/18) reported, "Nuclear power must be an

important part of Utah's future energy portfolio, Gov. Gary Herbert said Friday, adding that a 10-year plan he was set to unveil will emphasize the need for nuclear energy alongside traditional fossil fuels and renewable sources." Meanwhile, Matt Pacenza, policy director for the Healthy Environment Alliance of Utah, said "the danger should be enough to persuade the governor to oppose nuclear power. There are also waste and water problems to consider, he said."

According to the Deseret (UT) Morning News (3/19, Lee), "the 42-page report stated that accomplishing the state's energy goals would require developing resources thoughtfully through careful evaluation of resource potential, impact on economic development, the natural environment, human health, along with weighing physical and regulatory constraints."

NRC Cancels Progress Energy Meeting After Second Gap Found At Crystal River. E&ENews PM (3/18, Northey) reported that the NRC "canceled a meeting to discuss restarting the 838-megawatt Crystal River nuclear plant in Florida after a second gap was discovered in the plant's concrete containment building." NRC had scheduled a March 22 meeting "to address Progress Energy Inc.'s pressurized water reactor that's been shuttered since 2009 for refueling. ... After extensive analysis and repair, Progress Energy is now reporting indications of an additional separation or gap resulting from the repair work on the original containment wall."

Massachusetts AG Says Disaster Underscores Risks Of Keeping Spent Fuel On Site. In a page-one Boston Globe (3/21, A1, Daley, 253K) story reports on comments from Massachusetts Attorney General Martha Coakley, who said the NRC has "underestimated the potential danger posed by radioactive spent fuel storage pools at the Pilgrim and Vermont Yankee nuclear power plants." The "unfolding Japanese nuclear crisis at the Fukushima Daiichi plant — including a spent fuel pool that US officials have said appears to have gone dry and released radioactive material — has riveted attention on possible vulnerabilities at US plants. ... Massachusetts has long argued that the lack of a federal repository where plants can send spent fuel rods, coupled with plans by plants such as Pilgrim and Vermont Yankee to operate 20 years beyond" their original licenses "will ramp up the number of radioactive rods in pools on site — and the risk from an accident, natural disaster, or terrorist attack."

Officials Question Whether Diablo Canyon, San Onofre Plants Are Safe From Quakes. In a page-one story the Los Angeles Times (3/21, A1, Bensinger, Samo, 681K) reports that California and "federal officials have

begun pushing for comprehensive reviews of California's two commercial nuclear plants, which are near powerful fault lines and have been cited repeatedly in recent years for safety lapses. If reviewers identify new problems, it could lead to added safety measures — or potentially, delays or denials for renewals of the operating permits for the plants." Diablo Canyon and San Onofre stations have been operating for decades, and supply nearly 15 percent of the state's electricity. "In light of the crisis at Japan's Fukushima reactors, some state and federal lawmakers are now questioning whether the two utilities have underestimated the severity of earthquakes that could strike the plants."

Officials Say Nuclear Industry Will Continue To Grow By 2020 Despite Japan Disaster.

The San Diego Union-Tribune (3/19, Lee, 264K) reports, "Officials at the Nuclear Energy Institute, the industry's policy arm, said they expected between four and eight new nuclear plants to be built nationwide by 2020 before the earthquake and tsunami slammed Japan — and they said this week that the forecast remains unchanged." However, the Union-Tribune says "Japan's crisis has stalled pronuclear measures in Indiana, North Carolina and elsewhere, while policy makers and residents are taking a wait-and-see approach." Still, industry leaders and analysts say that those setbacks are temporary and, according to a stock note issued this week by Jefferies & Co., "nuclear concerns appear to be overblown."

Chicago Tribune Says Closing Yucca Was "Huge Mistake."

The Chicago Tribune (3/19, 488K) editorializes that the "decision to mothball Yucca was a huge mistake, and the Obama Administration should recognize" this in the "wake of the nuclear disaster unfolding in Japan." The Tribune says that spent fuel is a major problem in Japan's crisis and if the Yucca Mountain project was still running, plants like Japan's would have a place to store the fuel. Other plants in the US are also facing a similar problem as they have to store spent fuel at their facilities since there isn't a main, secluded facility that can house the fuel. The Tribune concludes by saying, "nuclear waste shouldn't be scattered near population centers across the country. It should be entombed in Yucca Mountain."

Activists Speak Out Against Millstone Station.

The Stamford Advocate (3/19, Cummings, 17K) reports, "A group dedicated to closing the Millstone Nuclear Power Station warned Friday that the same type of disaster now unfolding in Japan could happen here in Connecticut." According to the director of the Connecticut Coalition Against Millstone, Nancy Burton, "the two operating reactors and one mothballed reactor at the Waterford plant could melt down much like what is happening at the Fukushima Daiichi

Nuclear Power Station in Japan." Burton contends "poor regulatory oversight, old reactor design and the presence of spent fuel in storage pools could all contribute to a disaster." Dominion's Ken Holt said, "The plants ... were designed with all manner of natural destruction in mind, whether hurricanes, earthquakes or tornadoes. They were designed to withstand not only the historical worst but they added extra margins."

An article on the website of New England Cable News (3/18) reported while Burton "admits the likelihood of an earthquake and tsunami similar to what hit Japan is remote here in Connecticut she worries about a hurricane or tornado and the failure of systems designed to keep spent fuel cooling pools similar to the pools in Japan intact." Holt said the pool she "is talking about cools spent fuel from unit one which was shut down in 1998." WTNH-TV New Haven (3/18) covered this story on its website.

The New London Day (3/20, Daddona) reports, "Paul Gunter, director of reactor oversight for the activist group Beyond Nuclear of Takoma, Md., said Friday that Millstone owner Dominion should remove the waste from Unit 1 and put it in some of the dry-cask storage available on site, since the pool could be vulnerable if ever exposed in a catastrophe like that occurring in Japan." On Friday, Dominion's Ken Holt said "that the company had been evaluating the possibility of moving spent fuel into dry storage before the events still unfolding in Japan took place." Holt added that the situation in Japan "is a factor in making our decision and will be considered when we make our decision."

The Norwich Bulletin/AP (3/19) reports, "An official at Connecticut's only nuclear power plant says it will be reviewing its disaster contingency plans in light of the crisis surrounding Japan's crippled reactors." Dominion's Ken Holt "says the Millstone Power Station in Waterford is starting to pull together teams that will evaluate response plans for earthquakes, floods or other natural catastrophes." This AP article also appeared on the Boston Globe (3/19, 253K) website.

WCBS-TV/AP New York City (3/19) added that "the news coincides with concern from New York's Attorney General, Eric Schneiderman, regarding the Indian Point nuclear plant in Westchester County." ABC News Radio (3/21) also reports on the statements made by the New York attorney general.

The Danbury News Times (3/19, Burgerson, 23K) reports, "The crippled Fukushima Daiichi nuclear reactor is a half a world away, but that hasn't stopped people from calling their local pharmacies to ask about potassium iodide pills. An informal survey of about 25 pharmacies in Fairfield County revealed that most druggists have had at least a few requests for the tablets and some are getting dozens of calls every day." According to nuclear experts "Connecticut residents have little to be fearful of in terms of an earthquake causing a

nuclear meltdown at the Millstone Nuclear Power Station in Waterford." WTNH-TV New Haven (3/18, Detlji) also reports on the run on iodide pills.

A brief article on the Christian Science Monitor (3/21, 48K) website reports on the "near-miss" that took place at the Surry Nuclear Plant last year.

Commentary. Editorials by the Richmond Times-Dispatch (3/21), the Norwich Bulletin (3/19) and the Manitowoc Herald Times Reporter (3/19) each expressed support for nuclear power. The Times-Dispatch opined, "Nuclear power boasts an astoundingly good safety record, and will continue to do so even after the events in Japan are taken into account. Dominion Virginia Power sets a standard in this regard. It would be the height of foolishness to let the panic of the hour divert the country from a future in which nuclear power plays a much bigger part."

In a piece appearing in the Washington Post (3/19, 605K) that offered opinions by both experts and critics of nuclear power Virginia Governor Robert McDonnell said, "Nuclear energy is an important part of our energy portfolio. Virginia is moving forward with plans to build a third reactor in Louisa, and I support that effort."

Constellation Emphasizes Safety In Wake Of Japan Crisis.

In continuing coverage of the impact of the nuclear crisis in Japan and its impact on the nuclear power industry in the United States, the Syracuse Post Standard (3/21, Knauss) reports, "Three General Electric-designed Japanese reactors rocked by explosions at the Fukushima Daiichi plant are nearly identical to 23 US plants, including the FitzPatrick and Nine Mile Point Unit 1 reactors in the town of Scriba." David Lochbaum, a nuclear engineer at the Union of Concerned Scientists, believes "American nukes are vulnerable to power disruptions, too." He said, "Ice storms in the Northeast or a tree in Cleveland can cause an extensive blackout that puts us in a very similar situation." According to CENG's Jill Lyon there is enough fuel at the Nine Mile Point station stored in "underground oil tanks to run one of the generators flat out for four days."

The Guilford Patch (3/21) reports, "The Fukushima plant, damaged by a 9.0 earthquake and ensuing tsunami on March 11, has six boiling water reactors. Maryland's Calvert Cliffs Nuclear Power Plant, located in Lusby on the southwest coast of the Chesapeake Bay, has two pressurized water reactors." In an email, Constellation's Mark Sullivan said, "that safety was the company's top priority."

In an interview on MSNBC (3/20, 9:40 a.m. EST) Constellation Energy Group COO Michael Wallace expressed confidence in nuclear power. He said, "I can tell you that safety is absolutely number one, it's our passion. It's in the DNA of those of us who have responsibilities for operating nuclear plants. And in the United States in particular, the

record, the facts demonstrate that our plants are performing better and better every year, to the point where they are among the best in the world today."

In a letter to the Baltimore Sun (3/20, 228K) critical of nuclear power, Dr. Gwen L. DuBois, member of the Chesapeake Physicians for Social Responsibility, wrote, "There should be a moratorium on approval of new plants with their unproven and questionable safety features. Power plants in risky environments (Indian Point, Calvert Cliffs) should be reassessed." To DuBois the risks are "too big to take" when "we have alternatives: wind, solar, conservation and higher efficiency standards."

Experts Criticize Design Of Plant. The Florence (AL) Times Daily (3/18, Fleischauer, 29K) reported, "The Tennessee Valley has more reason than much of the world to study the nuclear disaster unfolding in Japan." The paper said "Browns Ferry Nuclear Plant – 30 miles east of the Shoals – has the same General Electric reactor design – the Boiling Water Reactor Mark I – as the damaged reactors at the Fukushima Dai-ichi plant in Japan." Some experts say "the disaster in Japan has...highlighted problems in the Mark I design." Notably, "Browns Ferry is more vulnerable to problems with the spent-fuel pools than are the plants in Japan," reports the Daily. TVA Chief Operating Officer Bill McCollum said he has confidence in the authority's reactor, but TVA will look for lessons from the Japanese disaster.

The Decatur (AL) Daily (3/20, Fleischauer) reported, "A nuclear engineer's theory for why a spent fuel pool at a Japan reactor is losing water, and thus is spewing radiation, raises the possibility similar problems could occur at Browns Ferry Nuclear Plant in the event of a power outage." Ray Golden, a spokesman for TVA's nuclear operation, "said Saturday it is too early to draw conclusions from the situation at the Japanese plant."

Japan Nuke Crisis Sheds Light On Stability Of Browns Ferry. The Athens (AL) News Courier (3/20 Smith, 7K) reports that following the nuclear problems in Japan, "the Tennessee Valley Authority has also rushed to quell fears about the safety of its three nuclear power plants in Athens, Saddy-Daisy, Tenn., and Spring City, Tenn." Golden said "the Fukushima plant would have survived without issue had the tsunami not knocked out power to the plant."

Vermont Regulators Begin Water Discharge Study.

The Brattleboro (VT) Reformer (3/21, Audette) reports, "Following the announcement that the Nuclear Regulatory Commission will soon issue a new license for Vermont Yankee nuclear power plant to continue to operate until 2032, the Vermont Agency of Natural Resources announced it will begin its own task – investigating what standards should be in the plant's updated pollution discharge

permit." Because "ANR is now allowed to 'charge back' expenses related to the permit, it plans to hire a consultant to help ANR's staff to determine the impact of the change in water temperature due to the discharge and its effect on the river's wildlife and habitat. In addition to awaiting charge-back authority, ANR has been watching developments at another Entergy-owned plant in New York – Indian Point – regarding the second part of Yankee's discharge permit, whether Entergy is using the 'best technology available' to reduce the effects on river life when water is taken from the Connecticut River for cooling purposes."

Group Holds "Vigil" At Vermont Yankee. The Rutland Herald (3/19, Smallheer, 15K) reports, "Anti-nuclear activists have organized a vigil for Sunday afternoon at the gates of the Vermont Yankee nuclear plant in what they say is an expression of solidarity with Japanese workers and residents affected by the nuclear disaster in Fukushima. Bob Bady of Brattleboro, a member of the Safe & Green Campaign, said Friday the event would be a solemn and peaceful vigil in front of Vermont Yankee's main gate on Governor Hunt Road. ... Bady said he had been getting a lot of telephone calls from people whom he usually doesn't hear from about the vigil, although he said he had no idea how many people would attend the event."

Opinions On Yankee Slow To Change. The Keene Sentinel (NH) (3/21, Gilbert) reports, "The nuclear plant in Vernon, Vt., is again under intense scrutiny following last week's devastating earthquake in Japan." Many in Hinsdale "say they are well aware Vermont Yankee is the same design as the plant in Japan and was built by the same company, General Electric" and are "following the events in Japan closely, as Vermont Yankee closes in on permission to operate for another 20 years." The Sentinel adds, "A sampling of townspeople Thursday showed the Japan disaster hasn't changed anyone's minds, pro or con. Opinions are fierce and free-flowing, though tinged with resignation that it really doesn't matter what they think." WCAX-TV Burlington, VT (3/21) also covered the plant.

Japan Quake Could Shake Nuclear Plans Key To Region. The Chattanooga Times Free Press (3/20, Flessner, 80K) reported, "The radioactive fallout from Japan's earthquake-damaged nuclear plant may be minimal in the United States, but America's nuclear power industry could be shaken from what its supporters hoped would be a renaissance in the next decade." Stephen Smith, "a nuclear power opponent" who leads the Southern Alliance for Clean Energy, said, "I think the ongoing problems at the Fukushima plant in Japan clearly indicate it's not a wise long-term strategy for Tennessee or any other state to be betting on nuclear power." Still, "nuclear proponents," including US Sen. Lamar Alexander, (R-TN), "insist that new reactors should still

be built to provide a cleaner alternative to burning fossil fuel." Notably, "officials for both TVA and the Southern Co. said they are proceeding with plans for new nuclear plants."

Remembering Browns Ferry, Almost Nuclear Catastrophe. In an opinion piece in the Tuscaloosa (AL) News (3/20), reporter Tommy Stevenson wrote that before the two well-known nuclear accidents, at Three Mile Island in Pennsylvania in 1979 and the 1986 Chernobyl disaster in the erstwhile Soviet Union, "there was an accident at the Tennessee Valley's Browns Ferry Nuclear Plant on the Tennessee River near Athens, Ala. in March 1975 that could have been catastrophic in its own right." Stevenson said the accident, which was sparked after two workers, using "ordinary house candles" to check for leaks, accidentally started a fire. Fortunately, the reactors were flooded with sufficient water "to avoid what could have been a major catastrophe."

Poneman Says US Improves On Nuclear Power Safety "Every Day." Deputy Energy Secretary Daniel Poneman, appearing on CNN (3/18, Chetry, Romans) Friday morning, said, "I think it's important to keep this in perspective. The Japanese have a huge task before them on getting this whole situation under control. I think their focus and the world's focus is properly on getting that job done. We certainly have been in very close communication with them throughout this crisis." Regarding US readiness, Poneman said, "Safety is absolutely our paramount concern, always has been. For decades, we've been improving the safety of nuclear power stations and it's not something we wait for a crisis to improve upon. We do it every day."

Fossil Fuels Stand To Gain From Nuclear Worries. The Weekly Standard (3/28, 83K) writes that the Japan catastrophe "is being regarded as the atomic power equivalent of the Deepwater Horizon oil spill in the Gulf of Mexico, which set back offshore oil drilling just as it appeared on the brink of a substantial expansion. This means we've now come full circle, as critics of offshore drilling compared the Gulf oil spill to Chernobyl." The "big winner in the short and intermediate term will be fossil fuels—especially coal and natural gas—which will be used to fill the breach in Japan and elsewhere to generate electricity. Which means that the biggest loser is ironically the environmental community, which had been slowly abandoning its longtime opposition to nuclear power because it offered an important component in reducing greenhouse emissions linked to climate change."

"Nuclear Renaissance" Said To Be More Hype Than Reality. Michael Grunwald writes in Time (3/28, 3.37M) that there has been no nuclear "renaissance." Even before the Japan crisis, "the endlessly hyped US nuclear revival was

stumbling, pummeled by skyrocketing costs, stagnant demand and skittish investors, not to mention the defeat of restrictions on carbon that could have mitigated nuclear energy's economic insanity." President Obama "has offered unprecedented aid to an industry that already enjoyed cradle-to-grave subsidies, and the antispending GOP has clamored for even more largesse. But Wall Street hates nukes as much as K Street loves them, which is why there's no new reactor construction to freeze."

Debate Rages Over Plant Vogtle Funding. In an article about the dispute over who should pay for the planned nuclear reactors at Plant Vogtle, the Atlanta Journal-Constitution (3/21, Newkirk, 227K) reports, that critics "want Georgia Power parent Southern Co., not just customers, to bear some of the overrun risk." For two years, "the PSC has delayed voting on a staff proposal to require Southern and its shareholders to share the pain if the project runs too far over its target \$6.1 billion budget. The reactors will cost more than twice that, but electric co-ops and city power companies are funding the rest."

Crews Battle Fire Near Los Alamos National Laboratory. KOB-TV Albuquerque, NM (3/18) reports on its website that crews were battling a fire that was started late Thursday evening near Los Alamos National Laboratory. The fire was said to have spread Friday and covered 355 acres. However, the fire, at the time, was not threatening to the lab. KOB-TV adds that the "cause of the fire is under investigation."

Overseas Crises Generates Ten Year High In US TV News Coverage. The New York Times (3/21, Stelter, 1.01M) reports, "Propelled by revolution in the Middle East and radiation in Japan, television news coverage of foreign events this year is at the highest level since the Sept. 11 terrorist attacks 10 years ago, news executives in the United States say." The foreign press corps "is working in exceptionally dangerous conditions in countries like Japan, where members carry radiation monitors on assignment, and in Libya, where crews of journalists have been detained." The Times notes that "fewer journalists covering foreign news work full time for American broadcast networks than once did, and those who remain have had to hopscotch from one hot spot to another this year, sometimes creating lags in coverage." But the networks "are aided by a bounty of audio and video clips that would have been nonexistent a few years ago."

DHS Responds To RSA Security Breach. The New York Times (3/19, B3, Markoff, 1.01M) reported Friday that "more than a day after RSA security posted an 'urgent'

alert warning that a sophisticated intruder might be able to initiate a 'broad attack' on a password device used by millions of customers, the announcement and its meaning remain shrouded in mystery." According to the Times, "The announcement touched off intense speculation about whether RSA's popular SecurID tokens, which are carried on key chains and in wallets of millions of corporate and government users, have been significantly compromised." The Times reports the DHS's Community Emergency Response Team on Wednesday "posted a 'Technical Information Paper' on its Web site describing a set of security practices meant to limit vulnerability to attacks based on the stolen information, according to a person close to the organization."

Google Accuses China Of Blocking E-mail Service. The New York Times (3/21, B6, Barboza, Miller, 1.01M) reports Google has accused the China of "disrupting Gmail in the country, making it difficult in the last few weeks for users here to gain access to the company's popular e-mail service." Google "said that it was not having any technical problems with Google's main Web site or Gmail service in China," instead blaming "a government blockage." The AP (3/21, Tran) also reports the story.

INTERNATIONAL NUCLEAR NEWS:

"Serious Setback" Reported At Reactor No 3, But Radiation Levels Dropping. The New York Times (3/21, Tabuchi, Onishi, 1.01M) adds, "The emergency efforts to mitigate damage" at the Fukushima plant "brought some notes of relief in the face of persistently dire conditions. The authorities said they had restored water pumps to two damaged reactors, Nos. 5 and 6, that were not of central concern, putting them under control in a state known as 'cold shutdown,'" but "another reactor that has proved more worrisome, No. 3, continued to bedevil engineers." The Tokyo Electric Power Company "appeared to have experienced a serious setback as officials said that pressure buildup at the ravaged No. 3 reactor would require the venting of more radioactive gases."

The Los Angeles Times (3/20, Kaplan, Maugh, 681K) reports NRC chair Jaczko also said that "radiation levels at the stricken Fukushima Daiichi nuclear power plant in Japan are still high but may be tapering off. ... Indications from the plant, which houses six nuclear reactors, were levels in the range of hundreds of millisieverts per hour." The Times adds, "For the sake of comparison, the average American is exposed to 6.2 millisieverts of radiation per year, half of which come from natural sources, according to the commission." The Hill (3/20, Geman, 21K) reports Jaczko said yesterday, "We believe that right now the radiation levels at the site are

high, but we have some indications that they may be coming down.”

NBC Nightly News (3/20, story 7, 2:25, Holt, 8.37M) reported, “As they struggle to contain the radiation, engineers now have some kind of water supply going at all of the reactors. For now, water temperature and pressure is either holding steady or falling in each of them.” Hidehiko Nishiyama, Nuclear and Industrial Safety Agency: “We have been making some sure and steady progress.”

ABC World News (3/20, story 9, 2:25, Muir, 8.2M) reported that “the pressure in inside reactor number three of Fukushima is building to a critical level. ... Officials are now considering widening the evacuation zone just in case.” The Wall Street Journal (3/21, Shirouzu, Hayashi, Landers, 2.09M), in an article titled, “Japan Makes Gains In Nuclear Fight,” focuses on the apparent progress being made at the Fukushima plant.

AFP (3/20, Hampton) reports, “The toll of dead or missing from Japan’s worst natural disaster in nearly a century passed 21,000. ... With half a million tsunami survivors huddled in threadbare, chilly shelters and the threat of disaster at the Fukushima No. 1 nuclear plant stretching frayed nerves, the mood in the world’s third-biggest economy remained grim.” NBC Nightly News (3/20, story 6, 2:15, Holt, 8.37M) reported, “The death toll is nearly 8,500 and there are still nearly 13,000 people listed as missing. Both numbers are expected to go even higher.”

Chu Says Worst Is Likely Over At Fukushima Plant. DOE Secretary Steven Chu, on CNN’s State Of The Union (3/20, Crowley), said, “The issue here now is whether the containment vessels are intact. And the main containment vessels in two of them we believe are intact. We don’t know the status of the third one. ... Because of the higher levels of radiation, we take that as evidence that there might be a breach in that containment vessel. But they’re not extraordinarily high. So it appears if there is a breach, it is a limited breach.” Crowley: “Is the worst over?” Chu: “Well, we believe so. But I don’t want to make a blanket statement.” Chu said on Fox News Sunday (3/20, Wallace), “I think with each passing hour, each passing day, things are more under control. And so, step by step, they are making very good progress.”

The Hill (3/20, Geman, 21K) reports that when asked if “the worst is over” in Japan, Chu replied, “We believe so.” Similarly, according to Bloomberg News (3/20, Nohara, Inajima), Chu “said...the worst of the crisis is over. Unit 2, where Tepco connected a 1.5-kilometer (1 mile) power cable March 18 as it tried to revive cooling systems knocked out by the magnitude-9 temblor and tsunami, is the main source of concern.”

Chu, asked on CNN’s State Of The Union (3/20, Crowley) if he feels “comfortable now with the honesty and

the knowledge that you are getting from Japanese authorities,” replied, “There’s no evidence that I’ve ever heard that the Japanese were holding back.”

E.J. Dionne, in his column for the Washington Post (3/21, 605K), says, “So far, Japan’s political and corporate leaders have not risen to this crisis – witness the impatience of its own people and the rest of the world over the flaws in the official information about conditions at the Fukushima Daiichi reactors.”

Taiwan Detects Radiation In Japanese Beans. AFP (3/20, Hampton) reports, “Food contaminated with radiation was found for the first time outside Japan...as Taiwan detected radioactivity in a batch of imported Japanese fava beans.” According to the Washington Times (3/21, Johnson, 77K), “Fears of nuclear fallout grew during a wet Sunday after officials reported traces of radioactive elements in milk, spinach, water and rain across northern and central Japan. ... Consumers across Japan and neighboring countries grew increasingly wary of agricultural products from the crisis area.”

Sunday: Efforts To Cool Damaged Reactors Continue In Japan. Coverage of the crisis in Japan took a backseat to reporting on hostilities in Libya again Saturday evening, with both ABC and NBC only getting to the aftermath of the earthquake and tsunami after about 15 minutes on Libya on each. ABC World News (3/19, story 6, 3:00, Sawyer, 8.2M) focused on “new proof that the effects are reaching into Japanese food.” ABC (Wright) added, “Thankfully, the catastrophic meltdown everyone fears hasn’t happened yet. Firefighters on the scene trying to cool the reactors down are making progress. But radiation has already made it into the food supply.”

NBC Nightly News (3/19, story 6, 2:50, Holt, 8.37M) more optimistically focused on “what may be hopeful about those crippled nuclear reactors,” while still warning “about the impact of a radiation leak on the food supply.” NBC (Bazell) added, “The desperate effort to stop the radiation disaster is showing some encouraging signs, but its far from over and the discovery of contaminated milk and spinach shows why it is such a race against time. Fire trucks were able to get within 60 feet of reactor three and shoot 1,500 tons of water at it. That should be enough to fill the water tank which should look like this covering spent fuel rods that have been exposed and emitting radiation. If the water hit its mark, the tank doesn’t have a major leak.”

The AP (3/20, Talmadge, Yamaguchi) reported, “Technicians prepared to vent radioactive gas into the air Sunday because of a new spike in pressure at Japan’s crippled, leaking nuclear complex, while a safety official said protective iodine pills should have been distributed near the plant days earlier.” Radiation “already has seeped into the food supply, with the government warning that tests of spinach and milk from areas as far as 75 miles (120

kilometers) away exceeded safety limits. Tap water farther away turned up tiny amounts of radioactive iodine in Tokyo and other areas."

AFP (3/20, Hiyama) said "crews fighting to cool reactors...struggled Sunday to switch partial power back on." The New York Times (3/20, Belson, Tabuchi, 1.01M) reports Tepco, "with help from the Japan Self-Defense Forces, police officers and firefighters, continued efforts to cool the damaged reactors on Saturday to try to stave off a full-scale fuel meltdown and contain the fallout." But the New York Times (3/20, Belson, Bradsher, Wald, 1.01M) reports "new questions are arising" about whether Tepco executives "wasted precious time in the early hours of the nuclear crisis, either because of complacency or because they did not want to resort to emergency measures that could destroy the valuable plant."

The Los Angeles Times (3/20, Lee, Hall, Magnier, 681K) reported Japan "took a step toward possibly getting its nuclear disaster under control Sunday as electricity to power some reactor cooling systems was restored and previous efforts to lower reactor temperatures with seawater at the battered Fukushima atomic energy plant appeared to have had an effect." But the "increased optimism by Japanese officials and Western scientists alike was tempered by a pressure buildup" at one of the reactors and the "newly emerging crisis" of food contamination.

Saturday: Japanese Officials Upgrade Severity Rating Of Nuclear Accident. The CBS Evening News (3/18, story 4, 3:40, Smith, 6.1M) reported Japanese officials admitted "for the first time" Friday that they "were not as prepared as they should have been" for the catastrophe that struck a number of nuclear reactors following the recent earthquake. CBS said that "one week after the earthquake and tsunami damaged a number of nuclear reactors, workers are still struggling to get them under control and prevent a meltdown." CBS (Whitaker) added that a "few dozen workers at the Fukushima nuclear plant finally were able to connect the power cable needed to restart the reactor cooling systems. Nevertheless Japan's prime minister was unusually blunt." Prime Minister Naoto Kan: "We are still at a critical state with the situation at the nuclear plant. People at Tepco, firemen, police, and many others are currently making a desperate effort on all fronts." The Washington Post (3/19, Harlan, Achenbach, 605K) says Kan "sought to assure his countrymen that Japan will rebuild. But his words came amid doubt that the nation's leaders have a firm grip on the nuclear crisis."

NBC Nightly News (3/18, story 4, 2:35, Williams, 8.37M) reported, "Two days ago, Japanese officials shot down the American assessment that the situation at that plant was bleaker than they were letting on officially. Tonight, though, those same Japanese officials have now raised the

seriousness of the accident from a level four to a level five on a scale of seven, as they measure nuclear danger around the world. That puts this on par with Three Mile Island here in the US and there are new efforts again tonight to cool down those troubled reactors." The Los Angeles Times (3/19, King, Hall, Magnier, 681K) says the severity upgrade was "what many considered an inevitable, and perhaps tardy, move." The New York Times (3/19, Fountain, 1.01M) reports, "The consensus among nuclear safety experts outside Japan is that the situation there is already worse than Three Mile Island." ABC World News (3/18, story 6, 1:45, Sawyer, 8.2M) reported the official toll from the earthquake and tsunami "is more than 6,500 dead, more than 10,000 missing."

AFP (3/19, Hiyama) reports engineers "laid a power line into a stricken nuclear power plant on Saturday as hundreds of thousands of quake-tsunami survivors endured desperate conditions in the frozen north." But Bloomberg News (3/19, Okada, Sakamaki) reports engineers "missed a deadline to restore power" to the plant, "prolonging efforts to prevent more radiation leaks as Japan's government told people nearby to cover up and avoid the rain."

The New York Times (3/19, Fackler, 1.01M) reports, "A week after an earthquake and tsunami devastated their communities and set off the worst nuclear accident since Chernobyl, the plight of the thousands still stranded in areas near the stricken reactors – many too old or infirm to move – has underscored what residents say is a striking lack of help from the national government to assist with the evacuation of danger zones or the ferrying of supplies to those it has urged to stay inside." In another report, the New York Times (3/19, Belson, 1.01M) writes that "for a country that is known for its industrial robots, advanced cellphones and hybrid vehicles, Japan's efforts to cool the hobbled nuclear reactors in Fukushima Prefecture have seemed, at least to a world watching on television, to be decidedly low-tech."

The AP (3/19) reports the State Department "is expanding the area for voluntary evacuations for family members of US personnel in Japan." The New York Times (3/19, McDonald, LaFraniere, 1.01M) says "about 20,000 resident foreigners have indicated their intent to leave the country by requesting re-entry permits from the Tokyo Immigration Bureau."

Meanwhile, the AP (3/19) also reports, "Spinach and milk taken from farms near Japan's crippled nuclear plant exceeded government-set safety limits for radiation, the government said Saturday, in the first report of food contamination from the accident. The tainted milk was found 20 miles (30 kilometers) from the plant while the spinach came from a neighboring prefecture."

Japanese Response To Tragedy Said To Differ From That Of West. Physicist Michio Kaku writes in Newsweek (3/28, 2.65M), "Since Japan's devastating

earthquake, the entire world has been riveted by heart-breaking images in the East revealing the horror of a nation whose northern coastline was reduced to rubble." But there are "subtle, revealing cultural differences between East and West in their reaction to tragedy. In spite of monumental collapse and ruin, the Japanese politely wait in long lines for hours, without once complaining." But Time (3/28, Beech, 3.37M) says Japan's resilience "is not solely to be explained in terms of some innate psychological trait that its people possess. It is also manifested in the nation's preparedness."

Many Nations Have Restricted Nuclear Power Since Japan Disaster. Newsweek (3/28, Sokolski, 2.65M) writes, "The nuclear world we had before Fukushima is radically different from the one we have now. Clearly the disaster response has not gone well." Most world leaders "didn't wait to act. Germany announced it would shut down (temporarily, at least) seven of its oldest reactors. Major safety reviews and licensing breathers have also been announced by France, the European Union, Thailand, Switzerland, the Philippines, India, and even China." But so far, the US has taken no similar action.

Time (3/28, Gibbs, 3.37M) says "when the quake hit, the reactors at the Fukushima Daiichi complex did exactly what they were supposed to do: they shut down. But then the wave came, breached the seawall, drowned the backup generators needed to cool the reactors and took out the spare batteries." The "best nuclear scientists on the planet raced to avert a total meltdown even as radioactivity levels as far south as Tokyo spiked to 23 times as high as normal."

Chernobyl Cleanup Continues A Quarter-Century Later. The CBS Evening News (3/18, story 7, 2:20, Smith, 6.1M) reported, "As Japan tries to avert a nuclear meltdown, the world is still dealing with the fallout from the worst nuclear accident ever at Chernobyl. Nearly 25 years after the accident in Ukraine, people are still barred from a 19-mile exclusion zone around the site and, incredibly, the cost of the cleanup are mounting." CBS (Plante) added, "A more permanent solution to entomb the Chernobyl reactor has been planned for years. A massive steel dome taller than the Statue of Liberty and wider than the St. Louis Gateway Arch to be built at a distance because of the radiation will be rolled into place section by section over the still deadly reactor. But the dome hasn't yet begun to take shape. The US and the European Union are still struggling to raise the two billion dollars it will cost. In Japan, the Fukushima complex will also have to be entombed and the radiation levels will make that very difficult."

NBC Nightly News (3/18, story 6, 2:10, Williams, Kosinski, 8.37M) reported, "Through the desolate forest, past danger signs and checkpoints, in many ways it is still 1986 in Chernobyl. Children's books and toys and gas masks wait in

their brand new school." Kosinski added: "More than 300 times the radiation there than would be normal." Stephen Robinson, nuclear physicist: "You have to say the next 1,000 years it will not be possible to live normally or to have any economic development." Kosinski: "But Chernobyl was much different than Japan's Fukushima. It didn't have nearly the protection around the core and had flaws, like components that burned, spreading radiation across Europe."

Chilean Protestors Seek Obama Apology For CIA "Meddling." The AP (3/21) reports "several hundred people" have protested in Santiago ahead of Monday's visit by President Obama. Communist Party leader Guillermo Teillier "says political, cultural and social representatives have signed a letter to Obama" asking him to "apologize for US intervention that destabilized Salvador Allende's socialist government in Chile" before a 1973 coup that began Gen. Augusto Pinochet's dictatorship. Protesters are also "criticizing a new nuclear energy accord between the US and Chile that focuses on US training of Chilean nuclear engineers".

Obama Voices Strong Support For Iranian Opposition. Calling his strongest support yet for Iran's opposition movement, the Wall Street Journal (3/21, Solomon, 2.09M) reports President Obama addressed the Iranian people on the Persian New Year, criticizing Tehran's human-rights abuses. "So far, the Iranian government has responded by demonstrating that it cares more about preserving its own power than respecting the rights of the Iranian people," Obama said in a video message that translated into Farsi. "These choices do not demonstrate strength, they show fear," he added.

The AP (3/21) reports Obama "singled out the young people in Iran, saying they are the ones who can break that cycle and determine their country's future."

AFP (3/21) quotes the President as saying, "The future of Iran belongs to the young people – the youth who will determine their own destiny... And though times may seem dark, I want you to know that I am with you."

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NUCLEAR REGULATORY COMMISSION NEWS SUMMARY

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NRC NEWS:

White House Asks NRC To Review Safety Of US Nuclear Plant Fleet.

Network and print coverage of the crises in Japan continues to dwindle due to the spike in coverage of the war in Libya. Last night, for example, the two networks that broadcast evening news programs (NBC and ABC) devoted a combined 7 minutes of airtime to Japan and the attendant debate over the future of nuclear power. The AP (3/21) reported that President Obama asked the NRC to "conduct a 'comprehensive review' of the safety of all US nuclear plants following what US officials are calling the dangerous and complicated situation at Japan's damaged Fukushima Dai-ichi reactors." Obama "took the rare step and

called upon the independent commission to conduct the review" as he tried to "reassure a worried nation that 'harmful levels' of radiation from the Japanese nuclear disaster are not expected to reach the US, even as other officials conceded it could take weeks to bring the crippled nuclear complex under control." White House spokesman Jay Carney noted the fact that Obama had asked the NRC – "an independent regulatory agency that is not under the president's control – to undertake the review and said it 'only adds to the urgency of that mission.'"

ClimateWire (3/18, Behr) noted that NRC Chairman Gregory Jaczko said at the White House "We're going to take a look at what happened, we're going to do a systematic and a methodical review of the information, and if we need to

make changes to our program, we'll make changes to our program."

Jaczkos Grasp Of Physics And Politics Called Fortuitous. MarketWatch (3/18, McNeil) profiled NRC Chairman Gregory Jaczko, who is "suddenly America's most visible nuclear expert as the world grapples with the implications of the unprecedented nuclear crisis in Japan," and whose "Jaczko's unique background of science and politics is fortuitous. 'Dr. Jaczko seeks to build consensus positions,' said David Lochbaum of the Union of Concerned Scientists and head of the group's Nuclear Safety Project. 'Along the way, Dr. Jaczko sometimes will make a concession to gain some broader goal.'" MarketWatch said Jaczko generated "worldwide headlines" in presenting "a more dire scenario than had been reported by Japanese officials and advising Americans in Japan to get at least 50 miles away from the power plant, and finally assuring the US public that any radioactive emissions reaching this nation would not pose any health risks."

White House Said To Be Relying On Jaczko To Avoid Gulf Oil Spill PR Troubles. Under the headline, "White House: In Gregory Jaczko We Trust," Politico (3/18, Samuelsohn, 25K) reports that while the White House has been touting the NRC as a "trusted, independent arbiter of what's happening during the crisis in Japan," relying on "the NRC makes perfect sense at the moment of such a major crisis." The Obama team is "leaning on Jaczko" to avoid "the game of musical chairs that plagued the PR response to the Gulf of Mexico oil spill." While "Obama wasn't so keen on NRC's abilities while running for president, he's now relying on it to do the right thing with information gleaned from Japan, especially with about two dozen reactors in the US that have similar design features to Fukushima Daiichi."

Jaczko Highlights Redundant Safety Systems On US Reactors. On its "E-2 Wire" blog, The Hill (3/21, Geman, 21K) reports that NRC Chairman Jaczko "said Sunday that the upcoming study of US reactor safety will unfold in two phases to allow a near-term review while awaiting detailed information that will emerge from the crisis in Japan." Speaking to C-Span, Jaczko said the Commissioners "will probably do some kind of short look in the near-term just to reexamine the existing fleet of reactors, and then probably a much longer look based on the accurate information we get eventually from Japan about what really happened and what is most important going forward." Jaczko noted safety systems inherent among US reactors, "noting for instance requirements to have redundant system to ensure that a loss of power will not cripple the ability ensure cooling in spent fuel pools."

NRC Chairman Says US Spent Fuel Pools Are More Secure Than Japan's. The New York Times (3/21, Wald, Berger, 1.01M) reports NRC chairman Gregory Jaczko said

yesterday "that the spent fuel pools at American nuclear reactors are less vulnerable than the ones in Japan because of steps ordered by his agency after" 9/11, "including having utilities prepare to use fire hoses to pump in extra water in the event ordinary cooling systems are knocked out." According to the Times, the NRC has "been reluctant to disclose details, because some preparations against terrorist attack are classified, but indicate that the preparation includes locating emergency generators, diesel-driven pumps, hoses and diesel fuel, as well as setting up procedures."

The Wall Street Journal (3/21, Power, Zibel, 2.09M) quotes Jaczko as saying, "We think we have a program in place that would deal with the kind of situation we're seeing in Japan," but "if there are changes we need to make...we'll proceed to do that." Jaczko added, "Five days ago, everybody was worried about earthquakes and tsunamis and the reactors cooling. Today everybody is worried about the spent fuel pools."

Former NRC Commissioner Says Nuclear Expansion Is "Terribly Unlikely". A "Greenwire" story appearing on the New York Times (3/18, Northey, 1.01M) website reports that while NRC Chairman Gregory Jaczko and Energy Secretary Steven Chu "have stood firm behind assertions" that the nuclear regulatory process for existing and new nuclear plants will proceed "unscathed," former NRC Commissioner, Peter Bradford, "said the process of reviewing and potentially updating the safety of plants does not go hand in hand with the current pace of NRC oversight. 'Continuing a nuclear expansion in parallel with learning the lessons is just a terribly unlikely scenario,' Bradford said. 'The NRC can't divert resources that it's going to have to do for a 'lessons learned' process and still continue trying to have design approvals and construction and operating licenses on the original schedule.'"

Chu: Plant Sites Will Be Reevaluated. Energy Secretary Steven Chu's appearances on the Sunday morning talk shows receive a smattering of attention this morning, but tend not to be the focus of the coverage.

The AP (3/20, Daly) reports Chu "suggested Sunday that Japan's nuclear crisis might make it less likely that new nuclear reactors are built near large American cities. ... 'Certainly where you site reactors and where we site reactors going forward will be different than where we might have sited them in the past,' Chu said in response to questions about the Indian Point nuclear plant near New York City."

Asked on Fox News Sunday (3/20, Wallace) about the "more than 21 million Americans" that live within 50 miles of Indian Point, Chu said, "The evacuation plans of the Indian Point reactor will be looked at and studied in great detail. The Indian Point reactor is not in the situation like in Japan, but I think, again, we will be looking at whether those evacuation plans are adequate."

The Huffington Post (3/20, Terkel) notes that Fox News Sunday's Chris Wallace "pointed out to" Chu that the NRC "has called for a 50-mile evacuation zone around the reactor in Japan," but the Indian Point plant is much closer than that to New York City." Chu said, "We're going to have to look at whether this reactor should remain." The Washington Times (3/21, Eldridge, 77K) also covers Chu's comments from Sunday morning.

According to NBC Nightly News (3/20, story 8, 2:10, Holt, 8.37M), "A government report has found the plant with the highest risk of core damage from an earthquake here is about 35 miles from our studio here in New York City," and "just today...Chu said the government needs to take a closer look at safety plans at Indian Point." New York Gov. Andrew Cuomo: "This plant, in this proximity to the New York City, was never a good risk." Another brief AP article (3/20) notes that "more than 21 million people live within 50 miles of the plant." Former DHS Secretary Michael Chertoff, on ABC's This Week (3/20, Amanpour), said the federal government "has a general plan for catastrophic incidents."

Top Democrats Differ On Future Of Nuclear Power In US. Sen. Carl Levin said on NBC's Meet The Press (3/20, Gregory), "I don't think that we can say that we're not going to continue to use nuclear power. Europe depends heavily on it, and they have found it to be safe. We use it a lot. We have found it, since Three Mile Island, to be safe."

Rep. Ed Markey (D MA) said on CBS' Face The Nation (3/20, Schieffer, 168K), "I've called for a moratorium on the siting of new nuclear power plants on earthquake-prone areas of our country. ... Unbelievably, the nuclear industry was able just three weeks ago to convince the Republican House representatives to zero out the loan guarantee money for wind and solar and geothermal and to put in \$18 billion in taxpayer-guaranteed loan guarantees for the nuclear industry. Well, that's ancient history already, because it's pretty clear that the nuclear industry as an electrical-generating part of our mix for the future is now going to meet its maker in the marketplace."

Former energy secretary Bill Richardson said on ABC's This Week (3/20, Amanpour), "We have to look at licensing of new nuclear power plants. The President wants to proceed with 20 in the next decade. We want to have loan guarantees. But I think we have to have a timeout on nuclear power... [to] review the safety and cost of all these plants."

Analysts Expect Only Temporary Nuclear Development Slowdown. The Christian Science Monitor (3/20, Clayton, 48K) reports that nuclear energy experts believe the crisis in Japan is "unlikely to kill development of nuclear power. ... '[The Fukushima disaster] is going to slow things down, but not stop them,' says Charles Forsberg, head of the nuclear fuel cycle project at the Massachusetts Institute of Technology." However, the CST adds, "The Japanese

disaster, say experts, probably will slow deployment of new plants by increasing safety regulations, heightening public opposition, and vastly increasing the cost of capital to finance hugely expensive construction."

California Radiation Remains Below "Levels Of Concern." The Los Angeles Times (3/20, Simmons, Vives, 681K) reports, "Environmental officials reassured residents Saturday that radiation in Southern California's air remained below levels of concern as workers in Japan struggled to contain releases from a stricken nuclear power plant." Los Angeles County Fire Department officials "also sought to debunk an e-mail hoax that predicted acid rain would result from Japan's nuclear accident." But the Boston Globe (3/20, Russell, 253K) reports on "a spike in demand for potassium iodide pills" as far away as Massachusetts.

Crisis Brings Economic Concerns In Both Japan, US. The New York Times (3/20, Onishi, 1.01M) says Japan's economy "is likely to suffer, at least in the short term, as power disruptions hobble its industries. If the reactors do melt down, in the worst case, or even if there is a steady release of radioactive vapor, there are implications for public health." The Hill (3/19, Schroeder, 21K) reports a majority of Americans also "expect the aftermath of the Japanese earthquake will drag down the US economy, according to a new poll." The Rasmussen Reports survey finds that 60 percent of Americans "expect the earthquake and resulting problems will hurt the United States economically."

Crisis Brings Reminder Of Three Mile Island. Meanwhile, the AP (3/19, Hebert, Scolforo) reports the Japanese crisis "has transported residents of central Pennsylvania back 32 years, when the partial meltdown of the Three Mile Island nuclear plant raised fears that a massive amount of radiation could be released into the atmosphere or the Susquehanna River. But there are stark differences between the disasters." Former Director of the Office of Nuclear Reactor Regulation Harold Denton said, "It's probably not politically correct to say it, but TMI was a piece of cake compared to what they're facing over there in Fukushima, in terms of the problem."

The Philadelphia Inquirer (3/20, Flam, 373K) reports that "with attention focused on tons of radioactive spent fuel that may have ignited, some experts say the Japanese will be lucky if the stricken Fukushima plant creates a disaster only the size of Chernobyl in 1986." The Inquirer also reports that the spent fuel rods "are now being blaged for the radioactive release over Japan" and that the storage system is also being "widely used in the United States."

The Washington Post (3/20, Morello, Mufson, 605K) has a feature on those "who live in the shadow of the reactor's cooling towers" in Middletown, Pennsylvania, where many "stock potassium iodide pills" and the town "maintains a

'disaster room' lined with evacuation route maps that are updated to reflect every road repair."

More Commentary. Thomas Friedman, in his column for the New York Times (3/20, 1.01M), writes, "At a time when Japan is suffering a nuclear catastrophe that is likely to make the world even more dependent on oil and gas, at a time when the world's top oil and gas producers are entering what will be, at best, an unstable, and, at worst, a viciously violent transition from autocracy to, one hopes, democracy, and at a time when the combination of the two could slow down global growth while we're still trying to climb out of recession, America has no energy policy, no climate policy and no long-term plan to deal with its unsustainable deficit."

Astrophysicist Satoru Ikeuchi, in an op-ed for the New York Times (3/20, 1.01M), writes, "Although earthquakes are so frequent in Japan that it has been described as 'a nation lying atop a block of tofu,' we have built some 54 nuclear reactors along the coast, vulnerable to tsunamis. It should have been foreseen that an earthquake of this magnitude might occur, and if the plant could not withstand such an event, it should not have been constructed."

Ian Jared Miller, an assistant professor of history at Harvard, in an op-ed for the New York Times (3/20, 1.01M), writes, "In 2003 Taro announced that it would become a 'tsunami preparedness town,'" but "despite the substantial infrastructure and technological investments in Sanriku, the wave on March 11 overwhelmed large portions of Taro and Miyako. Some of the evacuation points were not high enough. The walls were not tall enough."

Nicholas Kristof, in his column for the New York Times (3/20, 1.01M), writes, "Maybe we can learn something from Japan, where the earthquake, tsunami and radiation leaks haven't caused society to come apart at the seams but to be knit together more tightly than ever. ... The Japanese government has been hapless. And the Japanese people have been magnificent, enduring impossible hardships with dignity and grace."

In his Chicago Tribune (3/20, 488K) column, Steve Chapman writes that "Nuclear has two major challenges. The first is cost, and the second is safety. Neither has been solved, and neither is about to be." In terms of cost, Chapman adds that "In the United States, it's hard for atomic energy to compete with fossil fuels, which are plentiful and cheap." Chapman also writes that there are also, still concerns over the safety of atomic energy as some are worried about the "prospect of uncontrolled leaks of deadly radiation across large geographic areas." Chapman concludes by saying "It's comforting to hear that modern reactors are better designed and that the Japanese experience will help prevent future accidents. But if overly stringent safety regulation is what's keeping nuclear energy down, down is where it's going to stay."

Heather Long of the Harrisburg (PA) Patriot-News (3/20, 83K) writes that "President Obama, Energy Secretary Steven Chu and officials on down the line have spent the week reassuring anxious Americans that nuclear energy is safe and our country's nuclear reactors aren't likely to experience anything like Japan's" which "has been calming -- to a degree." However, Long adds that "Some of America's 104 nuclear reactors were made by the same manufacturer and around the same time as those in Japan" and "while magnitude 9.0 earthquakes are extremely rare, that does not mean it could never happen here." Long concludes by saying that Americans should be "looking around at all of our energy sources and asking the tough questions about safety and oversight," especially after what has taken place in Japan.

Faint Traces Of Radiation Hit US West Coast, But No Health Threats Expected. NBC Nightly News (3/18, story 5, 3:25, Williams, 8.37M) reported, "In this country, the Federal government says no radiation levels of concern have been detected." The AP (3/19) reports US and California officials "sought Friday to dispel fears of a wider danger from radioactivity spewing from Japan's crippled nuclear reactors, saying testing indicated there were no health threats along the West Coast."

The New York Times (3/19, Broad, 1.01M) reports, "Faint traces of very low levels of radiation from the stricken nuclear complex in Japan have been detected in Sacramento, European officials reported Friday, bringing the distant atomic crisis to American shores for the first time." But health experts "said the plume's radiation had been diluted enormously in its journey across thousands of miles and -- at least for now, with concentrations very low -- would have no health consequences" in the US. The Los Angeles Times (3/19, Brown, Hennessy-Fiske, 681K) reports, "Though scientists said they believed that this came from the Fukushima Daiichi reactors, the levels were so 'minuscule' they posed no threat to human health," according to the DOE and EPA.

The Washington Post (3/19, Wallsten, Yang, 605K) reports President Obama has repeatedly "peppered public remarks on Japan with assurances that US reactors are safe and that nuclear energy remains a key component of his energy agenda." His stance "puts him in direct opposition to many in his political base, with some environmentalists and a plurality of Democratic voters in a new survey saying that nuclear power is not safe." The New York Times (3/19, Kaufman, 1.01M) says according to US anti-nuclear activists, "more Americans seem to be rethinking their position on nuclear power" since the disaster.

The Wall Street Journal (3/19, Power, Lee, 2.09M), New York Daily News (3/19, Boyle, Dillon, 527K) and The Hill (3/18, Laing, 21K), also have reports.

Cuomo, New York Officials To Meet With NRC About Indian Point Earthquake Risks.

Bloomberg News (3/21, Hart) reports, "New York Governor Andrew Cuomo said Lieutenant Governor Robert McDuffy and other state officials will meet with the US Nuclear Regulatory Commission to discuss how safe Entergy Corp.'s Indian Point nuclear-power plant" would be in an earthquake. "The meeting on March 22 was set up by the White House at Cuomo's request" and is "intended to gather information about Indian Point's earthquake vulnerabilities, preparedness and risk assessment, according to the statement." Entergy spokesman Jerry Nappi said the Indian Point reactors were "designed to withstand at least a magnitude 6 earthquake," though a "magnitude 7 earthquake in the region is possible, based on the features of the two faults, according to scientists at Columbia University's Lamont-Doherty Earth Observatory."

The AP (3/21) adds, Entergy "says the reactors are safe" and spokesman "Jim Steets said the reactors are built to withstand a magnitude-6 earthquake, and the plant's backup electrical generators are on high ground and safe from any tsunami that might swell the Hudson River. The New York Public Interest Research Group plans to request that Cuomo also discuss the state's other aging nuclear plants at the NRC meeting."

The Middletown (NY) Times Herald-Record (3/20, Novinson, 63K) reported briefly on the meeting to "discuss earthquake risks associated with Indian Point nuclear energy plant. Lt. Gov. Robert Duffy and Director of State Operations Howard Glaser will discuss earthquake preparedness and risk assessments for the plant, according to a press release from Gov. Andrew Cuomo."

The New York Daily News (3/21, Boyle, 527K) noted that "Cuomo has repeatedly called for its closure," while NY1 Cable (3/19, Robin) New York Attorney General Eric Schneiderman "voiced concerns Friday" about Indian Point, suggesting NRC "regulators do not even have to take seismic risks into account when they relicense Indian Point." NRC officials said "they do monitor risks of earthquake and have recently been taking closer looks."

E&ENews PM (3/18, Northey) noted that New York Attorney General Eric Schneiderman chimed in against relicensing Indian Point plant, "demanding the Nuclear Regulatory Commission take into account seismic activity in the region before relicensing the 40-year-old nuclear plant." Schneiderman "sent a letter to the NRC today, asserting that seismic activity is a factor that NRC has repeatedly refused to consider in reviewing the relicensing application to extend Indian Point's operation."

Pleasantville (NY) Patch.com (3/21, Kenny) adds that "As Westchester residents witness Japan's waking nightmare, they have begun to reexamine their nearby Indian Point nuclear power plants and reassess whether the plants'

relatively low possibility of risk plus the reward of local non-carbon energy outweighs their potential for catastrophe." While no one predicts "a similar scenario: an 9.0 magnitude earthquake followed by a cataclysmic tsunami" that struck the Fukushima Daiichi Nuclear Power Station, "local residents say they have real reason for fear. Indian Point sits on a seismic zone, has a documented history of safety violations and terrorists flew past it in airplanes they used as bombs to destroy the World Trade Center." Troy (NY) Record (3/21, Sanzone) also covered the story.

Geology Experts Say Fault Near Indian Point Is "Dead". Westchester (NY) Journal News (3/21, Clary) reports, "The debate over Indian Point's vulnerability to a Japan-like earthquake rests — literally — on the Ramapo Fault," which is "actually a geological braid of fault lines running from the area of Clinton, N.J., to a mile or so west of the Buchanan nuclear plant, where it intersects with a second line that recent discoverers say runs between Stamford, Conn., and Peekskill." While the "intersection has created a lot of headlines" after the giant 9.0 Japan quake "the US Geological Survey — one of the nation's foremost research labs — said geologic evidence about the Ramapo Fault is 'insufficient to demonstrate the existence of tectonic faulting or ... slip or deformation.'" According to Geology professor Alec Gates, "The Ramapo Fault is dead." Gates is head of Earth and environmental sciences at Rutgers.

Local Official Compares NRC Oversight To SEC Supervision Of Wall Street Before Economic Crisis. On its website, WCBS-TV New York (3/19, Diamond) notes that a "new report shows federal inspectors logged several 'near miss' accidents at the Indian Point nuclear power plant in Buchanan in 2010. Former Westchester County Assemblyman Richard Brodsky calls the findings troubling. Brodsky questioned whether the Nuclear Regulatory Commission, charged with ensuring the safety of nuclear facilities, was up to the job." Brodsky said the "NRC is to nuclear power today what the SEC was to Wall Street three years ago."

Indian Point Evacuation Plan Faulted. In a commentary for the New York Times (3/21, A18, 1.01M), Peter Applebome writes how it is "fantasy" that officials expect a "50-mile circle around the Indian Point" plant could be evacuated in an emergency similar to that which has befallen TEPCO's Fukushima Dai-ichi plant. "American officials have told citizens of the United States to stay at least 50 miles away from the Fukushima Daiichi Nuclear Power Station in Japan as the nuclear crisis continues." Applebome quoted Daniel P. Aldrich, a professor of political science at Purdue University, who said "Many scholars have already argued that any evacuation plans shouldn't be called plans, but rather 'fantasy documents.'"

Antinuclear Activist Says Indian Point Meltdown Would Be Devastating. Antinuclear activist Helen Caldicott writes in Newsweek (3/28, 2.65M) that a meltdown at the Indian Point complex “just 35 miles from midtown Manhattan” could cause early fatalities of up to 11,500, while “late cancer deaths, which would occur two to 60 years later, could range from 28,100 to a staggering 518,000 people in the 50-mile zone.”

Westchester Journal News Considers Earthquake Risk Question. In an editorial, the Westchester (NY) Journal News (3/21) says that where before last week, the “biggest question mark for Entergy, owner of the Indian Point nuclear plants, concerned the fate of Hudson River fish,” and whether the plant violated law by destroying too much aquatic life in taking water in for cooling. But after “an earthquake and tsunami left a complex of nuclear power plants in ruin in Japan, the focus in the Lower Hudson Valley has shifted from fish and larvae to the fate of all living things – that is, all life within 50 miles of Indian Point. MSNBC reported last week that the plants in Buchanan top a list of US nuclear facilities considered most susceptible — however slight the possibility - - to suffer nuclear core damage from an earthquake.” According to an Entergy statement, “Indian Point is designed to withstand an earthquake ‘greater in size than the area has ever experienced.’ The question now is whether that is good enough.”

Blog Coverage. The Albany Times Union's (3/21) “Capital Tonight” blog says Gov. Andrew Cuomo “expressed renewed concern about the facility and ordered a complete safety review. Cuomo said the proximity of the plant to NYC – just 24 miles to the north in Westchester County – makes it too risky to keep open. But Mayor Bloomberg said yesterday that he supports the plant’s continued operation, noting it generates up to 30 percent of the city’s energy.”

MSNBC Defends Use Of NRC Data On Earthquake Risk To Plants. In response to NRC PAO Neil Sheehan’s letter to the editor of the Malvern (PA) Patch.com (3/21, Powell), which pointed out that the “MSNBC [msnbc.com] story has to do with a seismic risk ranking it created. It is not the result of an NRC review. The NRC does not rank plants by seismic risk.” The Patch added, “Bill Dedman of msnbc.com responded to the NRC statement in a comment at West Chester Patch: ‘Our story made clear that the NRC does not rank the nuclear plants. But it does publish its estimates for each plant, by which we ranked the plants.’ Dedman said “NRC hasn’t said our numbers are wrong. I checked my interpretation with Scott Burnell in Public Affairs, who checked with the NRC technical staff before publication. ... After all, they’re NRC’s numbers.”

The Fulton (MO) Sun (3/21, Norfleet, 4K) added NRC spokeswoman Lara Uselding, “said the NRC does not rank

plants based on risk of damage from an earthquake. Uselding said MSNBC reached its own conclusions in its rankings and the NRC did not approve the rankings. ‘It was an incomplete report on the overall research that had been done by the NRC. Somebody at MSNBC took numbers and threw them together to create the rankings. We have said that is not accurate because the NRC does not rank plants by seismic risk,’ Uselding said.”

International Business Times (3/19, Emspak) reported that the NRC “has no plans to retrofit existing nuclear power plants due to seismic hazards, despite an increase in measured seismic risk at some sites. Joey Ledford, of the office of public affairs at the NRC, said nuclear reactors in the US are all designed to take into account historical earthquakes, as well as some additional margin.” IBT added, Ledford said the study from 2008 examined seismic hazards facing nuclear power stations and “was largely a screening tool, to see which plants, if any, require further evaluation.”

Blog Faults MSNBC Reporter For Misusing NRC Data. On its “Science” blog, Daily Tech (3/18, Mick) said in an opinion piece that MSNBC.com reporter Bill Dedman “mislead” and “sensationalized” the nuclear fault study story. “We wrote a piece on Wednesday criticizing numerous factual inaccuracies in Mr. Dedman’s piece. At the same time we contacted the US Nuclear Regulatory Commission (NRC). On Friday, after two lengthy phone interviews and an email dialogue with the NRC we had the complete story – the NRC backed nearly every one of our assertions.”

UCS Report Suggests 14 “Near Misses” Point To Lax Oversight. The Christian Science Monitor (3/19, Clayton, 48K) reported on the “14 ‘near misses,’” detailed in new report by the Union of Concerned Scientists, which said the mistakes were “serious failures in which safety was jeopardized, at least in part, due to lapses in oversight and enforcement by US nuclear safety regulators, says a new report.” UCS said that while none of the incidents “harmed plant employees or the public, they occurred with alarming frequency – more than once a month – which is high for a mature industry.” UCS said while the chances “of a disaster at a nuclear plant are low,” when the “NRC tolerates unresolved safety problems – as it did last year at Peach Bottom, Indian Point, and Vermont Yankee – this lax oversight allows that risk to rise.” The Christian Science Monitor (3/21, 48K) reports on of the “14 ‘near miss’ examples.”

The Boston Business Journal (3/18, Alspach) added, “Plant owners could have avoided nearly all 14 near-misses in 2010 if they’d corrected the problems in a timely manner, the report says, suggesting that ‘our luck at nuclear roulette may someday run out.’”

UCS Says US Regulations Not Better Than Japan's. Bloomberg News (3/19, Snyder) reported that Union of Concerned Scientists' Dave Lochbaum, the director of the group's nuclear safety project, said it is "unfair for us to say Japan has weaker regulation," of nuclear power. The "Japanese 'just had worse luck,' he said. Japan has a lower threshold for replacing damaged pipes than US regulators, and requires back up power systems to run for twice as long, Lochbaum said."

Kondracke Says Media Adding To "Nuclear-Phobia". In a guest commentary picked up by the Muskegon (MI) Chronicle (3/19, 33K) among several other outlets, Roll Call editor Mort Kondracke wrote, "The danger of a meltdown at Japan's Fukushima Daiichi reactors is real, but the media made it a 'crisis' from the get-go. The New York Times said the crisis had 'veered toward catastrophe.' And on MSNBC's 'Morning Joe' on Wednesday, co-host Mika Brzezinski opined it might prove 'apocalyptic,' which is to say, world-ending." The "real threat here is that nuclear-phobia will take hold in the United States as happened following the partial meltdown and radioactive release at Three Mile Island in 1979, resulting in no new nuclear plant construction for 30 years."

Indiana Lawmaker Urges Halt In Push For Nuclear Power. The AP (3/21) reported an "Indiana effort to promote nuclear power in the state is losing steam as concerns mount about radiation from Japan's crippled nuclear power reactors following the island nation's devastating earthquake and tsunami." Sen. Beverly Gard said that after "the events in Japan, I think you really need to take a step back." Gard "helped author a bill that would encourage the construction of Indiana's first nuclear plant. 'I think it's going to take months, if not years, for an investigation to get to the source of the problem.'"

NRC: US Nuclear Output Rises After AEP Starts Michigan Reactor. Bloomberg News (3/18, McClelland) reported, "US nuclear-power output rose for the fourth day after American Electric Power Co. started the Donald C. Cook 1 reactor in Michigan, the Nuclear Regulatory Commission said." According to a report Friday from the NRC "and data compiled by Bloomberg," US-wide production "increased by 382 megawatts, or 0.4 percent, from" Thursday "to 87,543 megawatts, or 86 percent of capacity, according to a report today from the NRC and data compiled by Bloomberg."

Utah Governor Says 10-Year Energy Plan Will Include Nuclear Power, Renewable Energy. The AP (3/18) reported, "Nuclear power must be an

important part of Utah's future energy portfolio, Gov. Gary Herbert said Friday, adding that a 10-year plan he was set to unveil will emphasize the need for nuclear energy alongside traditional fossil fuels and renewable sources." Meanwhile, Matt Pacenza, policy director for the Healthy Environment Alliance of Utah, said "the danger should be enough to persuade the governor to oppose nuclear power. There are also waste and water problems to consider, he said."

According to the Deseret (UT) Morning News (3/19, Lee), "the 42-page report stated that accomplishing the state's energy goals would require developing resources thoughtfully through careful evaluation of resource potential, impact on economic development, the natural environment, human health, along with weighing physical and regulatory constraints."

NRC Cancels Progress Energy Meeting After Second Gap Found At Crystal River. E&ENews PM (3/18, Northey) reported that the NRC "canceled a meeting to discuss restarting the 838-megawatt Crystal River nuclear plant in Florida after a second gap was discovered in the plant's concrete containment building." NRC had scheduled a March 22 meeting "to address Progress Energy Inc.'s pressurized water reactor that's been shuttered since 2009 for refueling. ... After extensive analysis and repair, Progress Energy is now reporting indications of an additional separation or gap resulting from the repair work on the original containment wall."

Massachusetts AG Says Disaster Underscores Risks Of Keeping Spent Fuel On Site. In a page-one Boston Globe (3/21, A1, Daley, 253K) story reports on comments from Massachusetts Attorney General Martha Coakley, who said the NRC has "underestimated the potential danger posed by radioactive spent fuel storage pools at the Pilgrim and Vermont Yankee nuclear power plants." The "unfolding Japanese nuclear crisis at the Fukushima Daiichi plant — including a spent fuel pool that US officials have said appears to have gone dry and released radioactive material — has riveted attention on possible vulnerabilities at US plants. ... Massachusetts has long argued that the lack of a federal repository where plants can send spent fuel rods, coupled with plans by plants such as Pilgrim and Vermont Yankee to operate 20 years beyond" their original licenses "will ramp up the number of radioactive rods in pools on site — and the risk from an accident, natural disaster, or terrorist attack."

Officials Question Whether Diablo Canyon, San Onofre Plants Are Safe From Quakes. In a page-one story the Los Angeles Times (3/21, A1, Bensinger, Sarno, 681K) reports that California and "federal officials have

begun pushing for comprehensive reviews of California's two commercial nuclear plants, which are near powerful fault lines and have been cited repeatedly in recent years for safety lapses. If reviewers identify new problems, it could lead to added safety measures — or potentially, delays or denials for renewals of the operating permits for the plants." Diablo Canyon and San Onofre stations have been operating for decades, and supply nearly 15 percent of the state's electricity. "In light of the crisis at Japan's Fukushima reactors, some state and federal lawmakers are now questioning whether the two utilities have underestimated the severity of earthquakes that could strike the plants."

Officials Say Nuclear Industry Will Continue To Grow By 2020 Despite Japan Disaster.

The San Diego Union-Tribune (3/19, Lee, 264K) reports, "Officials at the Nuclear Energy Institute, the industry's policy arm, said they expected between four and eight new nuclear plants to be built nationwide by 2020 before the earthquake and tsunami slammed Japan — and they said this week that the forecast remains unchanged." However, the Union-Tribune says "Japan's crisis has stalled pronuclear measures in Indiana, North Carolina and elsewhere, while policy makers and residents are taking a wait-and-see approach." Still, industry leaders and analysts say that those setbacks are temporary and, according to a stock note issued this week by Jefferies & Co., "nuclear concerns appear to be overblown."

Chicago Tribune Says Closing Yucca Was "Huge Mistake."

The Chicago Tribune (3/19, 488K) editorializes that the "decision to mothball Yucca was a huge mistake, and the Obama Administration should recognize" this in the "wake of the nuclear disaster unfolding in Japan." The Tribune says that spent fuel is a major problem in Japan's crisis and if the Yucca Mountain project was still running, plants like Japan's would have a place to store the fuel. Other plants in the US are also facing a similar problem as they have to store spent fuel at their facilities since there isn't a main, secluded facility that can house the fuel. The Tribune concludes by saying, "nuclear waste shouldn't be scattered near population centers across the country. It should be entombed in Yucca Mountain."

Activists Speak Out Against Millstone Station.

The Stamford Advocate (3/19, Cummings, 17K) reports, "A group dedicated to closing the Millstone Nuclear Power Station warned Friday that the same type of disaster now unfolding in Japan could happen here in Connecticut." According to the director of the Connecticut Coalition Against Millstone, Nancy Burton, "the two operating reactors and one mothballed reactor at the Waterford plant could melt down much like what is happening at the Fukushima Daiichi

Nuclear Power Station in Japan." Burton contends "poor regulatory oversight, old reactor design and the presence of spent fuel in storage pools could all contribute to a disaster." Dominion's Ken Holt said, "The plants ... were designed with all manner of natural destruction in mind, whether hurricanes, earthquakes or tornadoes. They were designed to withstand not only the historical worst but they added extra margins."

An article on the website of New England Cable News (3/18) reported while Burton "admits the likelihood of an earthquake and tsunami similar to what hit Japan is remote here in Connecticut she worries about a hurricane or tornado and the failure of systems designed to keep spent fuel cooling pools similar to the pools in Japan intact." Holt said the pool she "is talking about cools spent fuel from unit one which was shut down in 1998." WTNH-TV New Haven (3/18) covered this story on its website.

The New London Day (3/20, Daddona) reports, "Paul Gunter, director of reactor oversight for the activist group Beyond Nuclear of Takoma, Md., said Friday that Millstone owner Dominion should remove the waste from Unit 1 and put it in some of the dry-cask storage available on site, since the pool could be vulnerable if ever exposed in a catastrophe like that occurring in Japan." On Friday, Dominion's Ken Holt said "that the company had been evaluating the possibility of moving spent fuel into dry storage before the events still unfolding in Japan took place." Holt added that the situation in Japan "is a factor in making our decision and will be considered when we make our decision."

The Norwich Bulletin/AP (3/19) reports, "An official at Connecticut's only nuclear power plant says it will be reviewing its disaster contingency plans in light of the crisis surrounding Japan's crippled reactors." Dominion's Ken Holt "says the Millstone Power Station in Waterford is starting to pull together teams that will evaluate response plans for earthquakes, floods or other natural catastrophes." This AP article also appeared on the Boston Globe (3/19, 253K) website.

WCBS-TV/AP New York City (3/19) added that "the news coincides with concern from New York's Attorney General, Eric Schneiderman, regarding the Indian Point nuclear plant in Westchester County." ABC News Radio (3/21) also reports on the statements made by the New York attorney general.

The Danbury News Times (3/19, Burgerson, 23K) reports, "The crippled Fukushima Daiichi nuclear reactor is a half a world away, but that hasn't stopped people from calling their local pharmacies to ask about potassium iodide pills. An informal survey of about 25 pharmacies in Fairfield County revealed that most druggists have had at least a few requests for the tablets and some are getting dozens of calls every day." According to nuclear experts "Connecticut residents have little to be fearful of in terms of an earthquake causing a

nuclear meltdown at the Millstone Nuclear Power Station in Waterford." WTNH-TV New Haven (3/18, Detlji) also reports on the run on iodide pills.

A brief article on the Christian Science Monitor (3/21, 48K) website reports on the "near-miss" that took place at the Surry Nuclear Plant last year.

Commentary. Editorials by the Richmond Times-Dispatch (3/21), the Norwich Bulletin (3/19) and the Manitowoc Herald Times Reporter (3/19) each expressed support for nuclear power. The Times-Dispatch opined, "Nuclear power boasts an astoundingly good safety record, and will continue to do so even after the events in Japan are taken into account. Dominion Virginia Power sets a standard in this regard. It would be the height of foolishness to let the panic of the hour divert the country from a future in which nuclear power plays a much bigger part."

In a piece appearing in the Washington Post (3/19, 605K) that offered opinions by both experts and critics of nuclear power Virginia Governor Robert McDonnell said, "Nuclear energy is an important part of our energy portfolio. Virginia is moving forward with plans to build a third reactor in Louisa, and I support that effort."

Constellation Emphasizes Safety In Wake Of Japan Crisis.

In continuing coverage of the impact of the nuclear crisis in Japan and its impact on the nuclear power industry in the United States, the Syracuse Post Standard (3/21, Knauss) reports, "Three General Electric-designed Japanese reactors rocked by explosions at the Fukushima Daiichi plant are nearly identical to 23 US plants, including the FitzPatrick and Nine Mile Point Unit 1 reactors in the town of Scriba." David Lochbaum, a nuclear engineer at the Union of Concerned Scientists, believes "American nukes are vulnerable to power disruptions, too." He said, "Ice storms in the Northeast or a tree in Cleveland can cause an extensive blackout that puts us in a very similar situation." According to CENG's Jill Lyon there is enough fuel at the Nine Mile Point station stored in "underground oil tanks to run one of the generators flat out for four days."

The Guilford Patch (3/21) reports, "The Fukushima plant, damaged by a 9.0 earthquake and ensuing tsunami on March 11, has six boiling water reactors. Maryland's Calvert Cliffs Nuclear Power Plant, located in Lusby on the southwest coast of the Chesapeake Bay, has two pressurized water reactors." In an email, Constellation's Mark Sullivan said, "that safety was the company's top priority."

In an interview on MSNBC (3/20, 9:40 a.m. EST) Constellation Energy Group COO Michael Wallace expressed confidence in nuclear power. He said, "I can tell you that safety is absolutely number one, it's our passion. It's in the DNA of those of us who have responsibilities for operating nuclear plants. And in the United States in particular, the

record, the facts demonstrate that our plants are performing better and better every year, to the point where they are among the best in the world today."

In a letter to the Baltimore Sun (3/20, 228K) critical of nuclear power, Dr. Gwen L. DuBois, member of the Chesapeake Physicians for Social Responsibility, wrote, "There should be a moratorium on approval of new plants with their unproven and questionable safety features. Power plants in risky environments (Indian Point, Calvert Cliffs) should be reassessed." To Dubois the risks are "too big to take" when "we have alternatives: wind, solar, conservation and higher efficiency standards."

Experts Criticize Design Of Plant. The Florence (AL) Times Daily (3/18, Fleischauer, 29K) reported, "The Tennessee Valley has more reason than much of the world to study the nuclear disaster unfolding in Japan." The paper said "Browns Ferry Nuclear Plant -- 30 miles east of the Shoals -- has the same General Electric reactor design -- the Boiling Water Reactor Mark I -- as the damaged reactors at the Fukushima Dai-ichi plant in Japan." Some experts say "the disaster in Japan has...highlighted problems in the Mark I design." Notably, "Browns Ferry is more vulnerable to problems with the spent-fuel pools than are the plants in Japan," reports the Daily. TVA Chief Operating Officer Bill McCollum said he has confidence in the authority's reactor, but TVA will look for lessons from the Japanese disaster.

The Decatur (AL) Daily (3/20, Fleischauer) reported, "A nuclear engineer's theory for why a spent fuel pool at a Japan reactor is losing water, and thus is spewing radiation, raises the possibility similar problems could occur at Browns Ferry Nuclear Plant in the event of a power outage." Ray Golden, a spokesman for TVA's nuclear operation, "said Saturday it is too early to draw conclusions from the situation at the Japanese plant."

Japan Nuke Crisis Sheds Light On Stability Of Browns Ferry. The Athens (AL) News Courier (3/20 Smith, 7K) reports that following the nuclear problems in Japan, "the Tennessee Valley Authority has also rushed to quell fears about the safety of its three nuclear power plants in Athens, Soddy-Daisy, Tenn., and Spring City, Tenn." Golden said "the Fukushima plant would have survived without issue had the tsunami not knocked out power to the plant."

Vermont Regulators Begin Water Discharge Study.

The Brattleboro (VT) Reformer (3/21, Audette) reports, "Following the announcement that the Nuclear Regulatory Commission will soon issue a new license for Vermont Yankee nuclear power plant to continue to operate until 2032, the Vermont Agency of Natural Resources announced it will begin its own task -- investigating what standards should be in the plant's updated pollution discharge

permit." Because "ANR is now allowed to 'charge back' expenses related to the permit, it plans to hire a consultant to help ANR's staff to determine the impact of the change in water temperature due to the discharge and its effect on the river's wildlife and habitat. In addition to awaiting charge-back authority, ANR has been watching developments at another Entergy-owned plant in New York – Indian Point – regarding the second part of Yankee's discharge permit, whether Entergy is using the 'best technology available' to reduce the effects on river life when water is taken from the Connecticut River for cooling purposes."

Group Holds "Vigil" At Vermont Yankee. The Rutland Herald (3/19, Smallheer, 15K) reports, "Anti-nuclear activists have organized a vigil for Sunday afternoon at the gates of the Vermont Yankee nuclear plant in what they say is an expression of solidarity with Japanese workers and residents affected by the nuclear disaster in Fukushima. Bob Bady of Brattleboro, a member of the Safe & Green Campaign, said Friday the event would be a solemn and peaceful vigil in front of Vermont Yankee's main gate on Governor Hunt Road. ... Bady said he had been getting a lot of telephone calls from people whom he usually doesn't hear from about the vigil, although he said he had no idea how many people would attend the event."

Opinions On Yankee Slow To Change. The Keene Sentinel (NH) (3/21, Gilbert) reports, "The nuclear plant in Vernon, Vt., is again under intense scrutiny following last week's devastating earthquake in Japan." Many in Hinsdale "say they are well aware Vermont Yankee is the same design as the plant in Japan and was built by the same company, General Electric" and are "following the events in Japan closely, as Vermont Yankee closes in on permission to operate for another 20 years." The Sentinel adds, "A sampling of townspeople Thursday showed the Japan disaster hasn't changed anyone's minds, pro or con. Opinions are fierce and free-flowing, though tinged with resignation that it really doesn't matter what they think." WCAX-TV Burlington, VT (3/21) also covered the plant.

Japan Quake Could Shake Nuclear Plans Key To Region. The Chattanooga Times Free Press (3/20, Flessner, 80K) reported, "The radioactive fallout from Japan's earthquake-damaged nuclear plant may be minimal in the United States, but America's nuclear power industry could be shaken from what its supporters hoped would be a renaissance in the next decade." Stephen Smith, "a nuclear power opponent" who leads the Southern Alliance for Clean Energy, said, "I think the ongoing problems at the Fukushima plant in Japan clearly indicate it's not a wise long-term strategy for Tennessee or any other state to be betting on nuclear power." Still, "nuclear proponents," including US Sen. Lamar Alexander, (R-TN), "insist that new reactors should still

be built to provide a cleaner alternative to burning fossil fuel." Notably, "officials for both TVA and the Southern Co. said they are proceeding with plans for new nuclear plants."

Remembering Browns Ferry, Almost Nuclear Catastrophe. In an opinion piece in the Tuscaloosa (AL) News (3/20), reporter Tommy Stevenson wrote that before the two well-known nuclear accidents, at Three Mile Island in Pennsylvania in 1979 and the 1986 Chernobyl disaster in the erstwhile Soviet Union, "there was an accident at the Tennessee Valley's Browns Ferry Nuclear Plant on the Tennessee River near Athens, Ala. in March 1975 that could have been catastrophic in its own right." Stevenson said the accident, which was sparked after two workers, using "ordinary house candles" to check for leaks, accidentally started a fire. Fortunately, the reactors were flooded with sufficient water "to avoid what could have been a major catastrophe."

Poneman Says US Improves On Nuclear Power Safety "Every Day." Deputy Energy Secretary Daniel Poneman, appearing on CNN (3/18, Chetry, Romans) Friday morning, said, "I think it's important to keep this in perspective. The Japanese have a huge task before them on getting this whole situation under control. I think their focus and the world's focus is properly on getting that job done. We certainly have been in very close communication with them throughout this crisis." Regarding US readiness, Poneman said, "Safety is absolutely our paramount concern, always has been. For decades, we've been improving the safety of nuclear power stations and it's not something we wait for a crisis to improve upon. We do it every day."

Fossil Fuels Stand To Gain From Nuclear Worries. The Weekly Standard (3/28, 83K) writes that the Japan catastrophe "is being regarded as the atomic power equivalent of the Deepwater Horizon oil spill in the Gulf of Mexico, which set back offshore oil drilling just as it appeared on the brink of a substantial expansion. This means we've now come full circle, as critics of offshore drilling compared the Gulf oil spill to Chernobyl." The "big winner in the short and intermediate term will be fossil fuels—especially coal and natural gas—which will be used to fill the breach in Japan and elsewhere to generate electricity. Which means that the biggest loser is ironically the environmental community, which had been slowly abandoning its longtime opposition to nuclear power because it offered an important component in reducing greenhouse emissions linked to climate change."

"Nuclear Renaissance" Said To Be More Hype Than Reality. Michael Grunwald writes in Time (3/28, 3.37M) that there has been no nuclear "renaissance." Even before the Japan crisis, "the endlessly hyped US nuclear revival was

stumbling, pummeled by skyrocketing costs, stagnant demand and skittish investors, not to mention the defeat of restrictions on carbon that could have mitigated nuclear energy's economic insanity." President Obama "has offered unprecedented aid to an industry that already enjoyed cradle-to-grave subsidies, and the antispending GOP has clamored for even more largesse. But Wall Street hates nukes as much as K Street loves them, which is why there's no new reactor construction to freeze."

Debate Rages Over Plant Vogtle Funding. In an article about the dispute over who should pay for the planned nuclear reactors at Plant Vogtle, the Atlanta Journal-Constitution (3/21, Newkirk, 227K) reports, that critics "want Georgia Power parent Southern Co., not just customers, to bear some of the overrun risk." For two years, "the PSC has delayed voting on a staff proposal to require Southern and its shareholders to share the pain if the project runs too far over its target \$6.1 billion budget. The reactors will cost more than twice that, but electric co-ops and city power companies are funding the rest."

Crews Battle Fire Near Los Alamos National Laboratory. KOB-TV Albuquerque, NM (3/18) reports on its website that crews were battling a fire that was started late Thursday evening near Los Alamos National Laboratory. The fire was said to have spread Friday and covered 355 acres. However, the fire, at the time, was not threatening to the lab. KOB-TV adds that the "cause of the fire is under investigation."

Overseas Crises Generates Ten Year High In US TV News Coverage. The New York Times (3/21, Stelter, 1.01M) reports, "Propelled by revolution in the Middle East and radiation in Japan, television news coverage of foreign events this year is at the highest level since the Sept. 11 terrorist attacks 10 years ago, news executives in the United States say." The foreign press corps "is working in exceptionally dangerous conditions in countries like Japan, where members carry radiation monitors on assignment, and in Libya, where crews of journalists have been detained." The Times notes that "fewer journalists covering foreign news work full time for American broadcast networks than once did, and those who remain have had to hopscotch from one hot spot to another this year, sometimes creating lags in coverage." But the networks "are aided by a bounty of audio and video clips that would have been nonexistent a few years ago."

DHS Responds To RSA Security Breach. The New York Times (3/19, B3, Markoff, 1.01M) reported Friday that "more than a day after RSA security posted an 'urgent'

alert warning that a sophisticated intruder might be able to initiate a 'broad attack' on a password device used by millions of customers, the announcement and its meaning remain shrouded in mystery." According to the Times, "The announcement touched off intense speculation about whether RSA's popular SecurID tokens, which are carried on key chains and in wallets of millions of corporate and government users, have been significantly compromised." The Times reports the DHS's Community Emergency Response Team on Wednesday "posted a 'Technical Information Paper' on its Web site describing a set of security practices meant to limit vulnerability to attacks based on the stolen information, according to a person close to the organization."

Google Accuses China Of Blocking E-mail Service. The New York Times (3/21, B6, Barboza, Miller, 1.01M) reports Google has accused the China of "disrupting Gmail in the country, making it difficult in the last few weeks for users here to gain access to the company's popular e-mail service." Google "said that it was not having any technical problems with Google's main Web site or Gmail service in China," instead blaming "a government blockage." The AP (3/21, Tran) also reports the story.

INTERNATIONAL NUCLEAR NEWS:

"Serious Setback" Reported At Reactor No 3, But Radiation Levels Dropping. The New York Times (3/21, Tabuchi, Onishi, 1.01M) adds, "The emergency efforts to mitigate damage" at the Fukushima plant "brought some notes of relief in the face of persistently dire conditions. The authorities said they had restored water pumps to two damaged reactors, Nos. 5 and 6, that were not of central concern, putting them under control in a state known as 'cold shutdown,'" but "another reactor that has proved more worrisome, No. 3, continued to bedevil engineers." The Tokyo Electric Power Company "appeared to have experienced a serious setback as officials said that pressure buildup at the ravaged No. 3 reactor would require the venting of more radioactive gases."

The Los Angeles Times (3/20, Kaplan, Maugh, 681K) reports NRC chair Jaczko also said that "radiation levels at the stricken Fukushima Daiichi nuclear power plant in Japan are still high but may be tapering off. ... Indications from the plant, which houses six nuclear reactors, were levels in the range of hundreds of millisieverts per hour." The Times adds, "For the sake of comparison, the average American is exposed to 6.2 millisieverts of radiation per year, half of which come from natural sources, according to the commission." The Hill (3/20, Geman, 21K) reports Jaczko said yesterday, "We believe that right now the radiation levels at the site are

high, but we have some indications that they may be coming down.”

NBC Nightly News (3/20, story 7, 2:25, Holt, 8.37M) reported, “As they struggle to contain the radiation, engineers now have some kind of water supply going at all of the reactors. For now, water temperature and pressure is either holding steady or falling in each of them.” Hidehiko Nishiyama, Nuclear and Industrial Safety Agency: “We have been making some sure and steady progress.”

ABC World News (3/20, story 9, 2:25, Muir, 8.2M) reported that “the pressure in inside reactor number three of Fukushima is building to a critical level. ... Officials are now considering widening the evacuation zone just in case.” The Wall Street Journal (3/21, Shirouzu, Hayashi, Landers, 2.09M), in an article titled, “Japan Makes Gains In Nuclear Fight,” focuses on the apparent progress being made at the Fukushima plant.

AFP (3/20, Hampton) reports, “The toll of dead or missing from Japan’s worst natural disaster in nearly a century passed 21,000. ... With half a million tsunami survivors huddled in threadbare, chilly shelters and the threat of disaster at the Fukushima No. 1 nuclear plant stretching frayed nerves, the mood in the world’s third-biggest economy remained grim.” NBC Nightly News (3/20, story 6, 2:15, Holt, 8.37M) reported, “The death toll is nearly 8,500 and there are still nearly 13,000 people listed as missing. Both numbers are expected to go even higher.”

Chu Says Worst Is Likely Over At Fukushima Plant.

DOE Secretary Steven Chu, on CNN’s State Of The Union (3/20, Crowley), said, “The issue here now is whether the containment vessels are intact. And the main containment vessels in two of them we believe are intact. We don’t know the status of the third one. ... Because of the higher levels of radiation, we take that as evidence that there might be a breach in that containment vessel. But they’re not extraordinarily high. So it appears if there is a breach, it is a limited breach.” Crowley: “Is the worst over?” Chu: “Well, we believe so. But I don’t want to make a blanket statement.” Chu said on Fox News Sunday (3/20, Wallace), “I think with each passing hour, each passing day, things are more under control. And so, step by step, they are making very good progress.”

The Hill (3/20, Geman, 21K) reports that when asked if “the worst is over” in Japan, Chu replied, “We believe so.” Similarly, according to Bloomberg News (3/20, Nohara, Inajima), Chu “said...the worst of the crisis is over. Unit 2, where Tepco connected a 1.5-kilometer (1 mile) power cable March 18 as it tried to revive cooling systems knocked out by the magnitude-9 temblor and tsunami, is the main source of concern.”

Chu, asked on CNN’s State Of The Union (3/20, Crowley) if he feels “comfortable now with the honesty and

the knowledge that you are getting from Japanese authorities,” replied, “There’s no evidence that I’ve ever heard that the Japanese were holding back.”

E.J. Dionne, in his column for the Washington Post (3/21, 605K), says, “So far, Japan’s political and corporate leaders have not risen to this crisis – witness the impatience of its own people and the rest of the world over the flaws in the official information about conditions at the Fukushima Daiichi reactors.”

Taiwan Detects Radiation In Japanese Beans. AFP (3/20, Hampton) reports, “Food contaminated with radiation was found for the first time outside Japan...as Taiwan detected radioactivity in a batch of imported Japanese fava beans.” According to the Washington Times (3/21, Johnson, 77K), “Fears of nuclear fallout grew during a wet Sunday after officials reported traces of radioactive elements in milk, spinach, water and rain across northern and central Japan. ... Consumers across Japan and neighboring countries grew increasingly wary of agricultural products from the crisis area.”

Sunday: Efforts To Cool Damaged Reactors Continue In Japan. Coverage of the crisis in Japan took a backseat to reporting on hostilities in Libya again Saturday evening, with both ABC and NBC only getting to the aftermath of the earthquake and tsunami after about 15 minutes on Libya on each. ABC World News (3/19, story 6, 3:00, Sawyer, 8.2M) focused on “new proof that the effects are reaching into Japanese food.” ABC (Wright) added, “Thankfully, the catastrophic meltdown everyone fears hasn’t happened yet. Firefighters on the scene trying to cool the reactors down are making progress. But radiation has already made it into the food supply.”

NBC Nightly News (3/19, story 6, 2:50, Holt, 8.37M) more optimistically focused on “what may be hopeful about those crippled nuclear reactors,” while still warning “about the impact of a radiation leak on the food supply.” NBC (Bazell) added, “The desperate effort to stop the radiation disaster is showing some encouraging signs, but its far from over and the discovery of contaminated milk and spinach shows why it is such a race against time. Fire trucks were able to get within 60 feet of reactor three and shoot 1,500 tons of water at it. That should be enough to fill the water tank which should look like this covering spent fuel rods that have been exposed and emitting radiation. If the water hit its mark, the tank doesn’t have a major leak.”

The AP (3/20, Talmadge, Yamaguchi) reported, “Technicians prepared to vent radioactive gas into the air Sunday because of a new spike in pressure at Japan’s crippled, leaking nuclear complex, while a safety official said protective iodine pills should have been distributed near the plant days earlier.” Radiation “already has seeped into the food supply, with the government warning that tests of spinach and milk from areas as far as 75 miles (120

kilometers) away exceeded safety limits. Tap water farther away turned up tiny amounts of radioactive iodine in Tokyo and other areas.”

AFP (3/20, Hiyama) said “crews fighting to cool reactors...struggled Sunday to switch partial power back on.” The New York Times (3/20, Belson, Tabuchi, 1.01M) reports Tepco, “with help from the Japan Self-Defense Forces, police officers and firefighters, continued efforts to cool the damaged reactors on Saturday to try to stave off a full-scale fuel meltdown and contain the fallout.” But the New York Times (3/20, Belson, Bradsher, Wald, 1.01M) reports “new questions are arising” about whether Tepco executives “wasted precious time in the early hours of the nuclear crisis, either because of complacency or because they did not want to resort to emergency measures that could destroy the valuable plant.”

The Los Angeles Times (3/20, Lee, Hall, Magnier, 681K) reported Japan “took a step toward possibly getting its nuclear disaster under control Sunday as electricity to power some reactor cooling systems was restored and previous efforts to lower reactor temperatures with seawater at the battered Fukushima atomic energy plant appeared to have had an effect.” But the “increased optimism by Japanese officials and Western scientists alike was tempered by a pressure buildup” at one of the reactors and the “newly emerging crisis” of food contamination.

Saturday: Japanese Officials Upgrade Severity Rating Of Nuclear Accident. The CBS Evening News (3/18, story 4, 3:40, Smith, 6.1M) reported Japanese officials admitted “for the first time” Friday that they “were not as prepared as they should have been” for the catastrophe that struck a number of nuclear reactors following the recent earthquake. CBS said that “one week after the earthquake and tsunami damaged a number of nuclear reactors, workers are still struggling to get them under control and prevent a meltdown.” CBS (Whitaker) added that a “few dozen workers at the Fukushima nuclear plant finally were able to connect the power cable needed to restart the reactor cooling systems. Nevertheless Japan’s prime minister was unusually blunt.” Prime Minister Naoto Kan: “We are still at a critical state with the situation at the nuclear plant. People at Tepco, firemen, police, and many others are currently making a desperate effort on all fronts.” The Washington Post (3/19, Harlan, Achenbach, 605K) says Kan “sought to assure his countrymen that Japan will rebuild. But his words came amid doubt that the nation’s leaders have a firm grip on the nuclear crisis.”

NBC Nightly News (3/18, story 4, 2:35, Williams, 8.37M) reported, “Two days ago, Japanese officials shot down the American assessment that the situation at that plant was bleaker than they were letting on officially. Tonight, though, those same Japanese officials have now raised the

seriousness of the accident from a level four to a level five on a scale of seven, as they measure nuclear danger around the world. That puts this on par with Three Mile Island here in the US and there are new efforts again tonight to cool down those troubled reactors.” The Los Angeles Times (3/19, King, Hall, Magnier, 681K) says the severity upgrade was “what many considered an inevitable, and perhaps tardy, move.” The New York Times (3/19, Fountain, 1.01M) reports, “The consensus among nuclear safety experts outside Japan is that the situation there is already worse than Three Mile Island.” ABC World News (3/18, story 6, 1:45, Sawyer, 8.2M) reported the official toll from the earthquake and tsunami “is more than 6,500 dead, more than 10,000 missing.”

AFP (3/19, Hiyama) reports engineers “laid a power line into a stricken nuclear power plant on Saturday as hundreds of thousands of quake-tsunami survivors endured desperate conditions in the frozen north.” But Bloomberg News (3/19, Okada, Sakamaki) reports engineers “missed a deadline to restore power” to the plant, “prolonging efforts to prevent more radiation leaks as Japan’s government told people nearby to cover up and avoid the rain.”

The New York Times (3/19, Fackler, 1.01M) reports, “A week after an earthquake and tsunami devastated their communities and set off the worst nuclear accident since Chernobyl, the plight of the thousands still stranded in areas near the stricken reactors – many too old or infirm to move – has underscored what residents say is a striking lack of help from the national government to assist with the evacuation of danger zones or the ferrying of supplies to those it has urged to stay inside.” In another report, the New York Times (3/19, Belson, 1.01M) writes that “for a country that is known for its industrial robots, advanced cellphones and hybrid vehicles, Japan’s efforts to cool the hobbled nuclear reactors in Fukushima Prefecture have seemed, at least to a world watching on television, to be decidedly low-tech.”

The AP (3/19) reports the State Department “is expanding the area for voluntary evacuations for family members of US personnel in Japan.” The New York Times (3/19, McDonald, LaFraniere, 1.01M) says “about 20,000 resident foreigners have indicated their intent to leave the country by requesting re-entry permits from the Tokyo Immigration Bureau.”

Meanwhile, the AP (3/19) also reports, “Spinach and milk taken from farms near Japan’s crippled nuclear plant exceeded government-set safety limits for radiation, the government said Saturday, in the first report of food contamination from the accident. The tainted milk was found 20 miles (30 kilometers) from the plant while the spinach came from a neighboring prefecture.”

Japanese Response To Tragedy Said To Differ From That Of West. Physicist Michio Kaku writes in Newsweek (3/28, 2.65M), “Since Japan’s devastating

earthquake, the entire world has been riveted by heart-breaking images in the East revealing the horror of a nation whose northern coastline was reduced to rubble." But there are "subtle, revealing cultural differences between East and West in their reaction to tragedy. In spite of monumental collapse and ruin, the Japanese politely wait in long lines for hours, without once complaining." But Time (3/28, Beech, 3.37M) says Japan's resilience "is not solely to be explained in terms of some innate psychological trait that its people possess. It is also manifested in the nation's preparedness."

Many Nations Have Restricted Nuclear Power Since Japan Disaster. Newsweek (3/28, Sokolski, 2.65M) writes, "The nuclear world we had before Fukushima is radically different from the one we have now. Clearly the disaster response has not gone well." Most world leaders "didn't wait to act. Germany announced it would shut down (temporarily, at least) seven of its oldest reactors. Major safety reviews and licensing breathers have also been announced by France, the European Union, Thailand, Switzerland, the Philippines, India, and even China." But so far, the US has taken no similar action.

Time (3/28, Gibbs, 3.37M) says "when the quake hit, the reactors at the Fukushima Daiichi complex did exactly what they were supposed to do: they shut down. But then the wave came, breached the seawall, drowned the backup generators needed to cool the reactors and took out the spare batteries." The "best nuclear scientists on the planet raced to avert a total meltdown even as radioactivity levels as far south as Tokyo spiked to 23 times as high as normal."

Chernobyl Cleanup Continues A Quarter-Century Later. The CBS Evening News (3/18, story 7, 2:20, Smith, 6.1M) reported, "As Japan tries to avert a nuclear meltdown, the world is still dealing with the fallout from the worst nuclear accident ever at Chernobyl. Nearly 25 years after the accident in Ukraine, people are still barred from a 19-mile exclusion zone around the site and, incredibly, the cost of the cleanup are mounting." CBS (Plante) added, "A more permanent solution to entomb the Chernobyl reactor has been planned for years. A massive steel dome taller than the Statue of Liberty and wider than the St. Louis Gateway Arch to be built at a distance because of the radiation will be rolled into place section by section over the still deadly reactor. But the dome hasn't yet begun to take shape. The US and the European Union are still struggling to raise the two billion dollars it will cost. In Japan, the Fukushima complex will also have to be entombed and the radiation levels will make that very difficult."

NBC Nightly News (3/18, story 6, 2:10, Williams, Kosinski, 8.37M) reported, "Through the desolate forest, past danger signs and checkpoints, in many ways it is still 1986 in Chernobyl. Children's books and toys and gas masks wait in

their brand new school." Kosinski added: "More than 300 times the radiation there than would be normal." Stephen Robinson, nuclear physicist: "You have to say the next 1,000 years it will not be possible to live normally or to have any economic development." Kosinski: "But Chernobyl was much different than Japan's Fukushima. It didn't have nearly the protection around the core and had flaws, like components that burned, spreading radiation across Europe."

Chilean Protestors Seek Obama Apology For CIA "Meddling." The AP (3/21) reports "several hundred people" have protested in Santiago ahead of Monday's visit by President Obama. Communist Party leader Guillermo Teillier "says political, cultural and social representatives have signed a letter to Obama" asking him to "apologize for US intervention that destabilized Salvador Allende's socialist government in Chile" before a 1973 coup that began Gen. Augusto Pinochet's dictatorship. Protesters are also "criticizing a new nuclear energy accord between the US and Chile that focuses on US training of Chilean nuclear engineers".

Obama Voices Strong Support For Iranian Opposition. Calling his strongest support yet for Iran's opposition movement, the Wall Street Journal (3/21, Solomon, 2.09M) reports President Obama addressed the Iranian people on the Persian New Year, criticizing Tehran's human-rights abuses. "So far, the Iranian government has responded by demonstrating that it cares more about preserving its own power than respecting the rights of the Iranian people," Obama said in a video message that translated into Farsi. "These choices do not demonstrate strength, they show fear," he added.

The AP (3/21) reports Obama "singled out the young people in Iran, saying they are the ones who can break that cycle and determine their country's future."

AFP (3/21) quotes the President as saying, "The future of Iran belongs to the young people -- the youth who will determine their own destiny... And though times may seem dark, I want you to know that I am with you."

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NUCLEAR REGULATORY COMMISSION NEWS CLIPS

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NRC NEWS:

Rare White House Request For Nuclear Regulatory Commission To Review Safety Of US Nuke Plants (AP)

By Associated Press

Associated Press, March 21, 2011

WASHINGTON – The Nuclear Regulatory Commission will conduct a “comprehensive review” of the safety of all US nuclear plants following what US officials are calling the dangerous and complicated situation at Japan’s damaged Fukushima Dai-ichi reactors.

President Barack Obama took the rare step and called upon the independent commission to conduct the review.

“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 Thursday.

Obama’s statement came as he tried to reassure a worried nation that “harmful levels” of radiation from the Japanese nuclear disaster are not expected to reach the US, even as other officials conceded it could take weeks to bring the crippled nuclear complex under control.

Meanwhile, the first evacuation flight of US citizens left Japan, the State Department said.

“We’ve seen an earthquake and tsunami render an unimaginable toll of death and destruction on one of our closest friends and allies in the world,” Obama said in brief remarks at the White House after a visit to the Japanese Embassy to offer his condolences.

There are 104 nuclear reactors in the United States, providing roughly 20 percent of the nation’s electricity. “Nuclear energy is an important part of our own energy future,” Obama said.

A leading industry group agreed with the review.

“A review of our nuclear plants is an appropriate step after an event of this scale, and we expect that the Nuclear Regulatory Commission will conduct its own assessment,” said Marvin Fertel, president of the Nuclear Energy Institute. “The industry’s highest priority is the safe operation of 104 reactors in 31 states and we will incorporate lessons learned from this accident...”

In the US, Customs and Border Protection said there had been reports of radiation being detected from some cargo arriving from Japan at several airports, including ones in Chicago, Dallas and Seattle.

Radiation had not been detected in passengers or luggage. And none of the reported incidents involved harmful amounts.

Homeland Security Secretary Janet Napolitano said the agency was screening passengers and cargo for “even a blip of radiation.”

Obama said he knows that Americans are worried about potential risks from airborne radiation that could drift across the Pacific. “So I want to be very clear,” he said. “We do not expect harmful levels of radiation to reach the United States, whether it’s the West Coast, Hawaii, Alaska or US territories.”

Gregory Jaczko, chairman of the Nuclear Regulatory Commission, told reporters at a White House briefing it could be some time before the crisis is brought under control as crews work to cool spent-fuel rods and get the damaged Japanese reactors under control. The activity could continue for days and “possibly weeks,” Jaczko said.

He said the US recommendation that American troops and citizens stay 50 miles away from the nuclear complex was “a prudent and precautionary measure to take.” But he also said “basic physics” suggested there was little risk to anyone in the United States or its Pacific territories.

Daniel B. Poneman, deputy secretary of energy, told the briefing that a “very dangerous situation” remains in Japan. Information at the nuclear plant is “genuinely complex and genuinely confusing,” he said.

As the officials spoke, Japanese emergency workers sought to regain control of the dangerously overheated nuclear complex, dousing it with water from police cannons, fire trucks and helicopters to cool nuclear fuel rods that were threatening to spray out more radiation.

The US Energy Department said it had conducted two separate aerial tests to measure how much radioactive material had been deposited in Japan. Those data, Poneman said, were consistent with the recommendation for Americans to evacuate a 50-mile radius around the plant.

The US officials declined to criticize the Japanese call for a smaller evacuation zone.

"We're analyzing the information, and we're sharing it with the Japanese," said Poneman. "The preliminary look has indicated that the measures that have been taken (by the Japanese) have been prudent ones. And we have no reason to question the assessment that has been made or the recommendation that has been made by the Japanese authorities."

At his visit to the Japanese Embassy Thursday, Obama signed a condolence book and said: "We feel a great urgency to provide assistance to those ... who are suffering."

In the book he wrote, "My heart goes out to the people of Japan during this enormous tragedy. Please know that America will always stand by one of its greatest allies during this time of need."

White House spokesman Jay Carney said the fact that Obama had taken the rare step of asking the NRC – an independent regulatory agency that is not under the president's control – to undertake a review of US reactor safety in light of the Japanese disaster "only adds to the urgency of that mission."

Representatives of the nuclear energy industry said Thursday that operators of US reactors already had begun taking steps to better prepare for an emergency in this country.

While it will take some time to understand the true dimensions of the nuclear disaster in Japan, "we will learn from them, we will get that operating experience, we will apply it and try to make our units even safer than they are today," said Anthony Pietrangelo, senior vice president of the Nuclear Energy Institute, a Washington-based industry lobbying group.

US Nuclear Plants To Get New Safety Reviews In Wake Of Fukushima 1 (CWIRE)

By Peter Behr

ClimateWire, March 18, 2011

President Obama responded to Japan's nuclear reactor crisis yesterday by asking the Nuclear Regulatory Commission to make a comprehensive safety review of US nuclear plants to assess their ability to withstand natural calamities.

Speaking at the White House, NRC Chairman Gregory Jaczko said yesterday the study would be made. He repeated his statements this week that the commission considered the 104 US nuclear plants to be secure, but the evidence from Japan's devastating reactor damage would be the basis for a new review.

"We're going to take a look at what happened, we're going to do a systematic and a methodical review of the information, and if we need to make changes to our program, we'll make changes to our program," Jaczko said. "But I want to emphasize and stress that we have a very robust program where we look at the safety and the security of our nuclear facilities on a minute-by-minute basis. "

Today, Japan's Self-Defense Force units shot water from fire trucks at the Unit 3 reactor at the Fukushima Daiichi nuclear plant, hoping to raise water levels in the unit's spent fuel cooling pool and prevent more radiation leaks from overheated fuel rods. More dousing operations would occur today, authorities said.

The chief of staff of the Air Self-Defense Force, Shigeru Iwasaki, said the SDF crews were exposed to no more than several millisieverts of radiation during the operation, levels that he said would not prevent continued attempts to cool the reactor, NHK reported. However radiation levels were registered elsewhere in the complex, up to 20 millisieverts per hour at some points, the news service said. Japan's science ministry said today that relatively high radiation levels were detected about 30 kilometers northwest of the plant.

The Los Angeles Times reported that the spent fuel pool in Unit 4 appears to have been damaged, possibly by the force of the earthquake, which could have led to leaks of the protective water cover that keeps spent fuel from overheating. The newspaper quoted an unnamed US utility official as saying that water sprayed into the pool was disappearing faster than could be explained by evaporation.

A critical step in the weeklong battle is scheduled tomorrow, when Tokyo Electric Power Co. said it hoped to restore outside electric power to two of the crippled reactor units to see whether normal cooling of reactor cores and spent fuel pools could be restored at Units 1 and 2.

US experts have said the resumption of cooling operations offers the best hope for containing radioactive releases of steam and gas at the complex, but it is not yet known whether hydrogen explosions and damage to reactor cores will permit this to happen.

Tokyo Electric Power, owner of the Fukushima Daiichi plant, said today it had shelved plans to build a new nuclear reactor in Aomori Prefecture. At 1,380 megawatts, it would have been Japan's largest.

Separately, owners of the 104 US commercial nuclear power plants announced yesterday they will inspect their units to verify each company's ability to maintain safe reactor operations if confronted with natural disasters, fires, aircraft impact and explosions that go beyond the threats that plants are designed to withstand.

"We can do the best planning and analysis, and we can never guarantee zero risk, and we need to be prepared," Anthony Pietrangelo, chief nuclear officer of the Nuclear Energy Institute, told reporters. He said lessons from the Japanese reactor crisis will be studied. "We will learn from them. We will get that operating experience. We will apply it and try to make our units even safer than they are today."

The question of the safety of US nuclear plants was also the subject of a report issued yesterday by the Union of Concerned Scientists, authored by David Lochbaum, a nuclear engineer who heads UCS's nuclear safety program. The report reviewed 14 significant safety-related events that triggered special oversight by NRC in 2010.

Some demands for a temporary shutdown

Lochbaum's report highlighted three cases in which NRC inspectors pursued problems to secure fixes and three cases with problems NRC overlooked or dismissed, it said.

"The chances of a disaster at a nuclear plant are low," the UCS report said. But it added the severe accidents at Three Mile Island in 1979 and Chernobyl in 1986 "occurred when a handful of known problems -- aggravated by a few worker miscues -- transformed fairly routine events into catastrophes."

The new inspection program by the nuclear operators follows demands from some members of Congress for a temporary shutdown and inspection of older US plants, particularly the 23 reactors with the same reactor models present in the crippled Fukushima Daiichi complex.

General Electric Co. has defended its Mark 1 reactor -- the design at the crippled Japanese complex -- as a reliable industry workhorse. Tom Cochran, a nuclear physicist and senior scientist with the Natural Resources Defense Council calls the design "demonstrably deficient." He says "the diesel generators are in the basement and spent fuel is in the attic. It should have been the other way around."

Pietrangelo said the inspections would go beyond the scope of regular safety checks at the plant. The companies will verify that plant operators could safely shut down reactors if there were a total loss of electric power; that crucial emergency equipment and systems could survive earthquakes, fires or floods, and that emergency personnel were properly qualified and trained, said Pietrangelo, speaking on behalf the industry's chief nuclear officers.

NRC requires nuclear plant operators to show that if hit with a single, or series of "worst case" scenarios, such as an earthquake and simultaneous rupture of the pipe delivering cooling water to the reactor, that the plant can be shut down safely without core damage. That is the standard, day-to-day requirement, he said. "We're going beyond that in this initial look," Pietrangelo said.

He said he did not think companies will report results of the inspections separately to NRC but, like all operational information, the findings will be available to NRC inspectors.

A power loss at a US reactor

The UCS report focuses on the effectiveness of the resident NRC inspectors stationed at the US plants. The cases included in the report show both diligent attention by NRC, and complacency that allowed operators to sweep problems under the rug.

One of the incidents covered in the UCS report was an electrical fire at Progress Energy's H.B. Robinson nuclear plant near Hartsville, S.C., on March 28 last year.

The incident began with a short-circuit on a major electrical cable, which caused a drop in power supplied to a large pump circulating water through the reactor. The reactor shut down automatically, but the incident damaged the main power transformer connecting the plant to the outside electrical grid, and other events left about half of the plant's equipment without power.

That power loss caused a sequence of problems with valves affecting the control of the reactor's temperature, but operators failed to notice the problems for nearly an hour, the report said.

After four hours, operators tried to restore power to the circuit where the short had occurred but did not check first to see that that problem had been solved. It had not been, and when the line was re-energized, another fire resulted. The failed cable, installed in 1986, did not meet design parameters, the report said.

Six months later, another series of equipment failures and operator errors caused another reactor shutdown at the plant. One of the equipment issues had been known to the operators since 2003 but had not been fixed, the report said. In this case, the operators relied on an auxiliary water supply system to provide cooling to the reactor by first disabling safety controls. The goal was to avoid a critical NRC review, the report said.

NRC issued a notice yesterday saying that while it concluded the plant had operated safely last year, commission staff will be stepping up inspections and oversight based on problems surrounding the reactor shutdowns.

Physics And Politics For The NRC Chairman (MRKWTCH)

Capitol Report

By Maggie McNeil

MarketWatch, March 21, 2011

WASHINGTON (MarketWatch) – When Gregory Jaczko was working on his doctorate in physics at the University of Wisconsin, he began to formulate how he could mix policy and science in his career.

Now as the chairman of the US Nuclear Regulatory Commission and suddenly America's most visible nuclear expert as the world grapples with the implications of the unprecedented nuclear crisis in Japan, Jaczko's unique background of science and politics is fortuitous.

"Dr. Jaczko seeks to build consensus positions," said David Lochbaum of the Union of Concerned Scientists and head of the group's Nuclear Safety Project. "Along the way, Dr. Jaczko sometimes will make a concession to gain some broader goal."

The 40-year-old physicist became head of the powerful agency overseeing the US nuclear industry in 2009, after being picked by President Barack Obama for the top slot and serving as one of the agency's five commissioners for the 4 ½ years leading up to his promotion.

Jaczko has been generating worldwide headlines this week as he's taken the lead in briefing US lawmakers and the public about the situation in Japan, first presenting a more dire scenario than had been reported by Japanese officials and advising Americans in Japan to get at least 50 miles away from the power plant, and finally assuring the US public that any radioactive emissions reaching this nation would not pose any health risks.

Jaczko came to his current job not only with solid academic credentials, but with strong political connections.

A native of Albany, N.Y, he graduated from Cornell University with an undergraduate degree in physics and philosophy, and earned his doctorate in physics from the University of Wisconsin in Madison.

While he was in graduate school, Jaczko got his first up-close look at Washington politics while he was a Congressional Science Fellow on Capitol Hill. He worked in the office of Rep. Edward Markey, Democrat from Massachusetts, who has often been an outspoken critic of the nuclear power industry. Jaczko has said in earlier interviews that his first experience on the Hill opened his eyes to a "different part of our society, the political process...I very much enjoyed it."

After completing his doctorate, Jaczko decided against a career in research and opted to stay in public policy, taking a job with the Senate Environment and Public Works Committee as scientific and nuclear adviser. A solid Democrat, Jaczko then moved to Senate Majority Leader Harry Reid's staff, first as appropriations director and then as Reid's science policy adviser.

It was during this period that Reid was leading the fight against a proposal to store nuclear waste at a facility to be built at Yucca Mountain in Nevada, and Jaczko was reported to be Reid's point man on the issue.

That experience, say critics of Jaczko, colored the regulator's objectivity over the Yucca Mountain issue and later influenced Jaczko's decision last year to direct agency scientists to halt a formal review of the nuclear waste site. Republicans charged that Jaczko was improperly blocking progress on the license application, and that it was a partisan move by the agency. The NRC and its scope

The Nuclear Regulatory Agency was created in 1974 and is responsible for regulating the commercial nuclear power industry and other commercial uses of nuclear material in the US

With a budget of around \$1 billion a year, the NRC has significant control over the industry – before a nuclear reactor can begin operating, the NRC must first grant an operating license, and the NRC conducts regular inspections at existing plants to make sure they are meeting federal safety standards.

The NRC is headquartered in a huge six-building complex in a DC suburb in Maryland where almost 3,000 employees work – largely scientists, engineers and lawyers.

Another thousand-or-so NRC employees are scattered across the country in four regional regulatory offices in Pennsylvania, Georgia, Illinois, and Texas, or at its technical training center in Tennessee, or the NRC's on-site High Waste Management office in Las Vegas. In addition, on-site inspectors are permanently stationed at each of the 104 nuclear reactors in the country.

The nuclear industry stays in close touch with the NRC, providing technical support on generic industry issues, and often participating in the regulatory and technical meetings that occur throughout the day at agency headquarters.

The agency has gotten mixed reviews over the years for its performance.

Advocates of nuclear power charge that the agency has dragged its heels in granting new licences, and has hindered industry growth. On the other side, critics of nuclear power contend the NRC is too closely aligned with the industry and is not tough enough on the operators.

A recent study by the Union of Concerned Scientists said that while the NRC has a track record of catching and correcting safety problems at nuclear plants, it has also "overlooked or dismissed" some "serious safety problems."

"The NRC is capable of functioning as a highly effective watchdog," says the UCS, but it says its report shows that "much work remains to be done."

Maggie McNeil is Washington editor for MarketWatch.

White House: In Jaczko We Trust (POLITCO)

By Darren Samuelsohn

Politico, March 19, 2011

The White House has been dancing an awkward two-step with the nation's top nuclear regulatory authority, declaring it a trusted, independent arbiter of what's happening during the crisis in Japan despite harboring deep historical reservations about the quality of its work.

The word "independent" was uttered at least eight times from the White House podium during press briefings last week to describe the Nuclear Regulatory Commission, whose leader, Gregory Jaczko, has personally briefed President Barack Obama, spent a late night in the Situation Room monitoring the nuclear disaster and also been the public face of the US government in many media interviews.

Relying so heavily on the NRC makes perfect sense at the moment of such a major crisis. But it's helped that the Obama team is leaning on Jaczko, a former Senate Democratic aide to Harry Reid who first won confirmation in 2005 over vocal industry objections, to avoid the game of musical chairs that plagued the PR response to the Gulf of Mexico oil spill.

Obama nominated Jaczko to chair the NRC in 2009, and he has taken the rough edges off a sometimes rocky relationship that existed between the commission and then-Sens. Obama and Joe Biden. During the Democratic presidential primaries when they were still running against each other, both Obama and Biden trashed the NRC's five-person panel for being an industry lapdog.

"The NRC is a moribund ... it's a moribund agency that needs to be revamped and has become captive of the industries that it regulates," Obama told The Keene (N.H.) Sentinel in a Nov. 27, 2007, interview. "I think that is a problem."

While serving in the Senate, Biden said he was the NRC's "biggest nemesis" and had no faith in the commission's ability to get permitting decisions right when it comes to the nation's fleet of 104 existing reactors.

"It's like getting homed coming into a small town and playing a basketball championship with the local refs," Biden told the New Hampshire paper. The quotes were recently unearthed by Salon.

With the Japan disaster, the White House has relied on the NRC to generate critical data on the conditions at the Fukushima Daiichi nuclear plant.

Jaczko's candid testimony Wednesday before a House Energy and Commerce panel made international headlines when he said there appeared to no longer be any cooling water at one of the stricken reactors despite statements to the contrary from Japanese government officials.

The State Department ultimately used NRC's information to recommend a 50-mile evacuation radius around the plant for American citizens; at the time, Japan had a 12-mile evacuation radius.

While Obama wasn't so keen on NRC's abilities while running for president, he's now relying on it to do the right thing with information gleaned from Japan, especially with about two dozen reactors in the US that have similar design features to Fukushima Daiichi.

"People say things in campaigns, and they learn better later," said Richard Meserve, a former NRC chairman appointed by President Bill Clinton who also served into the George W. Bush administration, including during the Sept. 11, 2001, terrorist attacks.

Obama officials seem ready to let the past statements go, too, inviting Jaczko to speak from the White House briefing room twice last week alongside Deputy Energy Secretary Dan Poneman.

"We, the United States of America, have an independent regulatory agency whose sole mission is to constantly review and evaluate the safety and security of the reactors in the United States, which provide 20 percent of the electricity that Americans consume," White House spokesman Jay Carney told reporters Thursday.

Other top Obama officials are also right in the middle of the administration's response too, starting with Homeland Security adviser John Brennan as the lead White House coordinator for the interagency process. Energy Secretary Steven Chu is scheduled to go on all five major Sunday shows — on ABC, NBC, CBS, FOX and CNN — to talk about the Japan crisis.

In addition, the Environmental Protection Agency is monitoring radiation levels, and USAID, the Department of Health and Human Services and the National Oceanic and Atmospheric Administration have been on daily White House-led calls with Capitol Hill leaders.

The NRC, which Congress carved out of the Atomic Energy Commission in 1974, is regularly pummeled for how it handles permitting issues and being too cozy with the industry it regulates. But it has a unique role to play during a crisis.

Bush brought Meserve into his inner sanctum after Sept. 11. President Jimmy Carter sent Harold Denton, a non-political NRC specialist, to Pennsylvania to serve as his point man for the Three Mile Island accident.

"It takes on functions that are a lot more like an executive branch agency," said Peter Bradford, a former NRC commissioner and frequent nuclear industry critic.

NRC exists alongside other independent agencies like the Federal Energy Regulatory Commission, Securities and Exchange Commission and the Federal Communications Commission.

"They operate with a very significant degree of independence," said Jim Connaughton, the former chairman of George W. Bush's Council on Environmental Quality. "It's very common for there to be substantial interaction. That's perfectly appropriate, because, notwithstanding their independence, they are arms of the executive branch, the branch that implements congressional statute."

The White House communication campaign underway now is simply a byproduct of what normally happens behind the scenes, added Connaughton, now an executive vice president at Baltimore-based Constellation Energy, which operates five nuclear power reactors.

"There's been lot of education occurring in the last 10 days about processes that are very well established and institutions that are very well developed that carry on their mission out of public view," he said. "What's happening is now you're seeing that in a public way. The reason no one sees it is it's been working very well over the last 30 years."

White House spokesman Clark Stevens said Obama's reliance on the NRC makes sense.

"The president has maintained his focus on improving the safety and oversight at agencies across the federal government, which is why once he took office he appointed a new chairman to the NRC and worked with the Senate to install three new commissioners — out of a panel of five," he said. "These decisions, including the choice of Chairman Jaczko who had shown a commitment to a culture of safety during his time as a commissioner, were made with the express purpose of continuously improving safety and transparency at the independent agency that formulates policies and develops regulations governing nuclear reactors and nuclear material safety."

Top Nuke Regulator Eyes Two-part Safety Review, Won't Rule Out Licensing Changes (HILL)

By Ben Geman

The Hill, March 21, 2011

Nuclear Regulatory Commission Chairman Gregory Jaczko said Sunday that the upcoming study of US reactor safety will unfold in two phases to allow a near-term review while awaiting detailed information that will emerge from the crisis in Japan.

The five-member commission is meeting Monday to receive updates on the status of the stricken Fukushima Daiichi complex and begin mapping out the US safety review, which President Obama ordered last week.

"We will probably do some kind of short look in the near-term just to reexamine the existing fleet of reactors, and then probably a much longer look based on the accurate information we get eventually from Japan about what really happened and what is most important going forward," Jaczko said in an interview on C-SPAN.

He said that once the crisis is resolved, it will likely be months before vital information about what unfolded is available, and that it's important for US regulators to examine the catastrophe in a systematic and methodical way.

"We want to get this right — we don't want to take early information and use that and go off in completely wrong direction," he said, but later added: "We intend to do a short-term look that will be done in a much shorter time-frame, just to take the available information we have and really look at our regulatory system and our plants and make sure there aren't any immediate actions we need to take."

Jaczko, echoing comments by other top US officials, again sought to provide reassurances about the safety systems of the 104 US power reactors, noting for instance requirements to have redundant system to ensure that a loss of power will not cripple the ability ensure cooling in spent fuel pools.

"We think we have a program in place that would deal with the kinds of situations that we are seeing in Japan, but I want to stress that what they are dealing with in Japan 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," he said.

The Japanese crisis comes as several power companies are seeking NRC approval to build the first new US reactors in decades.

Jaczko would not rule out the possibility that the lessons learned from the crisis could affect the NRC's reviews of those applications, or the reactor designs they intend to use.

"We certainly want to get good information and if that good information tells us that we need to make changes to our licensing process, then we will do that," he said.

The NRC is expected to make decisions as early as late summer or early fall on the designs. "I think we will have some information if not all the information out of the Japanese event by then to inform any decisions we need to make about those designs," Jaczko.

The NRC is reviewing applications for design certifications, including an amendment to the design of the Westinghouse AP1000. It's the reactor model that several power companies seeking to build new nuclear plants intend to use, including Southern Company, which is planning to add two new reactors to its Plant Vogtle in Georgia.

Jaczko declined to say whether the catastrophe could affect the pace of new plant construction license approvals, but noted new strains in the NRC stemming from the need to respond to the Japanese crisis and review its implications.

"I anticipate this is going to be a very significant workload for the agency, and as we begin to lay out our plan we are going to take a look at how we are going to deal with that workload," Jaczko said.

"If we need additional resources to do it, then we will have to ask Congress for that additional support," he added.

Regulator Says Fuel Pools At US Reactors Are Ready For Emergencies (NYT)

By Matthew L. Wald and Joseph Berger

New York Times, March 21, 2011

WASHINGTON -- The chairman of the Nuclear Regulatory Commission said Sunday morning that the spent fuel pools at American nuclear reactors are less vulnerable than the ones in Japan because of steps ordered by his agency after the attacks of Sept. 11, 2001, including having utilities prepare to use fire hoses to pump in extra water in the event ordinary cooling systems are knocked out.

Nuclear utilities were ordered to "identify and pre-stage equipment" that would be useful in such an emergency, according to commission officials. They have been reluctant to disclose details, because some preparations against terrorist attack are classified, but indicate that the preparation includes locating emergency generators, diesel-driven pumps, hoses and diesel fuel, as well as setting up procedures.

The chairman, Gregory Jaczko, said on the C-Span program "Newsmakers" that these preparations give an "extra sense of certainty" about the ability to withstand events beyond what the plant was designed for.

Also on Sunday morning, Energy Secretary Steven Chu, appearing on Fox News, indicated he remained confident in the safety of American plants. But he said the Nuclear Regulatory Commission, an independent agency, would revisit the issues after the problems in Japan.

He said Americans were "in no danger" and "it's unlikely they will be exposed to danger." He said the 23 American reactors that use the same Mark 1 design as was used in the Fukushima Daiichi Nuclear Power Station "are constantly being upgraded" to improve their safety.

Nevertheless, he said, officials will have to study whether a reactor like Indian Point, in Buchanan, N.Y., "should remain" and whether its evacuation plans are adequate given that millions of people live near the plant, which is 34 miles from Manhattan.

"It's an N.R.C. decision," he said. "But the N.R.C. will be looking at that, I'm sure, based on events. But again this is not to say that we believe that reactor is unsafe. We believe that reactor is safe."

Congress gave the job of regulating nuclear reactor safety to the Nuclear Regulatory Commission when it broke up the Atomic Energy Commission in the 1970s. The Energy Department got the job of promoting nuclear power. It is part of the American response to the Fukushima accident because it has extensive scientific and engineering capabilities as well as equipment used for monitoring, and because President Obama had designated Mr. Chu, who won a Nobel Prize in physics, as the government's point person on the accident.

Mr. Jaczko reiterated Sunday that the commission would learn all appropriate lessons and act as needed, once the facts became available.

The five-member commission is to meet Monday morning to receive a briefing from its staff about what is known and what is uncertain about events in Japan. Mr. Jaczko said the agency ought to wait until more information is in hand before taking action. "It's important for us to do this in a methodical way," he said.

He said, however, that a decision made by the commission a few days before the earthquake to approve a 20-year license extension for the Vermont Yankee nuclear plant, which is a near twin of the Fukushima Unit 1 design, was not affected by the events in Japan, even though the commission staff is still finishing the paperwork before issuing the license.

If information from Japan makes it advisable to order changes at Vermont Yankee or other plants, including those that are not approaching the end of their operating licenses, action will be ordered promptly, he said.

He also said he did not anticipate any delay in the commission's approval of new reactor designs or a permit for two new reactors in Georgia later this year. Mr. Jaczko said information from Japan should be in hand before the decisions on new plants and new designs are due.

The Nuclear Regulatory Commission has sent 11 experts to Tokyo. Mr. Jaczko said there were no immediate plans to send them to Fukushima Prefecture. They are assisting Japanese regulators and the utility that operates the Fukushima plant, the Tokyo Electric Power Company, from Tokyo, he said.

Mr. Jaczko briefed Mr. Obama on Wednesday about the commission's assessment of conditions in Japan. Based on those assessments, the United States recommended that Americans stay 50 miles from the stricken reactor complex. Japanese officials have ordered an evacuation out to 20 kilometers -- about 12 miles -- and told people out to 30 kilometers, 18 miles, to take shelter.

Mr. Jaczko told Congress last week that one of the spent fuel pools was dry or nearly dry, a very important development. A dry pool would give anyone within line of sight a huge radiation dose, and the fuel might melt and radiation-emitting materials might spread. Japanese officials, however, have cast doubt on the idea that the pool was ever dry.

Asked about this on Sunday, Mr. Jaczko said that he based his statement on the "best available information" and still believed it to be true, although he added that one part of the post-accident investigation should be to examine information flow. Initial information in an accident can turn out to be wrong, he said. In this case, loss of electric power shut down a lot of monitoring equipment at Fukushima, he said. And general accident conditions do not always lend themselves to good information flow. "There's a reason they call it a catastrophe," he said.

Matthew L. Wald reported from Washington, and Joseph Berger from New York.

US Conducts Exam Of Nuclear Plants (WSJ)

By Stephen Power And Alan Zibel

Wall Street Journal, March 21, 2011

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

Former NRC Member Says Renaissance Is Dead, For Now (NYT)

By Hannah Northey, Greenwire

New York Times, March 18, 2011

The birth of the "nuclear renaissance" and proposed construction of up to 100 new nuclear reactors in the United States will be crippled by the crisis in Japan as regulators struggle to incorporate "lessons learned" into the country's existing nuclear fleet, a former member of the Nuclear Regulatory Commission said today.

"I think the effort to expand, to build a fleet of new plants ... [is] certainly dead for now," Peter Bradford said today during a briefing with reporters in Washington, D.C.

Bradford, a professor at the Vermont Law School, cast doubt over the federal government's assertions that the NRC can incorporate "lessons learned" from the crisis unraveling in Japan into the US nuclear industry without slowing or stopping the permitting and relicensing of new nuclear reactors. Japan was struck by a 9 magnitude earthquake on March 11, followed by a deadly tsunami that crippled the Fukushima Daiichi nuclear complex on the country's eastern shore.

Energy Secretary Steven Chu and NRC Chairman Gregory Jaczko have stood firm behind assertions during congressional hearings this week that although a review will be conducted of the US nuclear fleet, the ongoing regulatory process for existing and new nuclear plants will go unscathed.

But Bradford, who served the NRC during the 1970s when the agency dealt with the partial meltdown at the Three Mile Island nuclear plant in Pennsylvania, said the process of reviewing and potentially updating the safety of plants does not go hand in hand with the current pace of NRC oversight.

"Continuing a nuclear expansion in parallel with learning the lessons is just a terribly unlikely scenario," Bradford said. "The NRC can't divert resources that it's going to have to do for a 'lessons learned' process and still continue trying to have design approvals and construction and operating licenses on the original schedule."

Although Chu is right to tread carefully before final conclusions have been reached surrounding the crisis in Japan, Bradford said NRC will be strapped for funding if it tries to continue licensing plants while simultaneously undertaking a safety review of the entire fleet of 104 reactors in the United States. NRC, he added, will not even understand what happened in Japan for another nine months or so.

Bradford pointed out that NRC did not approve any additional nuclear plant licenses for up to two years after the Three Mile Island event. Instead, the agency found it necessary to shut down plants with a Babcock & Wilcox design for about four months to analyze their vulnerability, he said.

Changes were made and they came back online, and the NRC took the better part of a year to establish what had happened. Such uncertainty will also plague the understanding of events at Japan's Fukushima Daiichi plant, he said.

Robert Alvarez, a senior scholar at the Institute for Policy Studies, said the United States is currently dealing with "fragmentary" information coming out of Japan, and that the Tokyo Electric Power Co. and its onsite crew do not appear to have control of the situation.

The measures the Japanese are taking are "not in the playbook for these types of accidents," Alvarez said. Using seawater as coolant is risky because the water is corrosive and at high temperatures can corrode pumps and pipes and could impair the containment vessel, he said. The spent fuel pools are also of extreme concern because they are elevated above ground, not under the containment dome like the reactors themselves, and aerial photographs show two pools are "exposed to open sky."

Jaczko this week expressed concerns that the United States believes water has completely or partially been drained from a spent fuel pool at the reactor and could catch fire, Alvarez said, pointing out that the chairman's comments are "also vetted by the White House."

Alvarez said the danger surrounding spent fuel pools in Japan has serious implications for the United States because many of the plants here store spent fuel in pools that are at maximum capacity.

The experts briefing reporters today also questioned the federal government's assertions that the United States will not experience dangerous levels of radioactivity from the Japanese reactors.

Although the risk right now is "fairly minimal," officials should be cautious because there is "no safe level of radioactivity" and it's much too early to tell how far radioactive material can travel, said Jeffrey Patterson, a radioactive exposure expert and professor at the University of Wisconsin.

Alvarez said the United States should pay full attention to the radiation monitors that have been expanded around the Fukushima Daiichi plant and radiation equipment being used by US and Japanese military aircraft to understand the extent and travel of plumes the facility and where they will travel.

"I think it's going to be extremely important for the Japanese [and] US government ... to be very transparent about the nature of these plumes and what precautionary measures people should take," he said.

Nuclear Crisis May Affect Placement Of US Reactors (AP)

By Matthew Daly, Associated Press

Associated Press, March 21, 2011

WASHINGTON – Energy Secretary Steven Chu suggested Sunday that Japan's nuclear crisis might make it less likely that new nuclear reactors are built near large American cities, just one of many safety changes that could be forthcoming as US officials review reactor safety.

"Certainly where you site reactors and where we site reactors going forward will be different than where we might have sited them in the past," Chu said in response to questions about the Indian Point nuclear plant near New York City. "Any time there is a serious accident, we have to learn from those accidents and go forward."

Meanwhile, the chairman of the Nuclear Regulatory Commission said his agency will again review how US nuclear plants store spent-fuel from nuclear reactors. The state of the spent fuel pools at the Fukushima Dai-ichi plant has been a major concern as Japanese officials try to stem the release of radiation and bring the reactors under control.

"Five days ago everybody was worried about earthquakes and tsunamis and the reactors cooling," NRC Chairman Gregory Jaczko told The Associated Press. "Today everybody is worried about the spent fuel pools. Until this is resolved we are not going to ultimately know what the most important factors are in terms of what needs to be addressed."

Japanese officials reported progress Sunday in their battle to gain control over the leaking, tsunami-stricken nuclear complex, even as the discovery of more radiation-tainted vegetables and tap water added to fears about contaminated food and drink.

The Food and Drug Administration said Sunday that the United States is not importing any foods from the affected area of Japan, and the agency is working with Customs and Border Patrol to screen other Japanese food imports to make sure they are not tainted. They are also checking food that may have passed through Japan.

The FDA said it expects no risk to the US food supply from radiation. Japanese foods make up less than 4 percent of all US imports. The most common imports are seafood, snack foods and processed fruits and vegetables.

After the 2001 terrorist attacks, US officials took steps to make sure that nuclear reactors could withstand an attack as well as earthquakes and other natural disasters. In the days after the Japan earthquake and tsunami, President Barack Obama asked for another safety review.

In an appearance Sunday on C-SPAN's "Newsmakers," Jaczko emphasized that the 104 nuclear reactors in the United States are required to have redundant systems — "a backup to the backup" — to ensure that a loss of power will not cripple their ability to cool the spent fuel pools. In Japan, the backup generators were inoperable.

"We think we have a program in place that would deal with the kinds of situations that we are seeing in Japan, but I want to stress that what they are dealing with in Japan 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," he said.

Jaczko set off worldwide alarm last week after saying that all the water was gone from one of the spent fuel pools at Japan's most troubled nuclear plant, raising the possibility of widespread nuclear fallout. Japanese officials denied the pool was dry.

Jaczko said Sunday he was comfortable that his earlier remarks were accurate, but he added that Japanese officials have spent the past several days trying to put water into the spent fuel pools, among other steps they are taking to stem the nuclear disaster. "So we're dealing with a very different situation now," he said.

He said it was possible there is a leak in the pool, but he did not elaborate.

In an interview broadcast Sunday on CBS' "60 Minutes," a State Department official suggested that Japanese nuclear officials did not react quickly enough to the crisis.

Julia Nesheiwat, who has been working with Japan on energy issues, said the US told Japan last Tuesday "that if we don't expand the efforts we'll require heroic work that could be ... quite devastating for the workers." Asked what that meant, Nesheiwat responded, "They could very well lose their lives."

Chu was more optimistic about future developments at Fukushima.

"I think with each passing hour, each passing day, things are more under control. And so, step by step, they are making very good progress," Chu said.

The Japanese are using fire trucks to spray the spent fuel pools and are beginning to restore power there. Still, Chu and other officials acknowledged that serious problems remained at the stricken nuclear complex. Pressure unexpectedly rose in a third unit's reactor, meaning plant operators may need to deliberately release radioactive steam. That has only added to public anxiety over radiation that began leaking from the plant after a monstrous earthquake and tsunami devastated northeastern Japan on March 11 and left the plant unstable.

In the United States, lessons learned from the safety studies could affect the NRC's review of pending applications for new nuclear plants, including the types of reactor designs being proposed, Jaczko said.

"We certainly want to get good information and if that good information tells us that we need to make changes to our licensing process, then we will do that," he said.

New York Gov. Andrew Cuomo is seeking a review of the Indian Point power plant, about 40 miles north of New York City. More than 21 million people live within 50 miles of the plant.

Chu, who spoke on "Fox News Sunday" and CNN's "State of the Union," said officials believe Indian Point is safe but that they will review whether it should continue operating in the wake of the Japanese disaster.

Sen. Carl Levin, D-Mich., said the Japanese crisis should not cause the United States to turn away from nuclear power.

"I think there ought to be a period here where all of our nuclear plants are tested very, very carefully to make sure that they are safe and to make sure that this cannot happen here. But I don't think that we can say that we're not going to continue to use nuclear power," Levin said on NBC's "Meet the Press."

Unlike coal or other fossil fuels, nuclear power does not contribute to global warming, Levin said.

Rep. Ed Markey, D-Mass., said the crisis called into question the viability of nuclear power in the United States.

"We should understand that it's very difficult for us to guarantee that a catastrophic meltdown cannot happen in our country," Markey said on CBS's "Face the Nation."

Associated Press writer Mary Clare Jalonick contributed to this report.

Indian Point Nuclear Plant Near New York City Will Be Reviewed (HUFFPOST)

By Amanda Terkel

Huffington Post, March 21, 2011

WASHINGTON – Energy Secretary Steven Chu weighed in on Sunday on a controversial nuclear reactor located near New York City, saying that the administration needs to look at whether it should stay where it is.

At issue is the Indian Point Energy Center, located just 34 miles from New York City. The nuclear plant supplies approximately 25 percent of the city's power, and it has the backing of New York City Mayor Michael Bloomberg (I). As WNYC notes, "Reactors two and three were built in the 1970s and were slated for a 40-year-life. As in the rest of the country, plant operators are hoping to get an additional 20 years of productivity [out of] their reactors."

But New York Gov. Andrew Cuomo (D) is calling for the plant to be shut down. His comments came after MSNBC recently reported that Indian Point's No. 3 reactor has a high risk of earthquake damage, based on an analysis of data from the US Nuclear Regulatory Commission.

"I've had concerns about Indian Point for a long time," said Cuomo, adding, "I understand the power and the benefit. I also understand the risk. This plant in this proximity to New York City was never a good risk. But this is new information that we're going to pursue."

New York State Attorney General Eric Schneiderman (D) agrees with Cuomo against relicensing Indian Point.

On "Fox News Sunday," host Chris Wallace pointed out to Secretary Chu that the "Nuclear Regulatory Commission has called for a 50-mile evacuation zone around the reactor in Japan," but the Indian Point plant is much closer than that to New York City.

"Well, I think, again, the evacuation plans of the Indian Point reactor will be looked at and studied in great detail," replied Chu. "The Indian Point reactor is not in the situation like in Japan, but I think, again, we will be looking at whether those evacuation plans are adequate. ... And again, we're going to have to look at whether this reactor should remain. But, again, I don't want to make any – jump to some judgment about what we should do going forward."

Wallace followed up and asked, "But are you saying the issue of whether to keep Indian Point in operation is in doubt, is something you're going to review?"

Chu clarified that keeping Indian Point open is a decision that will be made by the Nuclear Regulatory Commission, which will be reviewing it. "But again, this is not to say that we believe that reactor is unsafe," he added. "We believe that reactor is safe. There is constant scrutiny of the reactors in all of our plants around the United States." Subscribe to the HuffPost Hill newsletter!

Nuclear Plant Locations Across US Under Review (WT)

Tragedy in Japan prompts safety look

By David Eldridge, The Washington Times

Washington Times, March 21, 2011

Energy Secretary Steven Chu said Sunday the nuclear crisis in Japan will force American officials to re-evaluate the locations of nuclear reactors in the US, including the Indian Point Energy Center, a three-reactor facility about 40 miles north of New York City.

In an appearance on "Fox News Sunday," the Obama administration's point man on energy said federal officials believe Indian Point is safe, but that the nuclear power plant will be a part of a nationwide safety review of US facilities.

"The evacuation plans of the Indian Point reactor will be looked at and studied in great detail," Mr. Chu said, adding that the review, ordered by President Obama, likely will change the way nuclear plants are built and regulated in the US

"Certainly where we site reactors and where we site reactors going forward will be different than where we might have sited them in the past," Mr. Chu said.

Gregory Jaczko, chairman of the Nuclear Regulatory Commission, said that his agency "will probably do some kind of short look in the near term just to re-examine the existing fleet of reactors."

However, Mr. Jaczko said in a C-SPAN interview, he did not expect a separate in-depth year-long study of reactor safety in light of the Japan crisis to affect requests from US nuclear plants to have their licenses renewed in the interim.

New York Gov. Andrew Cuomo has suggested that the New York City-area plant, with its two operational 1970s-era reactors and one closed reactor, be shut down amid safety concerns in the wake of the Japan crisis.

A massive March 11 earthquake in the Pacific and its resulting tsunami severely damaged several coastal Japanese nuclear facilities, including the Fukushima plant, where engineers believe a catastrophic failure of the reactor's cooling systems led to a partial meltdown.

The tsunami destroyed cities, roads and homes all along the northeastern Japanese coast and has claimed more than 8,000 lives, though that death toll is expected to climb much higher. Since then, deadly radiation levels at the Fukushima facility have hindered the efforts of engineers and nuclear workers to bring the damaged reactor under control.

Mr. Chu appeared on several Sunday talk shows to address questions about whether the Obama administration had lost confidence in the Japanese government's handling of the nuclear crisis and whether officials in Japan were being forthright about the scope of the disaster.

"There is no evidence that I ever heard that the Japanese were holding back," Mr. Chu said on CNN. "We are getting information from them. We have confidence in that information."

Mr. Chu, a Nobel Prize-winning physicist, said there is no indication that radiation leaking from the damaged Japanese reactor poses a threat to the US or its Pacific island territories such as Guam.

"I think with each passing hour, with each passing day, things are more in control," he said on Fox.

The Associated Press reported Sunday that Japanese officials say they are slowly bringing the leaking Fukushima reactor building under control.

"We consider that now we have come to a situation where we are very close to getting the situation under control," Deputy Cabinet Secretary Tetsuro Fukuyama said.

Still, reports of radiation-tainted vegetables and tap water have added to public fears about the crisis in Japan and raised concerns in the US about the possibilities of radiation contamination along the American West Coast.

Other Washington leaders warned Sunday that the crisis in Japan will inevitably affect the American nuclear industry, which in recent years had been the subject of much talk of a "nuclear renaissance."

On CBS's "Face the Nation," Rep. Edward J. Markey, Massachusetts Democrat, said the accident "is calling into question of the viability of nuclear power in this country."

Mr. Markey, who has called for a moratorium on the construction of nuclear power plants in earthquake-prone areas, predicted that the nuclear industry had met "its maker in the marketplace."

"It won't be protesters, it will be Wall Street investors raising questions about its viability going forward," Mr. Markey said.

Chu: Where Nuclear Reactors Are Placed Will Change (AP)

Associated Press, March 21, 2011

WASHINGTON – Energy Secretary Steven Chu says Japan's nuclear crisis will influence the locations of new US nuclear reactors.

He's suggesting that population might be a greater factor than it has been in deciding where to build a plant.

President Barack Obama has ordered a comprehensive review of US nuclear plant safety.

New York Gov. Andrew Cuomo is seeking a review of the Indian Point power plant, about 40 miles north of New York City. More than 21 million people live within 50 miles of the plant.

Chu tells "Fox News Sunday" that officials believe Indian Point is safe, but they will review whether it should continue operating in the wake of the Japanese disaster.

Chu says decisions on where to site any future plants will be different than in the past.

Japan Nuclear Crisis: Will It Give Nations Pause? (CSM)

Christian Science Monitor, March 21, 2011

Chernobyl and Three Mile Island did not stop nuclear power growth. Will the Japan nuclear crisis at Fukushima delay or end the 'nuclear renaissance'?

As media reports of workers heroically trying to head off multiple meltdowns in the smoking bowels of the stricken Fukushima Daiichi-I nuclear power plant played over scenes of thousands of evacuees fleeing radiation after Japan's powerful earthquake and tsunami, the global nuclear power industry was facing its own public relations meltdown. Skip to next paragraph

Governments around the world are pushing the nuclear pause button: shutting plants for safety checks and reevaluating energy policy. Even staunch nuclear advocates on Capitol Hill are calling for a timeout on new US nuclear plants in order to learn

lessons from Japan's tragedy. And American public support for nuclear development slid a precipitous 10 points – from 57 percent a week before the March 11 quake to 47 percent the week after.

Yet in spite of it all, nuclear industry observers say, Fukushima is unlikely to kill development of nuclear power in a world desperate for a clean – and unlimited – alternative to fossil fuel energy.

"[The Fukushima disaster] is going to slow things down, but not stop them," says Charles Forsberg, head of the nuclear fuel cycle project at the Massachusetts Institute of Technology, in Cambridge, Mass. That, he says, is because there are few alternatives to provide the electricity the world needs.

The Japanese disaster, say experts, probably will slow deployment of new plants by increasing safety regulations, heightening public opposition, and vastly increasing the cost of capital to finance hugely expensive construction.

But, says Spencer Weart, former director of the history center at the American Institute of Physics and author of two books on nuclear power's emergence, "What history suggests is that, unless this crisis causes very widespread damage, the Japanese government, even now, may ultimately feel it has no choice but to go ahead with nuclear power.... [E]ven after Chernobyl, the Russian government went ahead to develop nuclear energy because they feel that when oil runs out they're going to need it."

Indeed, while nuclear energy provides 14 percent of the world's electricity, according to the World Nuclear Association, many nations heavily depend on it: France gets 75 percent of its power from nuclear technology; Japan, 30 percent; and the United States, 20 percent. And nuclear energy figures dramatically in China's soaring economy: It has 13 operating nuclear power plants and 27 under construction, according to the International Atomic Energy Agency (IAEA).

Ever since the atomic age dawned with the bombing of Hiroshima, nuclear technology has been fraught with promise and peril.

Nuclear power's big allure has always been the idea of cheap, limitless power – "electricity too cheap to meter," as one 1960s era slogan termed it. By the mid-1980s, however, nuclear plant construction cost overruns, nuclear utility bankruptcies, and the frightening, costly accidents at Three Mile Island in Pennsylvania and Chernobyl in Ukraine had soured public opinion on nuclear power.

But in the past decade, the idea of a "nuclear renaissance" had bloomed as a clean, alternative to fossil fuels that might be an antidote to global warming.

And Americans supported the renaissance: After 25 years without a major accident, Gallup found 62 percent support for nuclear energy last March – the highest since the polling firm first asked the question in 1994.

Before Fukushima, more than 60 nuclear reactors were under construction in 15 countries – including, at the head of the pack, China, Russia, and South Korea. Other nations like Jordan, Saudi Arabia, Thailand, and the Philippines were lining up for their first nuclear plant.

Even respected environmentalists such as Whole Earth Catalog founder Stewart Brand and Greenpeace cofounder Patrick Moore had joined the "renaissance" as a last ditch effort to head off climate change.

Japan Nuclear Crisis: California Radiation Risk Still Low, Authorities Say (LAT)

Radiation in Southern California's air remains low, officials say. Also, the Los Angeles County Fire Department says an e-mail predicting acid rain is a hoax.

By Ann Simmons, Ruben Vives

Los Angeles Times, March 20, 2011

Environmental officials reassured residents Saturday that radiation in Southern California's air remained below levels of concern as workers in Japan struggled to contain releases from a stricken nuclear power plant.

Los Angeles County Fire Department officials also sought to debunk an e-mail hoax that predicted acid rain would result from Japan's nuclear accident.

The fraudulent e-mail was issued in the fire agency's name and claimed that radioactive particles released in Japan could mix with rain and "cause burns, alopecia or even cancer."

Photos: Unrelenting crisis grips Japan

The department issued a statement on Saturday telling residents that it "has not issued this statement, nor do we believe the statements within the e-mail to be factual." Officials said they had no idea who sent the e-mail, which bore the heading "Acid Rain Precautions" and used the Fire Department's official logo.

The wife of an Orange County firefighter received the e-mail and took it to the attention of officials. Given the concern many people have about radiation, the department acted promptly to prevent the ruse from gaining momentum, Fire Department Inspector Matt Levesque said.

"We are trying to be ahead of the curve on this," Levesque said. "We believe it's best to make sure people don't take a glance [at the e-mail] and start calling people all over the country."

The Environmental Protection Agency has been providing daily updates on its website. On Saturday morning, the EPA reported that its nationwide radiation monitoring system, RadNet, which continually monitors the nation's air, drinking water, milk and precipitation for environmental radiation, showed typical fluctuations in background radiation levels.

As of 5 p.m. Friday, the South Coast Air Quality Management District, the smog control agency for Los Angeles, Orange, Riverside and San Bernardino counties, said there was no increase in radiation levels. On Saturday morning, district spokeswoman Tina Cherry said radiation levels had not changed. "There's no increase of risk detected through the monitor," Cherry said.

The agency has detectors in Anaheim, Fontana and Riverside monitoring airborne radiation; the California Department of Public Health operates a fourth detector in the downtown Los Angeles area.

The four detectors are part of the EPA's radiation detection network, which operates 24 hours a day. The system was developed in the 1950s during the Cold War.

State Officials Fear A Run On Iodide Pills (BOS)

Downplay role in disaster plans

By Jenna Russell

Boston Globe, March 20, 2011

PLYMOUTH — Facing heightened nuclear concerns and a spike in demand for potassium iodide pills, state public health officials are downplaying the importance of the salt-like substance and saying residents do not need to keep the pills on hand.

The 18 Massachusetts communities located within 10 miles of a nuclear power plant will continue to provide the tiny white pills to residents who request them, as they have for almost a decade. But in a concerted effort to quell demand and head off a run on the supply, the leader of the state Bureau of Environmental Health stressed that the pills counteract only one of the dozens of radioactive isotopes that could be released in a nuclear accident, and said they play only a minor role in disaster plans.

"This is not the most critical component of emergency planning and response, but a complement to it," said Suzanne Condon, the bureau's director. "The most important advice is to listen to emergency management officials and work with us to evacuate the area."

The push to educate the public about the limited effectiveness of potassium iodide comes almost a decade after Massachusetts became the first state in the country to stockpile more than half a million of the pills, following the Sept. 11, 2001, terrorist attacks.

Late last week, as conditions seemed to worsen at Japan's damaged nuclear plant, local officials in Plymouth said the drama overseas has driven up requests for potassium iodide. Town departments received more than 100 phone calls asking about them last week, and nearly 100 people picked up the slim foil packets of pills at the town's emergency management headquarters, said Aaron Wallace, emergency management director. Plymouth, 40 miles south of Boston, hosts the state's only nuclear power plant, known as Pilgrim.

In interviews, public safety officials in the town of 60,000 urged people not to rush to get the pills, which they cautioned could expire, get lost, or be misused if stored around the house. If potassium iodide were ever needed in an emergency, they said, the state would make it available at distribution centers that would be set up outside evacuated areas.

"We would discourage people from picking pills up, because there is no need," said Plymouth Fire Chief G. Edward Bradley.

Potassium iodide, also known by its chemical abbreviation, KI, is a salt-like compound that works by flooding the thyroid with harmless iodine, keeping out harmful radioactive iodine, which could be released in a nuclear accident. Radioactive iodine can cause cell damage and cancer, especially in children. A single pill, taken within four hours of exposure, offers protection for 24 hours, said Condon.

But there is widespread misunderstanding about potassium iodide's powers, she said.

"It's effective against one isotope, but in the event of a nuclear emergency, it's highly unlikely only one isotope would be released," she said.

In China last week, panicked residents fearful of radiation drifting from Japan stripped store shelves of iodized salt, mistakenly believing that it could protect them. In this country, suppliers of potassium iodide have reported an unprecedented surge in demand, mostly from private individuals on the West Coast, as events in Japan have escalated.

Asked about KI stockpiling by a reporter last week, US Surgeon General Regina Benjamin called it a “precaution.” The Department of Health and Human Services later issued a statement that said she was not suggesting people should buy personal supplies.

The federal government first offered potassium iodide to states in 2002, in response to concerns about nuclear plants becoming terrorist targets. Massachusetts became the first state to request pills, and received 550,000. State officials assessed public interest, estimated that only 10 percent of residents would want the pills, and provided each of the 18 towns within a 10-mile “critical” zone of each of three nuclear plants with enough for 20 percent of residents, said Condon. The towns include Plymouth, Carver, Duxbury, and Marshfield on the South Shore, a half-dozen including Amesbury and Salisbury on the border near New Hampshire’s Seabrook plant, and others close by Vermont Yankee.

The state kept more than enough pills for all the residents of the 18 towns, about 275,000 people, said Condon.

In Plymouth, which had 12,000 pills a few years ago, the supply is down to 7,000 pills, said Wallace. They were initially distributed through pharmacies, but more recently he has made them available at his office to those who show identification to prove they are residents. All of the town’s schools are equipped with pills for students, and parents are asked to sign a permission form authorizing school personnel to administer the pill to their child if needed.

Pills were distributed more widely in 2006, after new state legislation mandated that all 15 towns on Cape Cod, a half-dozen towns on Cape Ann, and the islands of Nantucket and Martha’s Vineyard receive enough pills for all their residents, Condon said. The cost of the additional supplies, just under \$300,000, was covered by the owner of the Pilgrim plant, Entergy Corp.

The expanded handout raised concerns, she said, because the towns, located beyond the 10-mile “critical” zone where planning is extensive, lack the emergency communications systems that would advise residents within the zone if and when they should take the pills.

Pills taken incorrectly, in too high a dosage, can cause adverse reactions such as vomiting, she said. Allergic reactions to the pills are possible in a small percentage of the population, and they should not be taken without consulting a doctor, said Plymouth officials.

But Becky Chin, a Duxbury resident who has long pressed for better preparation for disasters, said residents should be encouraged to be self-reliant. The cochairwoman of the Duxbury Nuclear Advisory Committee and a former leader of the town’s Board of Health, Chin led campaigns to buy protective masks for the town’s 3,000 schoolchildren and stock schools with liquid KI, in addition to pills, to make it easier to give children small doses. Duxbury is about 10 miles from Plymouth.

“Most people don’t want to think about it, and many think the government will help them out,” said Chin. “The government will do the best it can, but you’d better be prepared to help yourself.”

Reeling From Crises, Japan Approaches Familiar Crossroads (NYT)

By Norimitsu Onishi

New York Times, March 20, 2011

Such was the power of the magnitude 9.0 earthquake on March 11 that it bent the tip of Tokyo Tower, the 1,093-foot Eiffel-like structure that has stood as the symbol of Japan’s postwar rebirth for half a century. For the first time since it was erected in 1958, the tower no longer points directly upward, the direction that Japan followed for much of its history after World War II.

The earthquake, whose epicenter was more than 200 miles north of here, and the resulting nuclear crisis, will change this nation. The open question is how, and how much. Will it, along with the bent Tokyo Tower, be a final marker of an irreversible decline? Or will it be an opportunity to draw on the resilience of a people repeatedly tested by calamity to reshape Japan — in the mold of either the left or the right? This disaster, like the 1923 Tokyo earthquake and the 1995 Kobe earthquake, could well signal a new era.

Among the concerns raising questions are the shrinking, starting in 2005, of Japan’s population, the country’s loss to China last year of its vaunted status as the world’s second-largest economy and the aggressive pursuit of nuclear power.

Japan’s economy is likely to suffer, at least in the short term, as power disruptions hobble its industries. If the reactors do melt down, in the worst case, or even if there is a steady release of radioactive vapor, there are implications for public health; on Saturday, the Japanese government announced that some foodstuffs from farms near the nuclear plant contained elevated levels of radiation. Japan’s reputation — and its self-image — as an efficient, prosperous and smoothly functioning society has been dealt a blow.

“It’s not an exaggeration to say that we will think of Japan in terms of pre-earthquake and post-earthquake because it has already fundamentally changed Japanese society,” said Yasuyuki Shimizu, a 39-year-old who has drawn attention in Japan for

the work of his organization, Life Link, in preventing suicides. "The values of postwar Japan, and the postwar feeling of security, also now lie in ruins. Whether Japan will change in a positive or negative way, we don't know yet."

But others argue that the long-term impact on Japan will be more limited — so long as the troubled reactors at the Fukushima Daiichi Nuclear Power Station, about 170 miles north of here, do not suffer a complete meltdown and affect Tokyo, the nation's heart. Despite the psychological shock to the nation, the earthquake and tsunami devastated a thinly populated region far from Tokyo and the nation's other center of gravity, Osaka in western Japan.

"If the nuclear problem doesn't get bigger, and there's no panic in the Tokyo area, and no curfew that's imposed, I don't think this disaster will be remembered as that significant an incident," said Eiji Oguma, 49, a professor of policy management at Keio University, adding that he thought it would be compared instead with the 1995 Kobe earthquake, which, rather than spurring lasting change, came to be seen as a symbol of the end of Japan's bubble era.

Still others saw the disaster as a moment for change, including Takafumi Horie, 38, an entrepreneur who lost his Internet company, Livedoor, in 2006 on minor charges of securities fraud after brashly challenging the business establishment.

"It's possible that this calamity will rid Japan of its old order," Mr. Horie, now one of Japan's most popular authors and bloggers, wrote in an e-mail, adding, "It's an opportunity to build a new Japan."

But first is the rebuilding. There are many factors working against Japan's ability to carry it out as successfully as it has in the past: the absence of strong national leadership, the country's declining economic strength and the simple lack of young people in the northern region.

When Japan resurrected itself after even bigger disasters, like the 1923 earthquake that destroyed Tokyo or the war that ended with the atomic destruction of Hiroshima and Nagasaki, Japan was a vigorous, young and growing country, said Kazutoshi Hando, 80, a historian of the period between the Meiji Restoration in 1868, when Japan began its drive to modernize, and World War II. Today, the population is expected to keep shrinking.

"Just as we were thinking this was a problem we had to tackle now, this catastrophe occurred," Mr. Hando said of the declining population. "This has slowed us down. That's the biggest problem. We'll simply run out of workers."

Still, Mr. Hando, who survived the American wartime firebombings that destroyed much of Tokyo, said that Japan had defied everyone's expectations by rising quickly from the ashes.

"Based on my experience of the war and its aftermath, I think Japan will be all right," he said.

Mr. Hando talked of tapping the Japanese people's "hidden strength" — an expression that has appeared repeatedly in the Japanese news media in the past week, one that politicians have also seized. Implicit in the praise of Japanese traits of endurance, perseverance and grace — strengths evident in the orderly response to the unfathomable destruction up north — is a criticism of the perceived values that led to the nuclear accidents: the postwar blind pursuit of material wealth and comfort that put 55 nuclear reactors on some of the world's most unstable land, despite Japan's singular history as the target of atomic bombs.

"Japan stood at the top once before, so it's all right if it becomes second class," said Mitsuru Nakamura, 62, who was chatting with a friend in front of an apartment building near Tokyo Tower on Friday morning. He added: "It should become a country where the elderly and children can live safely. The improvement of people's lives should become important."

Being No. 20 in the world was enough, his friend added.

Perhaps unsurprisingly, nationalist politicians — who have long said that postwar Japanese have become selfish and unwilling to sacrifice for the nation's good — are already trying to harness those sentiments in a different direction.

Shintaro Ishihara, the governor of Tokyo, said the quake and tsunami were "divine punishment" that "should be used" to "sweep away" the Japanese people's "selfishness," "materialism" and "worship of money."

Sitting inside her small tobacco shop in the Toranomon neighborhood, Mitsuko Watanabe, 80, also pointed to selfishness and untrustworthy leaders as factors undermining Japanese society.

"When a country's leaders are bad, natural disasters occur," she said and, unprompted, referred to the governor. "I'm not Shintaro, but I think divine punishment isn't wrong."

Ms. Watanabe and her husband have owned the tobacco shop, which faces Tokyo Tower, for close to six decades. She said she had watched construction workers raise the tower, which instantly became a symbol of Japan's rise after World War II. The nation hailed its soaring height, the claim that it was the world's tallest self-supported steel structure and its use to transmit a new technology, television.

Yoshihiro Watanabe, a spokesman for Nippon Television City, said that it was the first time that an earthquake had bent Tokyo Tower. The company has yet to decide when to straighten it.

In Toranomon shop owners facing the tower said they were confident that Japan would pull itself up.

"Rebuilding after World War II was much more difficult," said Hayato Kikukawa, 32, the owner of a small cafe, adding that straightening Tokyo Tower should not be a priority.

But at a nearby udon restaurant, where he was getting ready for the lunchtime crowd, Keiichi Shimoda, 48, said, "If they fix Tokyo Tower, then I'll think, now things are all right."

Most Americans Worry Japanese Disaster Will Hurt Domestic Economy (HILL)

By Peter Schroeder

The Hill, March 19, 2011

A majority of Americans expect the aftermath of the Japanese earthquake will drag down the US economy, according to a new poll.

In a new poll from Rasmussen Reports, 60 percent of Americans said they expect the earthquake and resulting problems will hurt the United States economically. Another 15 percent believe it will have no impact, while 10 percent think it will actually boost America's economy.

In the immediate sense, the earthquake, tsunami, and subsequent struggles to contain damaged Japanese nuclear reactors shook market confidence early in the week. Stock markets around the globe tumbled the first few days – the Dow Jones Industrial Average shed 200 points minutes after the market opened Wednesday morning. The Nasdaq and S&P 500 saw similarly quick falls, shrinking by roughly two percent.

However, the financial markets rebounded slightly to close out the week.

In currency markets, the economic fallout from Japan's crisis led the major industrial nations that constitute the G-7 to announce Thursday their plans to intervene and stabilize the price of the yen. The extraordinary action was in response to rapid strengthening of the yen versus the dollar, which may have threatened Japan's ability to recover from the crisis.

While most Americans are worried what Japan's crisis will mean for the American economy, Rasmussen reports that most do not plan to contribute money to Japanese relief efforts. Of the 1,000 likely voters surveyed, just 28 percent said they have or will contribute money to such efforts – 46 percent said they will not give, and another 26 percent said they have not decided yet.

Stark Differences In TMI, Japan Nuclear Crises (AP)

By H. Josef Hebert, Mark Scoloro, Associated Press

Associated Press, March 19, 2011

MIDDLETOWN, Pa. – Japan's nuclear crisis has transported residents of central Pennsylvania back 32 years, when the partial meltdown of the Three Mile Island nuclear plant raised fears that a massive amount of radiation could be released into the atmosphere or the Susquehanna River.

But there are stark differences between the disasters.

"It's probably not politically correct to say it, but TMI was a piece of cake compared to what they're facing over there in Fukushima, in terms of the problem," said Harold Denton, the federal nuclear engineer who became a calming, knowledgeable voice during the height of the Three Mile Island crisis in March and April of 1979.

As it is with the Fukushima reactors, the central challenge at Three Mile Island was reversing the loss of cooling water in the reactor core that in both cases exposed the highly radioactive fuel rods, increasing the threat of a complete fuel meltdown and a catastrophic release of radiation.

But the Fukushima and Three Mile Island parallel has its limits, nuclear experts say. The Japanese engineers are facing a dramatically more complex crisis with multiple problems and challenges never faced in Pennsylvania three decades ago.

At TMI, efforts were concentrated on dealing with a single reactor. Its problems began at 4 a.m. on March 28 when a pressure relief valve failed and stayed open for two hours. Because operators thought it had closed, they shut off an emergency flow of water that had been triggered automatically, worsening the situation and exposing the fuel rods.

A presidential commission later said the TMI accident was "the result of a series of human, institutional and mechanical failures" that had implications throughout the US nuclear industry.

By contrast, the Japan crisis resulted from a massive earthquake and tsunami that knocked out critical electric power and caused physical damage within the plant, including to the reactors' normal emergency cooling system and at least one of the water-filled pool containing used fuel rods.

"That never happened at TMI," said Denton. In Japan operators lost the normal ability to put water back into the damaged reactors.

By contrast, in Pennsylvania in March of 1979, all infrastructure, from roads to electric power supplies as well as the reactor's water supply, remained intact. The critical steel and cement containment of the reactor stood solid. A water pool holding used fuel rods was secure.

In Japan, for the first time ever, nuclear engineers are trying to head off a total reactor meltdown in three reactors simultaneously, and deal with overheating fuel rods in a damaged storage pool at a fourth reactor.

While not as sweeping in devastation, the Three Mile Island accident still is the worst US nuclear accident, ranked in severity as five on the scale of seven by the International Atomic Energy Agency. Only the Chernobyl accident with its massive radiation release in Ukraine is higher at seven. As of Saturday, Japan's nuclear safety agency ranked the three Fukushima reactors in danger of a meltdown as a five in severity, the same as TMI, although that could go higher. A fourth reactor, which has had problems with the fuel cooling pond, was ranked a four in severity.

Whatever the ranking, the people near the TMI site along the Susquehanna River in central Pennsylvania are watching the news from Japan with some familiarity.

In 1979, they went through the same panic. They were victims of the same misinformation and lack of information. They, too, felt the same terror now felt by the people living near the six-reactor Fukushima complex.

"We tried to separate fact from fiction, dealt with experts who persisted in telling us either more than they knew or less than they knew. ... We struggled to present accurate information," former Pennsylvania Gov. Dick Thornburgh said recently, recalling the TMI accident which came when he was but 72 days in office in the state capital, Harrisburg, only a few miles away.

Thornburgh recalled the terror and confusion in the first five days after the accident.

At one point he strongly urged the evacuation of women and children from near the TMI reactor, only to rescind the recommendation five days later when it was found that he had been given wrong information about a burst of radiation from the plant. At times, he recalled, he couldn't get the most basic information from either the utility that owned the plant or from government officials.

Robert Houser, 62, too can sympathize with the people in Japan. He and his wife and two kids stayed in their homes near TMI when Thornburgh's evacuation order came.

"Go where? How long? Am I ever going to be able to come back?" he recalled thinking. A volunteer firefighter at the time, Houser distributed fliers advising people they may have to evacuate.

"Some people cursed you out for disturbing them; some people were just as scared as you," he said. By some estimates, as many as 140,000 people left the area.

As at TMI, information has been lacking or conflicting in Japan. There has been no clear word as to the amount of radiation being released and there is confusion over how wide of an evacuation there should be — 12 miles as the Japanese government says, or 50 miles as the US government wants for Americans.

Every indication is that Japan's crisis will persist; if TMI is any indication, questions will remain for years to come.

It was not until 1985 that US authorities confirmed for certain that a partial meltdown had occurred at Three Mile Island. That assessment came only after the heat had dropped to where they could put cameras into the radiation-filled core. The reactor core has since been removed, though a second undamaged reactor is running.

But lessons were learned from TMI, as they will be from the current crisis in Japan.

Robert Reid, who in 1979 was mayor of Middletown just three miles from TMI and still holds the office, says back then little attention was paid to having an evacuation plan at the ready. "There's not a week that goes by ... that I don't sit down and talk about our evacuation plan and our disaster plan," he recently told the AP.

While to this day several thousand people claim they had suffered ill health effects from radiation caused by the TMI accident, their lawsuit seeking damages was rejected by a federal court in 1996 with the judge concluding they had not proved their case.

Various assessments by the government and nuclear industry have concluded no radiation-related deaths or illnesses resulted from the TMI accident.

Some Critics Of Japanese Storage System See A Worse-than-Chernobyl Scenario Ahead (PHILLY)

By Faye Flam

Philadelphia Inquirer, March 20, 2011

With attention focused on tons of radioactive spent fuel that may have ignited, some experts say the Japanese will be lucky if the stricken Fukushima plant creates a disaster only the size of Chernobyl in 1986.

These spent fuel rods are now being blamed for the radioactive releases over Japan. While the reactor cores are encased in bulky containment vessels, spent fuel is separated from the environment only by the water in the pools, said former nuclear engineer David Lochbaum of the Union of Concerned Scientists in Cambridge, Mass.

That those spent fuel rods were even kept at the Japanese plant is controversial. Some used rods remain hot enough to ignite their metal coatings and release dangerous plumes of radioactive gases and dust.

Critics such as Lochbaum argue this storage system, which is widely used in the United States, poses an unnecessary hazard. Indeed, most of the 62,500 metric tons of spent fuel in the United States is stored in similar pools on site at power plants, including Limerick in Montgomery County, Peach Bottom in York County, Oyster Creek plant in Ocean County, and the Salem and Hope Creek plants in Salem County.

Some experts argue the system is not inherently flawed.

Local nuclear plants are designed to withstand earthquakes, terrorist attacks, and other potential disasters, said Krishna "Kris" Singh, an engineer and chief executive officer of Marlton-based Holtec who designed the nuclear-waste storage systems used in most local plants.

Singh said people in the East should not panic, considering how astronomically unlikely it is that a tsunami or magnitude-9 earthquake would ever hit the Mid-Atlantic region.

His firm has been asked to reevaluate storage pools at the Diablo Canyon plant in California, where such a large quake remains possible. He said that plant's overall design was more earthquake-proof than was Fukushima.

Putting rods in swimming-pool-size concrete tanks was intended only to serve as temporary storage, Lochbaum said. Before the mid-1970s, much of the country's nuclear waste was sent for reprocessing, a type of recycling that has fallen out of favor because it produces weapons-grade plutonium.

Lochbaum said his opposition to the overuse of on-site "wet" storage led him to leave the industry and join the Union of Concerned Scientists, a group focused on nuclear safety and other environmental concerns.

Many pools at US plants routinely store as much as 10 times as much waste as pools at Fukushima.

Singh and other experts said it was too early to tell why the water levels in the spent pools at Fukushima appear to have dropped enough to expose some of the fuel. The thick concrete that contains the water might have been damaged in the earthquake or water may have sloshed out.

The pools are put on the top floor of the reactor buildings - a placement that is considered an engineering choice, according to a spokesman for the Nuclear Energy Institute.

Several of the spent pools at Fukushima were reportedly losing water, but the one at Reactor 4 is causing the most concern because it carries the most fuel and the hottest spent fuel - 135 tons of rods, many of them removed just in December.

Although the fuel in these pools is considered spent, it's still so radioactive that without cooling, it will spontaneously heat up to between 1,500 and 1,800 degrees, enough to ignite the metal cladding that surrounds the fuel pellets. That burning releases explosive quantities of hydrogen gas, which can further damage the fuel and the storage pool.

As the rods heat up, Lochbaum said, gases laced with radioactive substances expand inside the rods. If the metal is breached, these gases are lofted into the atmosphere. If the temperature gets hot enough, fuel pellets will begin to crumble and release dust-size particles containing various radioactive by-products.

According to a briefing by the Physicians for Social Responsibility, those releases can contain strontium-90, which tends to concentrate in bones and cause bone cancer. Some of the fuel at Fukushima contains plutonium, which can cause lung cancer.

Also of grave concern is cesium-137, which has a long half-life and can persist in the environment for more than a century. Cesium-137 released in the Chernobyl disaster rendered huge swaths of the Ukraine uninhabitable.

The United States has never come to any agreement on how to deal with nuclear waste, which can remain radioactive for millions of years.

Singh said he still believed storage in pools can be done safely, especially as technology advances. "Clearly the earthquake was of much greater severity than the plant was designed for," he said.

Singh said his company was creating a new system that would shield the spent fuel. "We're designing it so you'll be able to walk into the building even if you had a horrible scenario like this one," he said.

He has designed aluminum racks that allow US nuclear plants to store many more spent fuel rods in the same pools. Singh's company also supplies a system of dry storage, in which waste is sealed in casks. Lochbaum and others at the Union of Concerned Scientists consider this a much safer alternative in the face of earthquakes, terrorist attacks, or other threats still unknown.

Singh's nuclear-power innovations have led to more than 17 patents. His company's storage systems are used at 80 of the country's 104 nuclear plants. A technological optimist, Singh has recently donated \$20 million to his alma mater, the University of Pennsylvania, for a new building devoted to nanotechnology.

Until the 1970s, spent fuel rods were partially recycled, the various components were separated out, leaving behind weapons-grade plutonium and uranium. But once the United States had enough plutonium to destroy the world 100 times over, the government prohibited reprocessing.

The Nuclear Energy Institute, an industry group, favors a combination of reprocessing, dry storage, and transfer to an ultimate resting place at Yucca Mountain in Nevada. For years, public opposition prevented any waste from being stored there, and in 2009 the Obama administration ruled against using the site. But the utilities and industry group continue to push for it.

Whatever happens to the nuclear-energy industry in the wake of the Fukushima disaster, the 60,000-some metric tons of nuclear waste will remain with us.

Three Mile Island's Residents Remain On Alert Three Decades After Nuclear Crisis (WP)

By Carol Morello, Steven Mufson
Washington Post, March 20, 2011

MIDDLETOWN, PA. – Almost 32 years after America's worst nuclear crisis at Three Mile Island, people who live in the shadow of the reactor's cooling towers can instantly distinguish among sirens designating three different levels of alert.

Many residents stock potassium iodide pills, and the borough of Middletown maintains a "disaster room" lined with evacuation route maps that are updated to reflect every road repair. The local phone book publishes the routes. It also offers a primer on nuclear fission and a map with a 10-mile radius drawn around Three Mile Island, which still generates electricity for 800,000 households along with a certain amount of anxiety.

The crisis here on March 28, 1979, led to "changes throughout the world's nuclear power industry," as a state historical plaque on Route 441 notes. It also altered the mindset of this small town in central Pennsylvania, creating a permanent state of vigilance that has been heightened this past week by Japan's nuclear catastrophe.

"What's happening in Japan has brought back a lot of memories," said Robert G. Reid, who is still Middletown's mayor, just as he was in 1979 when he dispatched his family to Connecticut but stayed behind to guide the town's response. "But we're much better prepared now than we were in 1979."

Over the decades, Three Mile Island has become a touchstone for attitudes toward nuclear power: a symbol of fear for anti-nuclear activists and of the success of emergency safeguards for nuclear supporters.

Comparisons between what happened at Three Mile Island and what is unfolding at the earthquake-damaged Fukushima Daiichi nuclear plant are inevitable. On Friday, Japan's nuclear agency raised the severity of the crisis on the International Nuclear Events Scale from Level 4 to Level 5, the same number the United States used to classify the far less serious accident at Three Mile Island.

A different disaster

The crisis at Three Mile Island started with the venting of steam at 4 a.m., became a partial meltdown, and didn't fully end until the last of the filtered water from the flooded containment building finally evaporated in 1993.

But there was never any loss of electrical power, no earthquake or tsunami, only a mechanical problem compounded by human error. The only explosion took place inside the containment vessel, and it withstood the blast. Water pumped in to cool the reactor stayed inside the containment structure.

While pregnant women and small children were ordered to evacuate, the decision to leave was voluntary for everyone else.

"We proved at Three Mile Island that all that [radioactive] stuff stays inside the containment structure," said Howard Shaffer, an engineer at the American Nuclear Society. "That's why I call it the garbage can over the tea kettle. Its whole mission in life is for this event. We ran a test for that, inadvertently, at Three Mile Island."

But veterans of the Nuclear Regulatory Commission remember Three Mile Island as a time of disarray.

Victor Gilinsky, an NRC commissioner then, learned of the incident when he arrived at work March 28, 1979, a Wednesday. Staffers told him that a small pinhole in the zirconium alloy jacket around the uranium pellets used as fuel had caused overheating in the reactor, but that there was no danger.

"It was not until Friday that we realized the fuel damage might be substantial," said Gilinsky in an article on the 30th anniversary of the accident. "It was five weeks later that we learned that the reactor operators had measured fuel temperatures near the melting point on that early Wednesday morning. We didn't learn for years – until the reactor vessel was physically opened – that by the time the plant operator called the NRC at about 8 a.m., roughly one-half of the uranium fuel had already melted."

The unexpected extent of the damage offers a window into Japan's shattered Fukushima Daiichi complex, where Gilinsky predicts the damage inside the reactors will be much worse than expected, too. Because of the types of gases that have been emitted by the Japanese reactors, it appears likely that three of them have had substantial meltdowns of their fuel rods.

A billion-dollar cleanup

The Three Mile Island experience also suggests that the cleanup in Japan will be a mammoth undertaking.

Luke Barrett, a nuclear consultant, was involved in the crisis response and cleanup effort, which cost \$1 billion. "For the first year, no human went into the containment building," Barrett said, because of the high radiation levels.

The NRC gave money to Carnegie Mellon University in Pittsburgh to develop robots that could work inside the reactor. Later, the technology was put to work in auto plants and in the cleanup of nuclear waste at Hanford, Wash., a former plutonium production site.

Japan contributed \$18 million to the effort, and sent 20 nuclear engineers who spent the better part of a decade living around Middletown. Before they all went home in 1989, they donated about a dozen cherry trees as a symbol of friendship. Those trees are expected to bloom right around the March 28th anniversary of the accident.

Today, Middletown has 10,000 residents, about the same as in 1979. Some who evacuated during the crisis never returned, said the mayor. But development around Middletown, which is nine miles from the state capital of Harrisburg, has brought many more people to live in the surrounding area.

In 1979, the plant was owned by General Public Utilities (now part of Ohio-based FirstEnergy). It's now run by Exelon, the nation's largest nuclear plant operator with 17 facilities in three states.

"The new owners have done a good job of PR," said Reid. "They notify me if anything happens at the plant. If a fish jumps out of the water, they call me."

Trust and caution

The plant routinely tests its emergency plans, said Ralph DeSantis, a spokesman for Three Mile Island. On April 12, the company will conduct a full-scale exercise testing its sirens and the activation of emergency centers, he said.

A local citizens group maintains a network of 30 radiation monitors, and keeps in touch with plant workers, said its coordinator, Eric Epstein. It also stocks 30,000 doses of potassium iodide.

"I'd rather it not be here," he said, gesturing toward the plant. "It's a haunting reminder of what happened here. But it's a reality. We provide an extra level of protection."

Trust levels remain high in a middle-class subdivision that lies just across the river and a two-lane highway from the four cooling towers, two of which are working and emitting steam that wafts overhead like a cumulus cloud, visible for miles.

"I'm not afraid of the island," said Maggie Williams, a nail salon owner who met her husband, a radiology technician, when he came to Middletown to work at Three Mile Island after the accident.

The couple live so close to the plant that when her husband worked there, Williams could hear him paged on the intercom. "I figured we wouldn't be living here if he didn't think it was safe," she added as she walked her three small dogs down Meadow Lane.

Deb Fulmer, who can look up while gardening and see the cooling towers about 1,000 feet away, said plans in place now give her more confidence than she had in 1979, when she evacuated with a four-week-old baby in her arms.

"The fear comes from not having a plan when something happens, for what to do, where to go, what the sirens mean," she said. "Now we know."

Yet Fulmer, a nurse who helps in disaster zones and expects to go to Japan eventually, is unsure where she placed her potassium iodide pills. And she had to search to locate the evacuation routes in the phone book, because she hasn't looked for years.

The lessons of Three Mile Island, she said, are: "Have a plan. And you've got to trust [that] your government is going to get you outta here."

Anti-nuclear sentiment

Others, however, are more wary.

Mary Osborn, who lives almost seven miles away, has become an activist against nuclear power, joining the dwindling number of demonstrators who show up every anniversary at 4 a.m. outside the plant's gates.

She keeps scrapbooks with photos of mutated flowers, vegetables and deformed animals that she attributes to the 1979 radiation release. She said she tasted metal in the air the morning of the accident, and has long suspected that a growth on her neck that she had removed was due to that.

The television in her living room has been turned to CNN nonstop since the Japan nuclear crisis began.

"This week, it's like TMI never stopped," she said, wearing a "They Lie" T-shirt adorned with "No Nukes" buttons and the badge her ex-husband wore when he helped build the plant. "It's been a nightmare."

NRC historian J. Samuel Walker said epidemiological studies of some 32,000 people who lived within a five-mile radius of the reactors have shown no increased incidence in cancer that could be attributed to radiation releases from the accident.

But some residents are skeptical. “We have friends who got colon cancer and have no history of it in the family,” Bonnie Blocher said as she prepared to get her nails done at Williams’s home salon. “How do we know the studies were accurate?”

Walker’s view is that during the 1970s, “proponents of nuclear power had underestimated the risks of a severe accident and that nuclear critics had overstated the likely consequences.”

Improvements in reactor design and performance – as well as concerns about climate change – have boosted support for nuclear power. But Walker warned against complacency.

“Before the accident, nuclear experts were confident that they had solved the most important reactor safety issues,” he has written. “This confidence and the complacency it fostered were shattered on the morning of March 28, 1979.”

Washington Vs. The Merciless (NYT)

By Thomas L. Friedman

New York Times, March 20, 2011

It is hard to read the news from Japan to the Persian Gulf and then reflect on American politics and not conclude, as scientists would say, that we’re running an uncontrolled experiment on the only country and planet we have. And what is that experiment? We’re basically taunting — there is no other word for it — the two most merciless forces on earth: the market and Mother Nature.

At a time when Japan is suffering a nuclear catastrophe that is likely to make the world even more dependent on oil and gas, at a time when the world’s top oil and gas producers are entering what will be, at best, an unstable, and, at worst, a viciously violent transition from autocracy to, one hopes, democracy, and at a time when the combination of the two could slow down global growth while we’re still trying to climb out of recession, America has no energy policy, no climate policy and no long-term plan to deal with its unsustainable deficit.

We’re basically saying to the market and Mother Nature: “Bring it on. We’re going to be dumb as we wanna be and put off all these big decisions, possibly until 2013, after the next presidential election, because our two political parties would rather focus on winning the next election and blaming the other guy than making hard choices.”

Maybe the market and Mother Nature will accommodate us and wait until 2013. If so, we will get to deal with these problems in our time, in our way, with minimum collateral damage. It will be like having a rotten tooth removed by a dentist using lots of Novocain. It will hurt a little, but we’ll easily recover.

If, on the other hand, the market suddenly loses confidence in our ability to maintain the value of our currency, or Mother Nature hits some internal climate tipping point, or Saudi Arabia is destabilized — any one of which could happen without warning — we will not have the luxury of a painless extraction from this situation. When the market and Mother Nature force adjustments, they never provide painkillers and, well, they’re not very precise. When they act, it’s like having a rotten tooth removed by a caveman using stone tools. He’ll smash a lot of other teeth at the same time, and there will be blood all over the floor. That’s what we’re courting right now.

President Obama has the right convictions on all these issues, but he has not shown the courage of his convictions. The Republicans have just gone nuts.

If you listen to Obama, he eloquently describes our energy, climate and fiscal predicaments: how we have to end our addiction to oil and cut spending and raise revenues in an intelligent way that also invests in the future and doesn’t just slash and burn. But then the president won’t lead. When pressed on energy, he will say that he just doesn’t have the Republican votes for a serious clean energy policy. But the president has never gotten in the G.O.P.’s face on this issue. He has not put his own energy plan on the table and then gone out to the country and tried to sell it.

It is what a lot of Obama supporters find frustrating about him: They voted for Obama to change the polls not read the polls.

On fiscal policy, the president has put forth a decent opening budget bid and has opted for the same inside game of letting Congress take the lead in forging a compromise with the G.O.P. that would bring spending under control and raise revenues. That inside game worked for the president in producing health care reform and the stimulus, but in those cases he had a Democratic majority to push through decent legislation. I fear this time he will not have the votes for the kind of serious, sensible, Simpson-Bowles-like budget cuts and tax increases we need — without his leading and enlisting the public in a much more aggressive way.

Republicans, by contrast, are insisting that we can somehow drill our way out of our energy problems, and House Republicans just reported out of committee a bill that would block the E.P.A. from taking any action to reduce greenhouse gases, while also slashing government funds to keep air and water clean. So far, the G.O.P. is calling for cuts in the things we need to invest more in — like education and infrastructure — while leaving largely untouched things we need to reduce, like entitlements

and defense spending. A country that invests more in its elderly than its youth, more in nursing homes than schools, will neither invent the future nor own it.

The world is caught in a dangerous feedback loop — higher oil prices and climate disruptions lead to higher food prices, higher food prices lead to more instability, more instability leads to higher oil prices. That loop is shaking the foundations of politics everywhere. That's why the world needs a strong America more than ever, and that's why it is vital that we fix our structural problems — now.

If we leave it for the market and Mother Nature to make the adjustments for us, we will be sorry — and so will the world. We are the keystone holding up the global system. If we go weak, our kids won't just grow up in a different America; they will grow up in a different world.

A Country's Lasting Aftershocks (NYT)

New York Times, March 20, 2011

The physicist Torahiko Terada wrote in 1934, "The more civilization progresses, the greater the violence of nature's wrath." Nearly 67 years later, his words appear prescient.

Humans have become increasingly arrogant, believing they have conquered nature. We build ever larger, ever more concentrated, ever more uniform structures. Scientists and engineers think that they are responding to the demands of society, but they have forgotten their larger responsibilities to society, emphasizing only the positive aspects of their endeavors.

The catastrophe facing the Fukushima Daiichi nuclear power plant epitomizes this phenomenon. Although earthquakes are so frequent in Japan that it has been described as "a nation lying atop a block of tofu," we have built some 54 nuclear reactors along the coast, vulnerable to tsunamis. It should have been foreseen that an earthquake of this magnitude might occur, and if the plant could not withstand such an event, it should not have been constructed.

In addition, the failure of power systems fueling the plant's emergency core cooling system suggests that the models used to design the system were too lax. The decision to pump seawater into the nuclear reactor was late in coming. Each of these problems was foreseeable.

Even now, as workers at the plant continue to do their utmost, I am haunted by a nightmare in which a succession of nuclear meltdowns produces radioactive pollution greater than what was released at Chernobyl.

Until a few years ago, power usage in Japan was such that during the summer Obon holidays, when people typically return to their ancestral homes, it would have been possible to meet demand even if all nuclear power plants were turned off. Now, nuclear energy has come to be indispensable for both industry and for our daily lives. Our excessive consumption of energy has somehow become part of our very character; it is something we no longer think twice about.

Japan reached global prominence through science and technology, but we cannot deny that this has also resulted in an arrogance that has diminished our ability to imagine disaster. We have fallen into the trap of being stupefied by civilization.

— SATORU IKEUCHI, astrophysicist at the Graduate University for Advanced Studies. This article was translated by Matthew Fraleigh from the Japanese.

Post-Postwar

Tokyo

Hours after the earthquake, the columnist Masahiko Katsuya scrapped the article he had been writing and started over. "Surely, this is a national emergency," his new column began. "Just when the Japanese nation had hit bottom politically, economically and morally, we suffered a blow so crushing it seemed it might well be the end of us. But we mustn't let that happen. ... My fellows, let us fight! Fight until our vigor is restored!"

This is the rhetoric of war. And it's not a metaphor. This disaster is the war that many Japanese have been dreading, and expecting, for a long time.

Four years ago, an article titled "War Is Our Only Hope" appeared in a political magazine. "More than a decade has passed," the young writer wrote, "since we were set adrift in society as low-wage workers. And yet society, far from extending a helping hand, heaps insults on us, saying we lower the G.D.P., calling us lazy bums. If the peace endures, the current inequality will last until we die. We need something to break this asphyxiating stagnation and set things in motion. War is one possible solution."

These words jolted Japanese society. It was a rejection of all the country has believed in for over 60 years.

Japan was fundamentally altered by its defeat in World War II. It chose to abjure war and to recreate itself as a wealthy country. But how long, one wonders, did our faith in peace, democracy and economic growth really last? Not long, it seems. Over the past two decades growth has faltered, economic disparity has greatly increased and faith in the political order has eroded.

Though they didn't say it, people could tell that sooner or later some disaster had to happen. That young writer only gave it a name.

Days after the earthquake, supermarket shelves were empty, long lines of cars had formed outside gas stations, parents were taking their children out of Tokyo. The television showed endless images of demolished towns; the numbers of the dead and missing climbed mercilessly upward into five digits; and refugees in dark gymnasiums lay trembling in the freezing cold, waiting for help. These are scenes from a war.

For the first time in his reign, Emperor Akihito made a televised address to the Japanese people. This, too, reminded us of his father's radio address at the end of World War II, 66 years ago.

And now we are transfixed by the images of reactors at the Fukushima Daiichi nuclear plant; they're emitting flames, exploding. When the first small, brown mushroom cloud rose, memories we had sealed off deep inside suddenly surfaced.

For 66 years, we lived the "postwar" life. Periodically someone would point out that the postwar period must surely be over by now — and yet it wasn't. We had no other word to describe the present.

We lost many things in those years, chief among them the bond between people. Companies, families and neighbors ceased to work together, and the word *kozoku* was coined to describe our country: *ko* meaning "isolated" or "orphaned," *zoku* meaning "family" or "tribe." *We were lonely, adrift.*

Eiji Oguma, one of the most prominent social historians here, once asked, "How long do we have to go on using this word 'postwar'?" He answered himself: "Forever. Because we established a new country after the defeat. When we say 'however many years after the defeat,' it really means 'however many years after the founding of the nation.'"

"Then again," Mr. Oguma added, "maybe we'll only use it until the next war."

Now, amid the chaos of the battle we are waging, we feel a familiar sense of exhilaration in the air, an intense feeling of solidarity. We can only wonder what the new Japan will look like.

— GENICHIRO TAKAHASHI, author of "Sayonara, Gangsters." This article was translated by Michael Emmerich from the Japanese.

Beyond Expectations

Tokyo

Many people are wondering why anyone would build nuclear power plants in a country so prone to natural disasters — and that's a very reasonable question. But the reality is that, having accepted nuclear power as a necessary evil, we have no choice but to go on living with it.

What is hard to accept, however, is that the electrical power companies and government agencies tried to account for the disaster by explaining that the circumstances that led up to it were far outside the bounds of anything that could have been predicted — in their words, "beyond all expectations." We have heard this phrase repeatedly on television reports.

There is something strange about this line of thinking. It even begins to appear that Japan's vaunted scientific and technical prowess has taken on the character of a kind of myth, and that myth has deluded the nation's politicians and business leaders. But it has been obvious all along that science and technology can deal only with things that fall within the range of what can be expected. And also that it is all too likely that some things that happen in our lives will indeed be "beyond all expectations" — and that it is precisely for this reason that we are able to live those lives. What, after all, would be the meaning of a life in which everything that happened was "within expectations"?

Every one of the images of the victims that we have seen on television has been gripping, but the one that has made the deepest impression on my heart is that of a little girl tearfully calling out for her missing mother. I believe in the purity of this girl's heart more than I believe in the pledges of any politician, no matter how sincere. A cry of despair, to be sure, but also a sign of her unshakable will to face reality in its very harshest form.

And yet, in the end, what else is there for each of us to do but to keep on doing what we have been doing, as long and as hard as we can? From within the daily lives of each one of us, a small light of hope will begin to glow. This is what I want to believe. Would it be too much to say that a person's ability to harbor such an unlikely belief in the power of hope is also something "beyond all expectation"?

— MITSUYOSHI NUMANO, professor of literature at the University of Tokyo. This article was translated by Joel R. Cohn from the Japanese.

Bitter Legacy, Injured Coast (NYT)

By Ian Jared Miller

New York Times, March 20, 2011

THE rugged Sanriku Coast of northeastern Japan is among the most beautiful places in the country. The white stone islands outside the port town of Miyako are magnificent. The Buddhist monk Reikyo could think of nothing but paradise when he first saw them in the 17th century. "It is the shore of the pure land," he is said to have uttered in wonder, citing the common name for nirvana.

Reikyo's name for the place stuck. Jodogahama, or Pure Land Beach, is the main gateway to the Rikuchu Kaigan National Park, a crenellated seashore of spectacular rock pillars, sheer cliffs, deep inlets and narrow river valleys that covers 100 miles of rural coastline. It is a region much like Down East Maine, full of small, tight-knit communities of hardworking people who earn their livelihoods from tourism and fishing. Sushi chefs around the country prize Sanriku abalone, cuttlefish and sea urchin.

Today that coast is at the center of one of the worst disasters in Japanese history. Despite the investment of billions of yen in disaster mitigation technology and the institution of robust building codes, entire villages have been swept out to sea. In some places little remains but piles of anonymous debris and concrete foundations.

I taught school in Miyako for more than two years in the 1990s, and it was while hiking in the mountains above one of those picturesque fishing villages that I came across my first material reminder of the intricate relationship between the area's breathtaking geography, its people — generous and direct — and powerful seismic forces.

On a hot summer day a group of middle-school boys set out to introduce me to their town, a hamlet just north of Pure Land Beach. While I started up the steep mountainside the children bounced ahead of me, teasing me that I moved slowly for someone so tall. "Are you as tall as Michael Jordan, Miller-sensei?" yelled one boy as he shot past me up the trail.

"Not quite," I told him, pausing on a spot of level ground to look out over the neat collection of tile roofs and gardens that filled the back of a narrow, high-walled bay.

"What is this?" I asked, pointing to a mossy stone marker that occupied the rest of the brief plateau. A chorus of young voices told me that it was the high-water mark for the area's biggest tsunami: more than 50 feet above the valley floor.

"When was that?" I asked, but the boys couldn't say. They had learned about it in school, they said, but like children everywhere they had little sense of time. Everything seemed like ancient history to them, but the thought of a wave reaching so high over the homes of my friends sent a chill down my spine, and I began to investigate the region's history.

A major tsunami has hit the Sanriku Coast every few decades over the last century and a half. Waves swept the area in 1896, 1933 and 1960. The small monument was put there, high above the village, to mark the crest of the 1896 tsunami. The wave killed more than 20,000 people. The boys' village, a place called Taro, was almost entirely destroyed. Seventy-five percent of the population died.

The force of those waves was amplified by the area's distinctive geography. The same steep valley walls and deep inlets that make Sanriku so beautiful also make its villages and towns especially hazardous. The valleys channel a tsunami's energy, pushing swells that are only a few feet high in the open ocean up to stunning heights. Fast-moving water topped 120 feet in one village in 1896.

In a landscape where earthquakes are a regular occurrence but major tsunamis happen irregularly, people naturally forget. The small monument — one of several commissioned for towns up and down the coast — was a mnemonic whose purpose was not commemoration but vigilance. "When there is an earthquake, watch for tsunami," reads the rather practical poem engraved into one such slab.

Japan became a modern industrial state between the 1896 tsunami and the next major one, in 1933. The country's radio and newspapers brought the story of rural fisher-folk swept out to sea to metropolitan audiences. Three thousand people died in the disaster and the humanitarian crisis elicited strong feelings of sympathy. The Sanriku region was portrayed as the nation's heartland, a place where tradition remained intact, and the disaster threatened that preserve. Once again, Taro was particularly hard hit: all but eight of its homes were destroyed and nearly half of the village's population of 1,800 souls went missing. The hamlet became an embodiment of agrarian loss.

It is paradoxical that the response to this threat to traditional ways was the application of cutting-edge engineering and technology. A huge concrete seawall was planned for Taro. Completed in 1958, that wall, 30 feet high at points, stretches over 1.5 miles across the base of the bay.

Faith in technology over nature appeared to be vindicated in 1960 with the great Chilean earthquake, a 9.5-magnitude quake that remains the largest ever recorded, which set off a Pacific-wide tsunami that killed 61 people in Hilo, Hawaii, before surging unannounced into the Sanriku Coast seven hours later. More than 120 Japanese died, but Taro remained largely unaffected, safe behind its sluice gates and concrete wall. Based in part on this success, a new program of coastal defense was initiated.

The Sanriku Coast is now one of the most engineered rural coastlines in the world. Its towns, villages and ports take shelter behind state-of-the-art seawalls and vast assemblages of concrete tetrapods designed to dissipate a wave's energy. The region

is home to one of the world's best emergency broadcast systems and has been at the forefront of so-called "vertical evacuation" plans, building tall, quake-resistant structures in low-lying areas.

In 2003 Taro announced that it would become a "tsunami preparedness town." Working with teams from the University of Tokyo and Iwate University, the town instituted a direct satellite link to accelerate the arrival of tsunami warnings. Public education was expanded and mayors from other towns visited to study this model village. Detailed maps showing projected maximum tsunami heights — using 1896 as a baseline — informed the selection of evacuation markers: a reassuring thick line defined the projected maximum reach of a tsunami. Evacuation sites were placed above that line on the maps. Similar calculations were made up and down the coast.

The lines were drawn in the wrong place. Despite the substantial infrastructure and technological investments in Sanriku, the wave on March 11 overwhelmed large portions of Taro and Miyako. Some of the evacuation points were not high enough. The walls were not tall enough. And the costs are still being tallied.

Thousands of people are missing along this beautiful, injured coast, hundreds in the town that I called home. I am still waiting to hear from one of the groomsmen from my wedding, the owner of Miyako's best coffee shop and a sometime reader of this newspaper. Google's people-finder app tells me he is alive, but I have no idea where he is or how our other friends fared. As for those rambunctious boys and all of my other students, I can only hope for the best.

Technology allowed me to learn my friend's fate. It has also helped to inspire a worldwide humanitarian response. It may be, however, that a greater application of technology in the same direction is not the answer to the problems posed by the March 11 tsunami. As a historian, I am forced to recognize that there is nothing purely natural about this catastrophe. It is the result of a far longer negotiation between human culture and physical forces. Disasters have the counterintuitive tendency to reinforce the status quo. As the terrifying events at the Fukushima Daiichi nuclear plant continue to underline, there are very real costs to an uncritical application of technology.

I look forward to returning to my old Japanese home, but I also look forward to finding something new and different when I make that journey.

Ian Jared Miller is an assistant professor of history at Harvard.

The Japanese Could Teach Us A Thing Or Two (NYT)

By Nicholas D. Kristof

New York Times, March 20, 2011

When America is under stress, as is happening right now with debates about where to pare the budget, we sometimes trample the least powerful and most vulnerable among us.

So maybe we can learn something from Japan, where the earthquake, tsunami and radiation leaks haven't caused society to come apart at the seams but to be knit together more tightly than ever. The selflessness, stoicism and discipline in Japan these days are epitomized by those workers at the Fukushima Daiichi nuclear plant, uncomplainingly and anonymously risking dangerous doses of radiation as they struggle to prevent a complete meltdown that would endanger their fellow citizens.

The most famous statue in Japan is arguably one of a dog, Hachiko, who exemplified loyalty, perseverance and duty. Hachiko met his owner at the train station when he returned from work each day, but the owner died at work one day in 1925 and never returned. Until he died about 10 years later, Hachiko faithfully went to the station each afternoon just in case his master returned.

I hope that some day Japan will erect another symbol of loyalty and dedication to duty: a statue of those nuclear plant workers.

I lived in Japan for five years as the Tokyo bureau chief for The New York Times, and I was sometimes perceived as hostile to the country because I was often critical of the Japanese government's incompetence and duplicity. But the truth is that I came to cherish Japan's civility and selflessness. There's a kind of national honor code, exemplified by the way even cheap restaurants will lend you an umbrella if you're caught in a downpour; you're simply expected to return it in a day or two. If you lose your wallet in the subway, you expect to get it back.

The earthquake has put that dichotomy on display. The Japanese government has been hapless. And the Japanese people have been magnificent, enduring impossible hardships with dignity and grace.

As I recalled recently on my blog, I covered the 1995 Kobe earthquake that killed more than 6,000 people, and I looked everywhere for an example of people looting merchandise from one of the many shops with shattered windows. I did find a homeowner who was missing two bicycles, but as I did more reporting, it seemed as if they might have been taken for rescue efforts.

Finally, I came across a minimart owner who had seen three young men grab food from his shop and run away. I asked the shop owner if he was surprised that his fellow Japanese would stoop so low.

"No, you misunderstand," the shop owner told me. "These looters weren't Japanese. They were foreigners."

Granted, Japan's ethic of uncomplaining perseverance — *gaman*, in Japanese — may also explain why the country settles for third-rate leaders. Moreover, Japan's tight-knit social fabric can lead to discrimination against those who don't fit in. Bullying is a problem from elementary school to the corporate suite. Ethnic Koreans and an underclass known as *burakumin* are stigmatized. Indeed, after the terrible 1923 earthquake, Japanese rampaged against ethnic Koreans (who were accused of setting fires or even somehow causing the quake) and slaughtered an estimated 6,000 of them.

So Japan's communitarianism has its downside, but we Americans could usefully move a step or two in that direction. Gaps between rich and poor are more modest in Japan, and Japan's corporate tycoons would be embarrassed by the flamboyant pay packages that are common in America. Even in poor areas — including ethnic Korean or *burakumin* neighborhoods — schools are excellent.

My wife and I saw the collective ethos drummed into children when we sent our kids to Japanese schools. When the teacher was sick, there was no substitute teacher. The children were in charge. When our son Gregory came home from a school athletic meet, we were impressed that he had won first place in all his events, until we realized that every child had won first place.

For Gregory's birthday, we invited his classmates over and taught them to play musical chairs. Disaster! The children, especially the girls, were traumatized by having to push aside others to gain a seat for themselves. What unfolded may have been the most polite, most apologetic, and least competitive game of musical chairs in the history of the world.

Look, we're pushy Americans. We sometimes treat life, and budget negotiations, as a contest in which the weakest (such as children) are to be gleefully pushed aside when the music stops. But I wish we might learn a bit from the Japanese who right now are selflessly subsuming their own interests for the common good. We should sympathize with Japanese, yes, but we can also learn from them.

Nuclear Energy's Unchanging Plight (CHIT)

Its future is no worse than it already was

By Steve Chapman

Chicago Tribune, March 20, 2011

Just as congressional Republicans and the Obama administration had been pushing nuclear power, the disaster in Japan arrived to complicate matters. Proponents of atomic energy fear an unfair, crippling backlash. But the crisis only confirms that in this country, nuclear is the fuel of the future — and always will be.

Over the past 40 years, plenty of things have happened that should have worked to its advantage. There was the energy crisis of the 1970s. There was the threat of climate change brought on by fossil fuels.

There were clean air laws that raised costs for coal-burning plants. There have been huge oil spills and more price spikes in the petroleum market.

But none of it has made much difference. Nuclear energy provided 19 percent of US electricity in 1990, and it provides 20 percent today. Even before the Fukushima Dai-ichi plant went down, that share was not expected to grow. Last year, the federal Energy Information Administration projected that in 2035, it will be no more than 17 percent.

Nuclear has two major challenges. The first is cost, and the second is safety. Neither has been solved, and neither is about to be.

In the United States, it's hard for atomic energy to compete with fossil fuels, which are plentiful and cheap. A 2008 report by the nonpartisan Congressional Research Service said nuclear is generally about one-third more expensive than the least expensive forms of power (coal, natural gas and geothermal). Even with big federal subsidies, nuclear is pricier than gas.

The natural gas market is volatile, but no matter. The modern gas power plant, concluded CRS, "is a competitive generating technology under a wide variety of assumptions for fuel price, construction cost, government incentives and carbon controls."

For a while, it looked as though nuclear energy would get a lift from climate change. Coal and gas produce greenhouse gases. Nuclear doesn't. If carbon emissions were restricted under a cap-and-trade system, nuclear reactors soon would be in great demand.

Nice theory, but President Barack Obama's cap-and-trade plan went nowhere on Capitol Hill. A candidate in coal-rich West Virginia aired an ad in which he blasted away at a copy of the bill with a rifle. And he was a Democrat.

Since then, the Environmental Protection Agency has announced it will regulate greenhouse gases. But how much it will do is anyone's guess. If Republicans have their way, it will lose its power to do anything.

Various likely GOP presidential candidates, from Mitt Romney to Sarah Palin, want to expand nuclear energy. But the GOP is steadfastly opposed to the policy change that would help it most. Without limits on carbon emissions, nuclear is going nowhere.

Romney says he can't "understand why some environmental activists still consider nuclear power such a bogeyman." Hmm. Maybe the prospect of uncontrolled leaks of deadly radiation across large geographic areas? Yeah, that could be it.

Other forms of energy, to be fair, carry dangers of their own. Coal mines have fatal accidents. Eleven oil workers were killed last summer when a platform blew up in the Gulf of Mexico. By contrast, no one has ever died in a commercial nuclear power accident in this country.

But that's not quite the whole story, is it? The Japan catastrophe is a reminder that while reactors rarely suffer major accidents, the ones that occur create hazards slightly more alarming than a mine collapse.

"If there is a significant release of radiation, then conceivably several thousand people could (get) cancer in the next several years to decades," said Charles Ferguson, president of the Federation of American Scientists, in an interview on the Council on Foreign Relations website.

Large areas could be uninhabitable for months. Unlike miners and rig workers, who can quit anytime they choose, most of the people in jeopardy from a nuclear meltdown have no choice.

It's comforting to hear that modern reactors are better designed and that the Japanese experience will help prevent future accidents. But if overly stringent safety regulation is what's keeping nuclear energy down, down is where it's going to stay.

In recent years, there has been talk of a major shift toward uranium-based power, which we can now be sure is not about to happen. When it comes to nuclear energy, hopes are made to be dashed.

Japan's Disaster Offers More Than A Nuclear Lesson (PATNEWS)

By Heather Long

Harrisburg (PA) Patriot-News, March 20, 2011

Can it happen here?

Who hasn't asked that question in the wake of Japan's natural disasters and ensuing crises at several reactors at the Fukushima nuclear plant.

President Obama, Energy Secretary Steven Chu and officials on down the line have spent the week reassuring anxious Americans that nuclear energy is safe and our country's nuclear reactors aren't likely to experience anything like Japan's.

Their talk has been calming — to a degree. Some of America's 104 nuclear reactors were made by the same manufacturer and around the same time as those in Japan. While magnitude 9.0 earthquakes are extremely rare, that does not mean it could never happen here.

A more pressing concern is what to do with America's nuclear waste. The plan to put spent nuclear fuel rods in Yucca Mountain, Nevada, is dead, a casualty of political and lobbying pressure. Instead, spent fuel rods are put in indoor cooling plants. Those cooling plants were not intended for long-term storage, but they are currently the only solution the US has and are just as susceptible to natural disaster, meltdown or attack as a reactor.

I also can't help but step back and put the Japan disaster in the larger context of headline news this year. The BP oil spill in the Gulf of Mexico occurred last April. It is now the worst in US history and devastated the entire US southern coastline for weeks. *The mantra after that spill was similar to what we are hearing with the Japan quake: "This is an extremely rare scenario."*

Then there was the Chilean mine disaster. That ended in triumph with the rescue of 33 mine workers, but it was another scenario where the hunt for resources had near-devastating consequences. The truth is there are costs associated with any form of energy production from nuclear to gas to wind farms. There are production costs as well as safety and risk costs.

As the US seeks to shift our energy future away from reliance on Middle East oil and toward more homegrown and greener sources, nuclear is going to play a role. But it might not play as big of a role as some in Washington make out. The biggest damper on nuclear energy isn't the Japan situation, but prices.

America has found a new, plentiful and far cheaper energy source in natural gas, specifically the kind right here in Pennsylvania's Marcellus and Utica Shale formations. To put it bluntly, building a nuclear power plant costs billions — in the range of at least \$5 to \$10 billion. Natural gas prices have to be at least \$7 per thousand cubic feet for nuclear to be remotely competitive. With the price of natural gas hovering around \$4 per thousand cubic feet, it's obvious why major energy companies are delaying nuclear facility plans.

What Pennsylvanians should be asking as we look at our energy future is how do we make this shale gas boom as safe as possible? How do we make sure those supposedly "extremely rare occurrences" don't happen here? The answer is adequate regulation and finances.

The most troublesome part of Gov. Tom Corbett's budget proposal isn't the figures, it's a clause that would give the secretary of the Department of Economic and Community Development power to "expedite any permit or action pending in any agency." While that power could be used anywhere in state government, the main target is drilling and related permits at the Department of Environmental Protection. To give the DCED secretary (currently C. Alan Walker, a former coal company executive) carte blanche authority over drilling is a huge error.

Protections and processes are in place for a reason — not to be burdensome, but to ensure Pennsylvanians get their gas without losing their drinkable water and decimating the state's picturesque landscape and wildlife.

The other necessity is a tax on shale gas production. Our state is the laughingstock of industry circles because we can't get this done. Sixty-two percent of Pennsylvanians support this, according to a poll released this week. Even most industry executives admit they would go along with a "reasonable" tax.

Gov. Corbett says he wants to make us more like Texas. I agree. Texas has a 7.5 percent severance tax rate. To encourage growth in the Barnett Shale, Texas does reduce that rate for initial drilling years for high cost wells, but there is still a tax in place. Nothing like that here.

The money should not be used to fill budget holes, but to address the problems associated with drilling: from torn-up roads to local and environmental impacts.

The warning coming from Japan isn't just about nuclear power. It's about looking around at all of our energy sources and asking the tough questions about safety and oversight.

Heather Long is deputy editorial page editor.

Testing Finds No Health Threat Along West Coast (AP)

Associated Press, March 19, 2011

SAN FRANCISCO – Federal and state officials sought Friday to dispel fears of a wider danger from radioactivity spewing from Japan's crippled nuclear reactors, saying testing indicated there were no health threats along the West Coast of the US

Driven by winds over the Pacific Ocean, a radioactive plume released from the Fukushima Dai-ichi reached Southern California on Friday, heightening concerns that Japan's nuclear disaster was assuming international proportions.

However, the results of testing reflected expectations by International Atomic Energy Agency officials that radiation had dissipated so much by the time it reached the US coastline that it posed no health risk whatsoever to residents.

The US Department of Energy said minuscule amounts of the radioactive isotopes iodine-131, iodine-132, tellurium-132 and cesium-137 had reached a Sacramento monitoring station tied to the U.N.'s Comprehensive Test Ban Treaty Organization, but the readings were far below levels that could pose any health risks.

A detector at the Pacific Northwest National Laboratory in Washington State earlier this week also detected trace amounts of xenon-133 — a gas produced during nuclear fission — the DOE said.

The doses that a person normally receives from rocks, bricks, the sun and other natural background sources are 100,000 times the dose rates detected at either location, the DOE and the US Environmental Protection Agency said in a joint statement.

The statement confirmed statements from diplomats and officials in Vienna earlier in the day.

Air pollution regulators in Southern California said they have not detected increased levels of radiation. The South Coast Air Quality Management District said radiation measured at its three sites was not higher than typical levels.

The agency's monitors are part of the EPA's network of more than 100 sensors across the nation that track radiation levels every hour.

In Alaska, Dr. Bernd Jilly, director of state public health laboratories, also said monitoring had shown no readings of above-normal levels of radiation.

The same was true in the state of Washington, health department spokesman Donn Moyer said. The levels would have to be hundreds of thousands of times higher than current readings before health officials would recommend any response, he said.

Graham Andrew, a senior official of the Vienna-based International Atomic Energy Agency, said that after consultation with the IAEA, the International Civil Aviation Organization found there was no reason to curtail normal international flights and maritime operations to and from Japan and "there is no medical basis for imposing additional measures to protect passengers."

The CTBTO presentation Friday showed radiation levels peaking in Tokyo and other cities in the first days of the disaster at levels officials said were well below risk points before tapering off.

"The rates in Tokyo and other cities ... remain far from levels which require action, in other words they are not dangerous to human health," Andrew said.

While set up to monitor atmospheric nuclear testing, the CTBTO's worldwide network of stations can detect earthquakes, tsunamis and fallout from nuclear accidents such as the disaster on Japan's northeastern coast that was set off by a massive earthquake and a devastating tsunami a week ago.

Since then, emergency crews have been trying to restore the Fukushima Dai-ichi nuclear plant's cooling system and prevent overheated fuel rods from releasing greater doses of radioactivity.

Japanese officials on Friday reclassified the rating of the accident at the plant from Level 4 to Level 5 on a seven-level international scale, putting it on a par with the 1979 Three Mile Island accident. The International Nuclear Event Scale defines a Level 4 incident as having local consequences and a Level 5 as having wider consequences.

Nuclear experts have been saying for days that Japan was underplaying the severity of the nuclear crisis.

Andrew refused to be drawn on that issue, saying severity assessments would be the task of a post-emergency investigation. Describing the situation as very serious, he nonetheless noted no significant worsening since his last briefing Thursday, when he used similar terminology.

Things are "moving to a stable, non-changing situation, which is positive," he said. "You don't want things that are rapidly changing."

Radiation Plume Reaches US, But Is Said To Pose No Risk (NYT)

By William J. Broad

New York Times, March 19, 2011

Faint traces of very low levels of radiation from the stricken nuclear complex in Japan have been detected in Sacramento, European officials reported Friday, bringing the distant atomic crisis to American shores for the first time.

The readings, picked up by highly sensitive detectors set up to monitor clandestine nuclear blasts, were the first solid evidence of the leading edge of a long radioactive plume that has drifted slowly across the Pacific with the prevailing winds over the past week and has now reached the continental United States.

Health experts said the plume's radiation had been diluted enormously in its journey across thousands of miles and — at least for now, with concentrations very low — would have no health consequences in the United States. In a similar way, radiation from the Chernobyl disaster spread around the globe and reached the West Coast of the United States in 10 days, its levels detectable but minuscule.

Late Friday, the Department of Energy confirmed the European statements about the arrival of the radioactive plume in Sacramento, saying the federal station there detected "minuscule quantities" of radiation that posed no health hazard.

But the Obama administration's initial reluctance to release its own radiation information and the haphazard way that the readings came dribbling out of Europe first — not the United States — raised questions about whether American officials were being as forthcoming as they had pressed the Japanese to be.

Throughout the nuclear crisis, Japanese officials have been accused of withholding information and understating the severity of the risks. But on Friday, pressure mounted on the Obama administration to release information it has gathered on the radiation coming from Japan, with six environmental and watchdog groups sending the White House a letter calling for "transparency on the part of the government."

In many respects, the plume underscores the lack of a global system for monitoring nuclear emergencies and making the results public. European officials said the system was designed to be hugely sensitive to detect cheaters trying to develop clandestine nuclear arms — but not radioactive plumes from commercial reactor failures, which are easier to detect.

"What we can measure is almost a single atom, which has absolutely no danger" for human health, said Lars-Erik De Geer, research director of the Swedish Defense Research Agency, a part of the monitoring system. "It has to be very sensitive because we are looking for people who are trying to hide the testing of weapons."

The Sacramento readings were made on Air Force equipment shared with the Comprehensive Test Ban Treaty Organization, an arm of the United Nations in Vienna. Its mandate is to monitor the global ban on the testing of nuclear arms.

The United Nations agency has more than 60 stations that sniff for radiation spikes and uses weather forecasts and powerful computers to model the transport of radiation on the winds.

Earlier this week, its scientists forecast the plume's arrival in the continental United States around the end of this week.

European officials said that — outside of Japan — its global network of detectors first picked up the presence of the Japanese plume at a station on the Kamchatka Peninsula, in Russia. Then, on Friday, they said, the station in Sacramento began to register the faint radiation. The government declined to release further details.

In both cases, officials said, the detectors found minuscule levels of iodine-131 and cesium-137 — highly dangerous byproducts of reactor operation that in large amounts can cause cancer. The measured levels are judged to be many millions of times lower than concentrations that would pose a danger to human health.

Experts tracking the plume said it would continue to drift east and might arrive in the New York region early next week.

By definition, the current measurements are tracking relatively old radiation that was released into the atmosphere at the start of the Japanese crisis. It began on March 11 when an offshore earthquake with a magnitude now estimated at 9.0 shook the reactor complex. A tsunami rolled into northeast Japan minutes later, swamping six reactors lined up along the coastline.

As the crisis has worsened, the releases of radiation into the atmosphere have increased. So it seems inevitable that the concentrations of radiation in the plume will grow — though still, health experts say, posing no health risk in the United States.

"We're monitoring the situation," said Mike Sicilia, a spokesperson in Sacramento for the California Department of Public Health. But he emphasized that no danger was anticipated.

"All data from state and federal sources," he said, "show that harmful levels of radiation won't reach California."

In brief remarks at the White House on Thursday, President Obama said he knew Americans were worrying about radiation drifting across the Pacific. "So I want to be very clear," he said. "We do not expect harmful levels of radiation to reach the United States, whether it's the West Coast, Hawaii, Alaska or US territories."

But environmental and watchdog groups cited a growing anxiety in the United States and complained of a lack of adequate information from American officials.

"The US government clearly has information that the public has a right and need to know," Damon Moglen, climate and energy director at Friends of the Earth, said in a statement.

He called federal insights into the nature of the Japanese radiation "critically important" for the Japanese people, Americans in Japan and "those here at home who are anxious that dangerous radiation may creep towards our shores."

The California readings were made by an arm of the Air Force Technical Applications Center, an institution of the cold war that monitors for signs of clandestine nuclear tests. Its unit in suburban Sacramento, northeast of the city, has radiation detectors set up at Camp Kohler, near the former McClellan Air Force Base.

In addition to serving the United States government, the unit feeds new readings into the international data system of the Comprehensive Test Ban Treaty Organization, which has 120 member states that share the monitoring insights.

Although the legal mandate of the organization is to scan the globe for clandestine bomb blasts — not reactor accidents — its officials recently decided to start sharing its data more widely in an effort to help international authorities struggling with the Japanese crisis.

In a statement on Friday, the Vienna group said it began sharing the monitoring information Friday with the International Atomic Energy Agency and the World Health Organization. The organization said it was "responding to respective requests" from the two groups that it received Thursday for help in "assessing the situation."

On West Coast Of US, Much Ado About Very Little Radiation, So Far (LAT)

US scientists and sensors are poised to detect radioactive fallout from Japan's nuclear accident, but aside from a 'minuscule' amount at a Sacramento station, they've found none.

By Eryn Brown, Molly Hennessy-Fiske

Los Angeles Times, March 19, 2011

Sensors in the United States stood ready Friday to detect any trace of radioactive material blowing across the Pacific from Japan's stricken Fukushima nuclear plant, 5,000 miles away.

So far, they've pretty much found nothing.

The only positive report from a network of sensors was of a tiny amount of radiation picked up by a super-sensitive detector in Sacramento that is capable of sensing the radioactive isotope xenon-133, created during nuclear fission.

Though scientists said they believed that this came from the Fukushima Daiichi reactors, the levels were so "minuscule" they posed no threat to human health, the US Environmental Protection Agency and Department of Energy said in a joint statement Friday afternoon.

The amount that was detected would result in a "dose rate approximately one-millionth of the dose rate that a person normally receives from rocks, bricks, the sun and other natural sources," according to the statement.

Elsewhere, though scientists and equipment sat poised, they weren't finding radioactive surges above normal background radiation levels that exist naturally.

California public health officials were still gathering air samples for radiation testing late Friday, according to Gary Butner, branch chief of radiological health with the California Department of Public Health in Sacramento.

Butner said county volunteers planned to gather samples Friday and Saturday from the state's monitoring stations. Staff members will then crunch the numbers with the help of a physicist through the weekend and post the results on the department website early next week.

They will also post data from the last two years for comparison, to "hopefully minimize some of [the public's] fears and anxiety," Butner said.

In Oregon, a health physicist checked radiation air monitoring stations Friday in Portland and Corvallis — part of the EPA's network of 100 radiation monitors known as RadNet — and found no unusual radiation. The story was the same in Alaska, where public health officials released a statement saying state scientists were monitoring levels in Anchorage, Juneau and Fairbanks.

The nuclear engineering department at UC Berkeley set up its own independent monitoring Wednesday on top of the campus' Etcheverry Hall. The system looks for gamma rays with energy "signatures" corresponding to isotopes such as cesium-137, iodine-131 and tellurium-132, which would have been emitted by Japan's plant, said Kai Vetter, a professor in the department.

As of Friday morning, Vetter said, they hadn't seen any evidence of suspicious radiation either.

Friday afternoon, at a RadNet station in Anaheim, South Coast Air Quality Management District atmospheric measurements manager Philip Fine took a break to check his watch.

The AQMD, he said, doesn't come out very often to the testing station, a mini-fridge-sized metal box sitting in a sandy, fenced-off enclosure at the edge of an elementary school. The radiation sensor sends much of its data automatically to federal EPA offices.

But with the rising public concern over the radiation from Japan reaching California, Fine went there to answer questions and assuage fears.

"What we're experiencing right here at the station today is the same radiation levels that we were experiencing here three months ago at the station," he said.

Obama's Support For Nuclear Power Faces A Test (WP)

By Peter Wallsten, Jia Lynn Yang

Washington Post, March 19, 2011

As the deepening crisis in Japan presents the nuclear power industry with its gravest test in years, President Obama has emerged as a critical ally and defender.

Repeatedly in recent days, Obama has peppered public remarks on Japan with assurances that US reactors are safe and that nuclear energy remains a key component of his energy agenda.

The president's stance again puts him in direct opposition to many in his political base, with some environmentalists and a plurality of Democratic voters in a new survey saying that nuclear power is not safe. But Obama has experience with the industry. His home state of Illinois has more nuclear power plants than any other state, and Chicago is the headquarters for Exelon, which operates the country's largest fleet of nuclear plants. And as president, Obama has proposed a dramatic expansion in government-backed loans to build new plants.

"I still think that nuclear power is an important part of our overall energy mix," he told an interviewer this week from WVEC-TV in Norfolk. He added that "we've got to do it in a safe and sensible way."

Asked about potential budget cuts to nuclear research by a local TV reporter from New Mexico, home to major atomic laboratories, the president said the Japan crisis was a reminder that funding was needed. "We've got a budget for it," he said.

The president's stance underscores the important role nuclear power plays in his broader energy agenda.

In the State of the Union speech this year, Obama presented a goal of generating 80 percent of the country's electricity from clean energy sources by 2035. Citing support among different constituencies for wind, solar, nuclear, "clean coal" and natural gas, the president said: "We will need them all."

Nuclear power already accounts for 20 percent of overall electricity in the United States and makes up the vast majority of carbon-free energy.

But because the cost of building a new reactor is so high — and Wall Street is reluctant to invest, with natural gas emerging as a more viable alternative — utilities have turned to the government for assistance. Obama has signaled his desire to help, proposing in his 2012 budget plan an additional \$36 billion in loan guarantees to build new plants.

That would come on top of the \$18.5 billion set aside as part of the loan guarantee program started under President George W. Bush's Energy Policy Act of 2005.

Some critics have charged that Obama's support for nuclear power can be traced to his political rise in Illinois, home to nuclear giant Exelon.

Those connections “run pretty deep,” said Kevin Kamp, with the watchdog group Beyond Nuclear. “That begins to explain his policy.”

Exelon has had ties to some of Obama’s closest advisers.

David Axelrod, the president’s longtime political strategist and former White House adviser, co-founded a consulting firm that worked for Exelon, though Axelrod said Friday he currently has no private clients.

Rahm Emanuel, Obama’s former chief of staff and now Chicago’s mayor-elect, helped broker the deal that created Exelon when he worked at the investment bank Wasserstein Perella.

Exelon’s political action committee and its employees have given more than \$340,000 to Obama’s congressional and presidential campaigns over the years, including \$4,300 from Exelon chief executive John Rowe, according to Federal Election Commission records.

Since Obama became president, Exelon has sided with the White House in at least one major policy battle — quitting the US Chamber of Commerce in protest of the trade group’s opposition to climate-change legislation. Exelon declined comment.

A White House spokesman, Clark Stevens, rejected the idea that Obama’s views on energy stemmed from anything other than sensible policy.

“The administration’s energy priorities are based solely on how best to build a 21st-century, clean-energy economy,” Stevens said via e-mail. “That policy is not about picking one energy source over another, in fact it is about setting a bold but achievable clean energy goal, and providing industry the flexibility on how best to increase their clean energy share through the responsible development of a broad range of energy sources — including renewables like wind, solar, and homegrown biofuels, as well as natural gas, clean coal, and nuclear power.”

Another major nuclear player is Duke Energy, whose chief executive, Jim Rogers, is helping to lead fundraising efforts for the 2012 Democratic National Convention in Charlotte. The firm, which slightly favored Democrats in its 2010 PAC donations, has agreed to guarantee a \$10 million line of credit for the convention from a local bank.

Duke Energy officials say the effort is purely an economic development initiative. “We would do it for the Republicans in 2016 if they would consider Charlotte,” spokesman Tom Williams said. “It’s not a partisan effort at all.”

Overall, Obama has not relied very heavily on energy-related contributions in his political career, and his aides have pledged to continue refusing any corporate PAC donations in the 2012 campaign. Contributors in the energy and natural resources sector gave about \$2.8 million to Obama in 2008, compared with \$4.1 million for GOP candidate John McCain, according to the Center for Responsive Politics.

Obama’s stance has surprised some in the industry who weren’t sure what to expect when he entered office.

“The nuclear industry was a little bit nervous. We didn’t know what his policies would be,” said Eileen Supko, a nuclear engineer at the consulting firm Energy Resources International. “Everybody was pleasantly surprised and very pleased” by Obama’s agenda.

The president’s position appears to be in good stead with crucial independent voters, a majority of whom view nuclear as a safe energy source, according to a new Fox News poll. The survey found that a plurality of Democratic voters disagree.

Even before this week’s events in Japan, the White House had jostled with nuclear critics on Capitol Hill.

Last year, the White House rejected a request by Rep. Edward J. Markey (D-Mass.) to enforce a law passed in 2002 requiring that potassium iodide pills be made available to all US citizens living within 20 miles of nuclear plants for use in case of exposure to radioactive iodine.

Markey said in an interview that he has asked the White House to reconsider that decision, which he said appeared to satisfy industry concerns that distributing the medicine “instills a fear of nuclear power” in people’s minds.

Japan Crisis Could Rekindle US Antinuclear Movement (NYT)

By Leslie Kaufman

New York Times, March 19, 2011

In 1973, vexed by an Arab oil embargo and soaring fuel prices, President Richard M. Nixon championed a long-term solution: to have 1,000 nuclear reactors in place in America by the year 2000 as part of a national energy independence plan.

That never came to pass: 104 nuclear reactors operate today, compared with 40 then. The last permit for construction of what became a fully operational nuclear plant was issued in 1978.

The main obstacles to the industry’s growth were huge cost overruns linked to regulatory changes, and shifts in demand for electricity, although the Three Mile Island accident of 1979, litigation and the 1970s and ’80s antinuclear movement also played a big role.

Today, activists who figured prominently in the movement's teach-ins and protest rallies are hoping that Japan's nuclear crisis will rekindle a protest movement in the United States. Their aim, they say, is not just to block the Obama administration's push for new nuclear construction, but to convince Americans that existing plants pose dangers.

"I look at Japan and think this could very possibly be us," said the musician Graham Nash, who with the group Crosby, Stills and Nash took part in the 1979 No Nukes concerts and a rally that drew nearly a quarter of a million people to the tip of Manhattan. James Taylor, Bonnie Raitt, John Hall, Jackson Browne and Bruce Springsteen were also on the bill for the events, which came months after a partial core meltdown at Three Mile Island.

It was the peak of the antinuclear movement, and campaigners felt that policymakers were finally awakening to their message. "The circumstances all came together — it was like energetic waves converging, and it was pretty powerful," Mr. Nash said. "There has not been a nuclear plant built since."

Since a tsunami knocked out power at Japan's Fukushima Daiichi Nuclear Power Station last week, leading to explosions and a desperate battle to cool reactors and spent fuel rods, more Americans seem to be rethinking their position on nuclear power, said John Hall, a former member of the band Orleans who helped organize the concert and was, until recently, a congressman representing a district in upstate New York.

"I see it in e-mails, Web postings and conversations with friend and neighbors," he said.

Paul Gunter, the director of the reactor oversight project at the advocacy group Beyond Nuclear, said a protest vigil planned for Sunday at the Vermont Yankee nuclear power plant could prove a test case. The reactor, whose troubles in recent years have included the collapse of a cooling tower and leaks of radioactive tritium from underground pipes, is a near twin of Unit No. 1 at the troubled Daiichi nuclear station. The State of Vermont argues that the plant is unreliable.

"Sunday will be the first indicator of the depth of the public mood," Mr. Gunter said of the protest. Just before the earthquake and tsunami in Japan hit, the federal Nuclear Regulatory Commission voted to reject all challenges to extending the operating license of the Vermont Yankee plant.

The movement against nuclear power in this country goes back almost as far as the industry itself. The United Auto Workers opposed construction of the Fermi 1 plant outside Detroit as early as 1957. While it was eventually built, proposed plants in Queens, N.Y., and outside San Francisco were blocked by local protests in the next decade.

The movement grew in the 1970s as proposals for new plants multiplied and local opposition groups emerged. Sometimes the protests succeeded only in part. The Clamshell Alliance, for example, campaigned to block the construction of Seabrook Station in New Hampshire, part of which was eventually built and began operating. Half of the proposed plan was shelved.

Harvey Wasserman, the editor of NukeFree.org, helped organize some of the protests and at one point was arrested outside the Seabrook plant. He attributes the movement's broad appeal to its peaceful tactics.

"This is a terrible time for those of us who've been fighting nukes all these years," he said of the crisis in Japan. "We're way too familiar with the tangible toll these releases in Japan will take on the people of the area and the workers at the plant."

Although protests continued in the United States and Europe throughout the 1980s, particularly after the Chernobyl accident in Russia in 1986, the movement may have become a victim of nuclear plant construction's decline.

As part of his plan to rein in the greenhouse gas emissions however, President Obama has billed nuclear power as a clean energy alternative and enabled loan guarantees <http://ipo.energy.gov/> to begin flowing for new plants. Such construction also has support among many Republicans in the newly elected House, although some have moved to strip subsidies for renewable fuels like solar and wind power from the 2012 budget.

After Mr. Obama took office, some environmental groups seemed to be tipping toward cautious support for nuclear power. But that was stilled last week.

Meanwhile, some of the musicians who were central to the movement in its early days are thinking of enlisting younger performers in the campaign. "I was in contact with Bonnie about getting some new bands involved," Mr. Nash said. "We had a lot of energy back then, but it gets wearing to see the same old groups after a while."

Matthew L. Wald contributed reporting from Washington.

US Declines To Give Details On Radiation (WSJ)

By Stephen Power, Carol E. Lee

[Wall Street Journal](#), March 19, 2011

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

Fukushima Daiichi Nuclear Plant Engineers Attach Power Cable To Try To Cool Quake-damaged Reactor (NYDN)

By Christina Boyle, Nancy Dillon
New York Daily News, March 19, 2011

Brave engineers risking their lives to avert catastrophic meltdown have successfully attached a power cable to Japan's crippled nuclear power plant.

The Tokyo Electric Power Co. said that means electricity is ready to flow to critical equipment inside the Fukushima Daiichi plant 150 miles northeast of Tokyo.

The equipment is needed to circulate cool water around the melted reactors and overheated uranium fuel rods.

The next step is to methodically make sure the cooling equipment isn't too damaged to bring back online, the company said.

If workers can salvage enough hardware to get the pumps going, the desperate situation could take its first positive turn in almost a week.

Fire trucks converge in preparation to spray water at the Fukushima Dai-ichi nuclear plant, in Iwaki, Fukushima Prefecture, Japan Friday (Kyodo News/AP)

In the meantime, emergency workers used a special water cannon from the Tokyo Fire Department to spray more water on Reactor No. 3. Steam was seen rising from Reactor No. 2 earlier.

The plan is for workers to restore electricity to the cooling pumps serving the No. 1 and No. 2 reactors by about midday Saturday and at the No. 3 and No. 4 reactors by Sunday, a spokesman with the Tokyo-based Nuclear and Industrial Safety Agency said.

"The whole world, not just Japan, is depending on them," Tokyo office worker Norie Igarashi, 44, said of the emergency teams on the job despite heightened radiation levels at the complex.

The stricken country's 9.0 earthquake and tsunami triggered fires, explosions and partial meltdowns at four of the six reactor units at the Fukushima plant.

There have been power shortages across Japan, factories have closed and the Japanese stock market has plummeted.

More than 452,000 people are believed to be homeless as a result of the disaster, about 343,000 households are still without electricity and about one million have no water.

US Monitoring Planes, Passengers From Japan For Possible Radiation (HILL)

By Keith Laing
The Hill, March 18, 2011

The US Customs and Border Protection agency (CBP) is monitoring planes and ships coming from Japan for radiation, officials said Friday after reports surfaced that passengers flying into Chicago's O'Hare airport triggered radiation detection alarms at the airport.

The customs agency said that no planes coming into the US have tested positive for harmful levels of radiation, and the small number of passengers who have are being properly treated.

"Travelers who manifest signs of radiation sickness are referred to health authorities and provided appropriate treatment," CBP spokesman Michael Friel said in a statement provided to The Hill. "CBP will continue to evaluate the potential risks posed by radiation contamination on inbound travelers and cargo and will adjust its detection and response protocols, in coordination with its interagency partners, as developments warrant."

Officials at O'Hare said Friday they were adding screenings after passengers triggered detectors with small amounts of radiation.

"We are aware of the radiation," Chicago Aviation Department spokeswoman Karen Pride said in a report from CBS News.

The concern is in response to several explosions at nuclear reactors in Japan following last week's massive earthquake and ensuing tsunami.

"US Customs and Border Protection is monitoring developments in Japan carefully and is specifically assessing the potential for radiological contamination associated with the ongoing impact of the earthquake and tsunami to Japan's nuclear facilities," Friel said.

"Out of an abundance of caution, CBP has issued field guidance reiterating its operational protocols and directing field personnel to specifically monitor maritime and air traffic from Japan."

Chicago Mayor Richard Daley said that while protecting the population at large was important – and a federal responsibility – it was also important to treat travelers testing positive for radiation.

"Of course the protection of the person coming off the plane is important in regards to any radiation and especially within their families," Daley said, according to reports.

The customs agency said it handles about 500,000 radiation cases annually in the course of normal business, most of those involving small, non-harmful doses.

Cuomo Seeks Meeting With US NRC About Indian Point Safety (BLOOM)

By Dan Hart

Bloomberg News, March 21, 2011

New York Governor Andrew Cuomo said Lieutenant Governor Robert McDuffy and other state officials will meet with the US Nuclear Regulatory Commission to discuss how safe Entergy Corp. (ETR)'s Indian Point nuclear-power plant, located about 24 miles (38 kilometers) north of New York City, would be in an earthquake.

Cuomo earlier this week expressed surprise at reports that the Indian Point plant, which opened in 1962, was the most vulnerable to an earthquake of all US nuclear facilities. Regulators have been concerned after Japan's struggles to avert a disaster at a power plant crippled last week by a tsunami and the 9.0 magnitude temblor off the northeastern coast.

The meeting on March 22 was set up by the White House at Cuomo's request, the governor's office said in an e-mailed statement. It will include Howard Glaser, director of New York state operations, the statement said.

The meeting is intended to gather information about Indian Point's earthquake vulnerabilities, preparedness and risk assessment, according to the statement. Rich Bamberger, a spokesman for the governor, could not immediately say where the meeting would be held.

The reactors, which supply 25 percent of the power used by New York City and suburban Westchester County, are designed to withstand at least a magnitude 6 earthquake, said Jerry Nappi, a plant spokesman. A magnitude 7 earthquake in the region is possible, based on the features of the two faults, according to scientists at Columbia University's Lamont-Doherty Earth Observatory.

Cuomo said in a March 16 press conference in Albany that while he was New York's attorney general, he'd concluded Indian Point shouldn't have been issued a new license and "should be closed."

Separately, the Nuclear Regulatory Commission has been aware of a leak in the liner of a refueling cavity at Indian Point since 1993 and yet allowed the plant to continue operating, according to a report by the Union of Concerned Scientists.

The liner was installed to prevent leaking of radioactive material during an earthquake and the chances of that equipment fulfilling its safety function is "nil," the report said.

To contact the reporter on this story: Dan Hart in Washington at dahart@bloomberg.net

NY State To Talk Indian Point With Nuclear Agency (AP)

Associated Press, March 21, 2011

NEW YORK (AP) – New York Gov. Andrew Cuomo says his staff will meet Tuesday with nuclear regulators to discuss whether a disaster like the one in Japan could happen at the Indian Point power plant.

Indian Point is 38 miles north of New York City on the Hudson River. It sits near the Ramapo Fault, but earthquakes on that fault line are rare.

Cuomo said Saturday that Lt. Gov. Robert Duffy and Director of State Operations Howard Glaser will meet with members of the Nuclear Regulatory Commission.

Entergy Corp., which runs the plant, says the reactors are safe. Spokesman Jim Steets said the reactors are built to withstand a magnitude-6 earthquake, and the plant's backup electrical generators are on high ground and safe from any tsunami that might swell the Hudson River.

The New York Public Interest Research Group plans to request that Cuomo also discuss the state's other aging nuclear plants at the NRC meeting.

NYPIRG's Laura Haight said Saturday that five of the state's six nuclear plants have been operating since 1980. She said a letter to Cuomo will be delivered Sunday.

The Sierra Club is also asking the governor to expand his agenda.

A spokesman for Cuomo did not immediately return a call seeking comment.

NY, NRC Officials To Meet On Indian Point Quake Risks (MTWNHER)

By Michael Novinson

Middletown (NY) Times Herald-Record, March 21, 2011

BUCHANAN – State officials will meet with the Nuclear Regulatory Commission Tuesday to discuss earthquake risks associated with Indian Point nuclear energy plant.

Lt. Gov. Robert Duffy and Director of State Operations Howard Glaser will discuss earthquake preparedness and risk assessments for the plant, according to a press release from Gov. Andrew Cuomo.

Indian Point's Unit 3 reactor has the highest earthquake damage risk of any of the nation's reactors.
mnovinson@th-record.com

Gov. Cuomo Staff To Meet With US Nuclear Regulator To Discuss Potential Earthquake, Indian Point (NYDN)

By Christina Boyle, Daily News Staff Writer
[New York Daily News](#), March 21, 2011

Gov. Cuomo's staff will meet next week with officials from the Nuclear Regulatory Commission to discuss how the Indian Point plant would weather an earthquake.

In a statement Saturday, Cuomo said he asked the White House to arrange the sit-down and it's been scheduled for Tuesday.

A recent federal report deemed the plant, just 24 miles north of the Bronx, most vulnerable to a natural disaster in the nation.

Cuomo has repeatedly called for its closure. He asked for a meeting with the NRC amid the unfolding nuclear crisis that has gripped Japan since the March 11 earthquake and tsunami.

"The purpose of the meeting will be to discuss the risks facing Indian Point in the event of an earthquake, how prepared Indian Point is to handle an earthquake, as well as what risk assessments have been completed regarding Indian Point," Cuomo said.

"We are looking forward to a productive dialogue," Cuomo added.

State Attorney Voices Fears Over Indian Point Plant (NY1)

By Josh Robin
[origin.ny1.com](#), March 21, 2011

Fearing a nuclear crisis akin to Japan, State Attorney General Eric Schneiderman voiced concerns Friday over Westchester County's Indian Point nuclear power plant and criticized federal nuclear regulators. NY1's Josh Robin filed the following report.

An exodus from Japan is ongoing, as residents flee from radiation from the stricken Fukushima nuclear plant. It is supposedly not enough to be dangerous outside the plant's immediate vicinity, but even those 100 miles south are cautious.

"We're very afraid of the radiation but we can't do very much about it," said one Japanese woman through an interpreter.

Closer to home, events overseas are reigniting concerns about how New York gets much of its electricity. The Indian Point Power plant is just 24 miles north of the Bronx and it sits on a double fault line.

"While the possibility of an intense earthquake is relatively low, the potential for harm is so catastrophic that it has to be taken into account," said State Attorney General Eric Schneiderman.

According to Schneiderman, federal regulators do not even have to take seismic risks into account when they relicense Indian Point.

Officials at the Nuclear Regulatory Commission say they do monitor risks of earthquake and have recently been taking closer looks.

Indian Point officials say the plant can withstand what they call the worst hypothetical earthquake event for this area, a Magnitude 5.5 on the Richter scale. The Japan earthquake was Magnitude 9.0.

An energy trade group, the New York Affordable Reliable Electricity Alliance, insists the New York plant is safe.

"There's many differences between Japan and between Indian Point. It's like comparing apples to oranges." John R. Durso Jr. of New York AREA. "A tsunami is not going to hit Indian Point, nor is it capable of even forming within the Hudson Valley."

If the letter produces no action, Schneiderman said he could resort to a lawsuit. He is already suing the NRC over a recent ruling that found that Indian Point can store nuclear waste at the site for 60 years after it closes.

The limit used to be 30 years, but plans have fallen through for a nationwide repository at Yucca Mountain, Nevada.

Now the commission is even studying storing the waste a full century after a plant closes.

An NRC spokesman said there is a "solid legal foundation" for the agency's actions.

Calls Grow To Halt New Licenses For Indian Point (E&EPM)

By Hannah Northey
[E&ENews PM](#), March 18, 2011

Calls for halting the relicensing of New York's Indian Point nuclear plant on the banks of the Hudson River are growing louder, this time with the state's attorney general chiming in.

New York Attorney General Eric Schneiderman (D) is demanding the Nuclear Regulatory Commission take into account seismic activity in the region before relicensing the 40-year-old nuclear plant.

Entergy Corp. is currently asking NRC to renew licenses for Indian Point's Unit 2 and Unit 3 for an additional 20 years of operation because the current licenses expire in 2013 and 2015, respectively.

Schneiderman sent a letter to the NRC today, asserting that seismic activity is a factor that NRC has repeatedly refused to consider in reviewing the relicensing application to extend Indian Point's operation.

"It is beyond troubling that at the same time the federal government acknowledges increased seismic safety risk at some nuclear power plants in this country, it refuses to fully and openly assess these specific risks to Indian Point as part of its relicensing process," he said. "Before any conversation about relicensing is concluded, the Nuclear Regulatory Commission must answer basic health and safety questions."

Concern in New York over the aging nuclear plant has been piqued by the crisis in Japan, where officials are struggling to gain control of the Fukushima Daiichi nuclear plant that was rocked by a massive earthquake and slammed by a tsunami.

But Entergy has maintained that Indian Point is safe even though it sits on a fault line, and that the facility can withstand a magnitude 6 earthquake.

"The reason the risk is low for Indian Point is partly because of the geology and tectonics of the East Coast region," Entergy said in a statement on its website. "Indian Point is neither susceptible to the type of earthquake that occurred in Japan, nor the tsunami that followed that ultimately removed the cooling capability of the Japanese plants."

Nonetheless, the company said it will be taking part in a nationwide review of nuclear facilities President Obama has called for, and the company will review the "plant's ability to respond to catastrophic events."

Schneiderman said Indian Point's older reactor, Unit 1, which was built in the 1950s, was constructed before there were requirements for earthquake protection. Although no longer in operation, the unit's systems, structures and components were conjoined to the plant's other two reactors that are now up for relicensing. New York had asked the NRC to expand its relicensing criteria to include seismic analysis in 2007, but the agency rejected that request, Schneiderman said.

Other officials and environmental groups are voicing concern as well. Earlier this week, New York Gov. Andrew Cuomo (D) called for a safety review of the plant, pointing to the fact that the plant's Unit 3 reactor sits along a fault line about 30 miles north of New York City (Greenwire, March 17).

Environmental group Clearwater called for the plant to be closed and decommissioned, pointing to the fact that population has increased around the facility over the years. Clearwater is currently involved with another environmental group in litigation over Entergy's relicensing application.

Nuclear Plant Designs: Indian Point Vs. Japan (Pleasantville Patch)

By Alice Kenny

[Pleasantville \(NY\) Patch.com](#), March 21, 2011

Indian Point's reactors are about to receive close scrutiny from New York State and from the operator, Entergy.

As Westchester residents witness Japan's waking nightmare, they have begun to reexamine their nearby Indian Point nuclear power plants and reassess whether the plants' relatively low possibility of risk plus the reward of local non-carbon energy outweighs their potential for catastrophe.

No experts predict a similar scenario: an 9.0 magnitude earthquake followed by a cataclysmic tsunami that killed thousands and sent plumes of radioactive steam into the air this week from meltdowns and explosions at the Fukushima Daiichi Nuclear Power Station.

But local residents say they have real reason for fear. Indian Point sits on a seismic zone, has a documented history of safety violations and terrorists flew past it in airplanes they used as bombs to destroy the World Trade Center.

An accident at Indian Point could expose a dense population of more than 10 million people to radiation.

Doris Lorenz of Cortlandt questioned the facility's existence.

"It should never ever have been built. Why was it even allowed to be built? Why don't they put up windmills in the middle of the river? Cuomo should shut it down and bury the rods."

Japan had been top-rated for its disaster preparedness and evacuation drills. Most New Yorkers say they feel ill-prepared for a nuclear accident.

Indian Point sits along the Hudson River in Buchanan, just 24 miles north of New York City. It has a history of safety violations including 600,000 gallons of boiling radioactive water that escaped as steam through an open valve last year and an electric transformer explosion in December.

Discussions with Indian Point spokespersons and other nuclear experts reveal similarities between the plants as well as key safety differences. Entergy-owned Indian Point Units 2 and 3, built in 1974 and 1976, use a Westinghouse pressurized water design that generates steam to spin turbines that generate energy. (Indian Point 1 began operating in 1962 and was decommissioned in 1974). The Daiichi reactors, in contrast, were built in the 1960s and depend on boiling water.

More important, the Daiichi reactors, unlike those at Indian Point, rely on American-made General Electric Mark 1 steel and concrete vessels to contain the nuclear fuel rods that power the plant. These Mark 1 vessels, nuclear experts say, are not as strong and are more likely to crack than containment vessels made later.

In terms of similarities, the Daiichi and Indian Point plants maintain on their sites spent fuel rods that contain used radioactive fuel. These spent rods along with the active uranium rods that power nuclear plants must be kept in cool water to prevent a meltdown.

Both sites rely on similar failsafe mechanisms in case control rods that normally power the plants and pump cooling water shut down. Japan's six reactors relied on 13 backup diesel generators. Indian Point's two units have 8 backup generators, said Jerry Nappi, spokesperson for Entergy at Indian Point.

The tsunami knocked out the Daiichi generators leaving the plants to rely on battery power. Batteries designed to last short-term ran out of power before emergency help could reach the devastated area and repairs could be made.

While the Daiichi plant ran out of most options and is now attempting to pour sea water on the plant, Indian Point's backup design also offers a residual steam system to drive auxiliary pumps and move water, Nappi said. In addition, Indian Point houses its spent fuel rods almost entirely below grade along the Hudson River making it difficult for water to seep and stay out.

State officials declared this week that thorough safety reviews would be taken at the facility.

Here is Entergy's response:

"Indian Point is designed to withstand an earthquake greater in size than the area has ever experienced. The NRC recently stated that "operating nuclear power plants are safe and that every plant is designed with a margin of safety beyond the strongest earthquake anticipated in the area." The reason the risk is low for Indian Point is partly because of the geology and tectonics of the East Coast region. Indian Point is neither susceptible to the type of earthquake that occurred in Japan, nor the tsunami that followed that ultimately removed the cooling capability of the Japanese plants. Nevertheless, over the next 30 days, as part of an industry initiative, Indian Point will be performing a comprehensive review of the plant's ability to respond to catastrophic events."

Still, many living near by say these differences do not outweigh their concerns.

Alison Judge from neighboring Croton-on-Hudson said, "Indian Point should never have been built here in the first place."

Former Indian Point, Knolls Employees Weigh In On Japan's Nuclear Disaster (TROYREC)

By Danielle Sanzone, The Record

Troy (NY) Record, March 21, 2011

STILLWATER – After working at the Indian Point Energy Center for about a decade, John Basile knows radiation.

He recently purchased an old brick church along the Hudson River in Stillwater with his wife and he is well aware that more radiation is found in brick than in wooden-framed homes. Nonetheless, he is thoroughly enjoying renovating the structure.

"There are items with levels of radiation everywhere," he said thoughtfully.

Though he retired from working at the plant in the early 1990s, he still recalls working at the plant's second reactor.

The energy center, about 116 miles south of Albany, was named the most susceptible in the nation to earthquakes, according to the US Nuclear Regulatory Commission, which studied 104 nuclear reactors in the country and found that most had a 1 in 74,176 chance that the core could be damaged during a large tremor while the New York nuclear power plant's third reactor near the Hudson River has a 1 in 10,000 chance. This is partially due to being near a fault.

The reactor that Basile worked with at the plant was rated a bit safer with a 1 in 30,303 chance.

Basile, who was just re-elected to the village board of trustees, said he felt a few earthquakes when he worked there in the 1980s.

"We occasionally had them," he said about the quakes. He recollected one particular time that he felt one at his home at the time, five miles away from the plant. He then called his colleagues and they had not felt it at all. "The plant is constructed on bedrock. It's solid. If there was a major incident in the area, that's where I would want to be. It is extremely safe."

The plant, he explained, has three reactors but the first one was put out of service in the 1970s. The reactors are embedded in the cliffs of the Hudson River, above the river level and the electric system is situated up on the bluff. It is tornado proof, equipped with a post-accident safety system, and has leak detection.

During his tenure in the 1980s and 1990s, he said additional safety systems continued to be installed. By the 1990s, the reactor had an average of one automatic shutdown a year which, he said, was a huge improvement from when he started. No major incidents occurred during his employment with Indian Point. Continued...

"I always felt safe there," said Basile, who is still physically-active, in his 70s, and now works in real estate. "There is significant engineering work at these plants."

Most of the energy produced at Indian Point goes to New York City.

"I'm very concerned with what happened in Japan but nuclear energy is very viable. For example, it takes a 6,000 megawatt wind farm to match the 2,000 megawatts continuously produced at Indian Point," he said.

Like the Three Mile Island disaster, said Basile, who helped investigate the 1979 incident, it will take years to know everything that occurred at the Japanese plant following the tsunami and earthquake.

For Clinton Ballinger, CEO at Evident Technologies in Troy, he is looking at the Japanese disaster from the point of view of someone with a physics and nuclear engineering background.

"It's impossible," he said about people's fears that the reactor will go critical and melt through the Earth. "From a physics perspective, it is impossible."

Ballinger worked at a plant in Missouri and with Knolls Atomic Power Laboratory. He was also an adjunct nuclear engineering professor at Rensselaer Polytechnic Institute.

"People are comparing this with Chernobyl, in 1986, but it's completely different. This is still contained," he said noting that all plants are equipped with a myriad of safety features that shut reactors down immediately if there is trouble.

From his analysis of the information, the plant's safety system worked following the earthquake but problems occurred when the tsunami hit.

"A 30 foot wall of water tends to wash everything out," he said.

The investigation at Fukushima Daiichi nuclear plant is ongoing, officials said.

Danielle Sanzone may be reached at 270-1292, @DanielleSanzone on Twitter, or by email at dsanzone@troyrecord.com.

Quake Shakes Debate On Indian Point Safety (WESTJN)

By Greg Clary

Westchester Journal News, March 21, 2011

The debate over Indian Point's vulnerability to a Japan-like earthquake rests -- literally -- on the Ramapo Fault.

With calls for the plant's immediate closure and charges that regulators haven't done enough to protect the 18 million people who live within 50 miles of its two atomic reactors, the local mood is at best wary, at worst panicked.

"In our densely populated region, families deserve to be assured that the Indian Point nuclear facility could withstand a potential natural disaster or terrorist event," said Rep. Nita Lowey, D-Harrison.

Lowey outlined her concerns in a recent letter to Nuclear Regulatory Commission Chairman Gregory Jaczko.

"The tragedy in Japan only underscores the need for adequate preparation to prevent a catastrophe from occurring, and to respond quickly if one occurs."

Jaczko has assured federal lawmakers that the nation's 104 nuclear reactors are designed to withstand an attack by nature or terrorists.

He pointed to the increased security at all of the plants after 9/11, as well as to buildings that were constructed to withstand any earthquakes a particular location had experienced.

"US nuclear power plants are built to withstand environmental hazards, including earthquakes and tsunamis," Jaczko said. "Even those plants located outside of areas with extensive seismic activity are designed for safety in the event of such a natural disaster."

Lowey and other public officials have seized on the Ramapo Fault as a key reason for greater concern.

The fault is actually a geological braid of fault lines running from the area of Clinton, N.J., to a mile or so west of the Buchanan nuclear plant, where it intersects with a second line that recent discoverers say runs between Stamford, Conn., and Peekskill.

The intersection has created a lot of headlines after a giant 9.0 quake and tsunami battered coastal Japan 170 miles northeast of Tokyo.

Partial nuclear meltdowns and fires at some of Fukushima's six damaged reactors spewed radioactive particles into the atmosphere that have already reached California.

But the US Geological Survey – one of the nation's foremost research labs – said geologic evidence about the Ramapo Fault is "insufficient to demonstrate the existence of tectonic faulting or... slip or deformation."

It didn't even include the fault in calculations of earthquake hazards in 2008.

Geology professor Alec Gates put it more succinctly: "The Ramapo Fault is dead," said Gates, chairman of Earth and environmental sciences at Rutgers University. "It was a big fault in the old days, but not anymore."

And despite the discovery by Lamont-Doherty Earth Observatory geologists of activity on the line between Peekskill and Stamford in 2008, the USGS hasn't even evaluated that area for inclusion in the agency's database.

Lamont researchers found 15 earthquakes less than magnitude 3.0 on that line over three and a half decades.

To put it in perspective, the quake in Japan was thousands of times more powerful than a 3.0 temblor.

What differentiates this region from more earthquake-prone areas, experts say, is that it lies in the middle of the North American Plate, a tectonic slab that encompasses North America to the Pacific Ocean, including Greenland, Cuba, the Bahamas, and parts of Siberia and Iceland.

"It's not a plate boundary; that's the primary reason you don't have activity and that it's hard to predict activity," said Paul Olsen, a professor of Earth and Environmental Sciences at Columbia University and a member of the National Academy of Sciences. "The formation of the Ramapo Fault was at least 300 million years ago. Most of the earthquakes around here have nothing to do with it."

Earthquake activity is greatest when boundaries of plate grind up against each other, pushing until one slips and the resulting movement accelerates out from the point until its energy dies out.

Earthquakes in the New York City metropolitan region don't rise very high on the Richter scale; the worst was a magnitude 5.2 event in 1884 that started in Far Rockaway, N.Y., and toppled chimneys in Suffern. The bigger ones are not that frequent.

Lamont-Doherty experts say the public should expect a magnitude 6.0 earthquake every 670 years, a 7.0 event every 3,400 years.

The NRC's estimates for Indian Point, based on ground acceleration of earthquake energy, estimates there is a 1 in 1,000 chance that the reactors couldn't be shut down safely after an earthquake in this region.

They say, also, that there is no chance for a follow-up tsunami, a forecast other geologists support.

The greatest probability for high water is storm surge from a hurricane or other strong weather pattern that would hit 20 feet above sea level.

Indian Point officials say their backup generators and other systems are built to withstand that projection.

"The basic idea is that the entire state of stress is not oriented well for a bad earthquake on the Ramapo Fault," Olsen said. "The problem we have with the East is that we have no predictive capacity at all, even where earthquakes are likely to occur. At San Andreas, you know more; Japan, the same thing."

Despite that lack of specific knowledge, the NRC and the plant builders looked at geological surveys when the reactors were designed and built on bedrock more than 40 years ago and say they put in safety margins that were conservative.

"We took the history and built to envelop it," said John Cagnetta, 79, a nuclear engineer at Indian Point 1 in 1957. "That meant more reinforcement in the concrete, more flexibility in the materials, more bracing and thicker pipes. You didn't want a single failure of something to put the plant in jeopardy."

Cagnetta, now retired and splitting time between Florida and Hartford, Conn., never had a concern about raising his family in Brooklyn, well within reach of any radiation release from a plant 30 miles north of the Bronx line.

"I never felt uncomfortable," he said. "My sense was that if there was an earthquake, the safest place to be was the nuclear plant. We looked at a hurricane creating a 30-foot wave on Long Island Sound and hitting (the Millstone nuclear plant) at 200 miles an hour. Nothing would have been standing but the plant."

Debate About Safety Of Indian Point Nuclear Power Plant Increases In Wake Of Tsunami In Japan, Report Of 'Near Miss' Incidents (CBSNY)

Skepticism Grows About Safety Of Indian Point Nuclear Power Plant

By Marla Diamond with Richard Brodsky, CBS New York

newyork.cbslocal.com, March 21, 2011

BUCHANAN, NY (WCBS 880) – With the earthquake and resulting tsunami in Japan leaving nuclear reactors there on the verge of meltdown, those who live around them in our area are on edge.

A new report shows federal inspectors logged several "near miss" accidents at the Indian Point nuclear power plant in Buchanan in 2010.

Former Westchester County Assemblyman Richard Brodsky calls the findings troubling. Brodsky questioned whether the Nuclear Regulatory Commission, charged with ensuring the safety of nuclear facilities, was up to the job.

"The NRC is to nuclear power today what the SEC was to Wall Street three years ago," says Brodsky.

New York state Attorney General Eric Schneiderman sent a letter to the Nuclear Regulatory Commission saying that earthquake resistance should be taken into account when granting new licenses that would keep the plants working well into 2030.

Indian Point 2 is licensed through 2013 and Indian Point 3 through 2015. A commission spokesperson said the NRC would review the request and get back to the attorney general.

WCBS 880's Maria Diamond also gets comments from Attorney General Eric Schneiderman

Richard Sheirer, who headed the New York City Office of Emergency Management during 9/11, insists the plant is safe. Sheirer is a safety consultant for the plant. [View This Poll](#)

[online survey](#)

"I'm very confident. I think they do an exceptional job," says Sheirer.

Gov. Andrew Cuomo has called for a review of the situation.

In New Jersey, Gov. Chris Christie and Sen. Robert Menendez have both raised concerns about nuclear facilities there.

New York City Mayor Michael Bloomberg is making it crystal clear that he does not believe that Indian Point should be shut down at this point.

Mayor Bloomberg discusses Indian Point

"We need energy in this city, and the first thing we have to do is take a very close look at what happened in Japan and see if there's any lessons that we should learn from that and any improvements that we should learn and make at Indian Point," said Bloomberg.

Long term, Bloomberg says more energy is needed from different sources, including wind, solar -- even reclaiming power from garbage. Short term, Bloomberg said, Indian Point is necessary. Sheirer agreed: the benefits of the plant outweigh the risks.

Some Rockland County residents don't share that view.

WCBS 880's Peter Haskell in Stony Point

Resident Jessie Razarian told WCBS 880 's Peter Haskell she wouldn't stand a chance in the event disaster struck the plant -- and any evacuation attempt would be pointless. "Instead of sitting in traffic, I'd rather sit with my family, listen to music, watch movies, and enjoy the rest [of] what [time] we have."

In response to comments offered by New York Attorney General Eric Schneiderman regarding Indian Point, John Durso, Jr., Executive Director for the New York Affordable Reliable Electricity Alliance (New York AREA) issued the following statement:

"For more than 30 years, independent experts have studied seismic related issues about Indian Point and continually found the facility to be safe. In 2008 a panel of highly renowned, independent experts evaluated 64 safety issues at Indian Point, including seismic design, and also determined the plant is very safe.

There are also fundamental differences between Indian Point and the Fukushima plants. Indian Point is on a river, 24 miles from the coast, while Fukushima is on an ocean. Tsunamis are known to occur in Japan; there is no record of them in New York State, especially so well inland. Important lessons will be learned from Fukushima and there will be even higher safety standards and practices at US nuclear plants.

We urge all policy makers as well as the nuclear power industry to pay attention to these findings so that nuclear power in New York and the United States will continue to provide clean, reliable and safe energy in the future."

What do you think? Should Indian Point be shut down, or is it safe? Sound off in our comments section.

Fukushima, Indian Point And Fantasy (NYT)

Our towns

By Peter Applebome

[New York Times](#), March 19, 2011

There's no magic number, of course. Is it perilous at 10 miles away, but not 11? Is there an evacuation zone that would be a one-size-fits-all plan for any nuclear disaster? You don't need a physics degree to answer those questions.

But we do know that American officials have told citizens of the United States to stay at least 50 miles away from the Fukushima Daiichi Nuclear Power Station in Japan as the nuclear crisis continues.

In the case of a comparable disaster here, this is what a 50-mile circle around the Indian Point nuclear plant on the Hudson River in Westchester County would look like: past Kingston in Ulster County to the north; past Bayonne and Elizabeth, N.J., to the south; almost to New Haven in the east; and into Pennsylvania to the west. It includes almost all of New York City except for Staten Island; almost all of Nassau County and much of Suffolk; all of Bergen County, N.J.; all of Fairfield, Conn.

Try evacuating that on short – or long – notice.

“Many scholars have already argued that any evacuation plans shouldn’t be called plans, but rather ‘fantasy documents,’ ” Daniel P. Aldrich, a professor of political science at Purdue University and the author of “Site Fights: Divisive Facilities and Civil Society in Japan and the West,” said in an e-mail. They are often bureaucratic documents meant to meet policy requirements, not to work in the real world, he added.

FANTASY or not, the nuclear accident in Japan is putting renewed attention on exactly how to protect or evacuate the population around Indian Point, 35 miles from Midtown Manhattan in the most populous part of the country, with population of almost 20 million people in the metropolitan region. And in the end, the future of Indian Point, which is facing renewed calls that it be shut down, is not a referendum on nuclear power. It’s a question of whether this nuclear plant at this site makes sense.

Of course, there’s no universal standard for evacuations, and no simple template for people’s personal comfort zones. France gets 80 percent of its electricity from nuclear power, and the disaster in Japan does not seem to have created a huge backlash against nuclear power there. But it has renewed questions about Indian Point’s safety — whether from an earthquake, a terrorist attack, another natural disaster like a hurricane and resulting storm surges, or something as unanticipated as the hijacked plane that flew over it on Sept. 11, 2001.

Indian Point’s evacuation plans focus on a 10-mile ring populated by about 300,000 people. Twenty miles out, roughly the area of highest concern identified by Japanese authorities, includes almost a million people. A 50-mile evacuation plan does not exist and is hard to imagine.

The most in-depth analysis of the evacuation planning for Indian Point was a 256-page report commissioned by Gov. George E. Pataki and completed in 2003 by a firm headed by James Lee Witt, former director of the Federal Emergency Management Agency.

It concluded that the plans were drafted to comply with regulations rather than to create an effective strategy to protect the population, and that they assumed people would comply with government directives rather than do what seemed to be in their own best interests.

Citing these and other concerns, the report said: “It is our conclusion that current radiological response system and capabilities are not adequate to overcome their combined weight and protect the people from an unacceptable dose of radiation in the event of a release from Indian Point.”

Jim Steets, a spokesman for Indian Point, said evacuation and emergency preparedness planning was being constantly refined and that the nuclear industry expected to adapt and to learn lessons from the disaster in Japan. “You have a nuclear industry that prides itself on learning lessons,” he said.

Both Entergy, which owns Indian Point, and Steven Chu, the federal secretary of energy, have announced reviews of the plant in response to the disaster in Japan.

But asked repeatedly whether the government’s 50-mile zone could possibly be observed in the event of a comparable event here, Mr. Steets declined to answer. “I don’t think you can automatically say you would have the same situation or you could extrapolate from one situation to the other,” he said.

No operating American plant has ever been shut down because of the lack of an acceptable evacuation plan. But you don’t have to look far to find how critical the issue can be: The Shoreham nuclear plant on Long Island was completed and then shut down without producing any commercial electric power after representatives of Mario M. Cuomo, then the governor of New York, declined to certify its evacuation plan. Last week, another Governor Cuomo called Indian Point too big a risk to remain open.

The Manhattan Meltdown Scenario (NSWK)

Antinuclear activist Helen Caldicott on how New York’s nightmare would unfold.

By Helen Caldicott

Newsweek, March 21, 2011

The two operating nuclear reactors known as Indian Point are situated in Buchanan, N.Y.—just 35 miles from midtown Manhattan. More than 17 million people live within 50 miles of these plants.

How might a meltdown start? An earthquake, obviously, is among the scenarios. Others include various forms of terrorist attacks. Regardless of the trigger, a meltdown would follow several specific stages.

First, as cooling water dissipated from the reactor core, intensely hot radioactive pellets in the fuel rods would overheat and swell, and their zirconium cladding would oxidize and rupture. Then the pellets themselves would begin to melt. (Many details described here reflect a study of Indian Point by Edwin S. Lyman.)

If the molten fuel core were to hit the bottom of the reactor vessel, it would trigger massive steam explosions that could blow the reactor vessel apart. The eventual distribution of radioactive elements would depend on several factors, including the weather.

Both the Nuclear Regulatory Commission and the Environmental Protection Agency require an evacuation plan for a 10-mile radius of the reactor: an off-site alarm set to go off 30 minutes after an event began would allow time for the operators to determine the extent of the damage. That would leave 78 minutes from the alarm's sounding to the beginning of the radioactive release.

Early fatalities from acute radiation sickness for those within the 10-mile evacuation zone would range from 2,440 to 11,500. Late cancer deaths, which would occur two to 60 years later, could range from 28,100 to a staggering 518,000 people in the 50-mile zone.

Fatalities could be reduced within the 10-mile zone if people were to shelter indoors during the acute phases of the radioactive fallout. (Evacuation tends to increase doses received, because people would be in non-airtight vehicles or on foot.) Also, if everyone were to take inert potassium iodide tablets immediately, peak doses to their thyroids of radioactive iodine could be cut by 30 percent.

Imagine the scene: more than 300,000 people are running and driving away from the stricken reactor along winding Westchester roads, trying to reach their children, their spouses, and their mates. Then they begin to taste a strange, metallic flavor in their mouths. The radio blasts out dire warnings, yet nobody knows what they are doing and nobody is in control.

The economic consequences of a meltdown would be stupendous. New York could be rendered virtually uninhabitable, with \$1 trillion or more in costs from attempts at decontamination, the condemnation of radioactive property, and compensatory payments to people forced to relocate temporarily or permanently. Add to that the extraordinary economic consequences if the world's financial capital were closed forever.

Caldicott, who was trained as a pediatrician, is cofounder of Physicians for Social Responsibility. Adapted from *Nuclear Power Is Not the Answer* copyright 2006 by Helen Caldicott. Reprinted by permission of the New Press.

Bigger Fish To Fry Regarding Indian Point (WESTJN)

Westchester (NY) Journal News, March 21, 2011

It's amazing how much difference a week can make.

About that long ago, the biggest question mark for Entergy, owner of the Indian Point nuclear plants, concerned the fate of Hudson River fish.

The fish, along with other aquatic life, suffer great harm from the plants, which use vast amounts of river water for cooling. Along with the water, the fish and larvae get sucked into the plants; they do not re-emerge alive. Other life is harmed when the super-heated water is returned to the Hudson.

State environmental officials looking to mitigate those harms have been pressing Entergy, as a condition of state permits, to build cooling towers, at a cost of some \$1.5 billion; Entergy has been lobbying for a much cheaper solution, something called "wedge-wire screens" – and scaring its neighbors with mockups of what Yankee Stadium-sized cooling towers would look like.

Now, of course, there is a superseding fright. The inquiries ahead

After an earthquake and tsunami left a complex of nuclear power plants in ruin in Japan, the focus in the Lower Hudson Valley has shifted from fish and larvae to the fate of all living things – that is, all life within 50 miles of Indian Point. MSNBC reported last week that the plants in Buchanan top a list of US nuclear facilities considered most susceptible – however slight the possibility – to suffer nuclear core damage from an earthquake. Fifty miles is the distance US officials told Americans in Japan to stay away from the stricken plants there. But the officials might as well have been talking to us, nerves have frayed that much.

Gov. Cuomo, who has long lobbied to close the plants, ordered an immediate review of the plants, in light of the unfolding catastrophe in Japan and MSNBC's report. Both Nuclear Regulatory Commission Chairman Gregory Jaczko and his boss, President Barack Obama, called for more study of the crisis in Japan, with an eye toward improving nuclear plants in the US. And not waiting for further inquiry, Assemblywoman Ellen Jaffee, D-Suffern, promised to introduce a resolution this month opposing federal relicensing of Indian Point, whose owner is looking to renew federal licenses that expire in 2013 and 2015, respectively. Jaffee points to long-running concern about emergency evacuation plans for areas surrounding Indian Point – plans that have long been criticized as unworkable. She said the Japan disaster only "intensify fears that a similar failure at Indian Point" could result in catastrophic loss of life.

"There is widespread consensus that the evacuation plan for the 300,000 people in Indian Point's Emergency Planning Zone is unworkable," Jaffee wrote to her Assembly colleagues on Tuesday. "... An additional 20 million persons live within 50 miles of the plant. A failure at Indian Point could devastate New York City. Given the distance radioactive releases can travel, a release from Indian Point could precipitate a public health crisis of historic proportion. Provision of energy to our region is essential; however when weighed against loss of life and property, energy becomes insignificant. Our region can and must seek other energy sources." Other energy sources

Of course, that latter point -- the need to replace energy lost by a mothballed Indian Point -- has never been adequately addressed in New York, notwithstanding a parade of elected officials who, through the years, have called for closing the plants. They produce an estimated 25 percent of the electricity used in New York City and Westchester and 12 percent of the power generated statewide. "We all see gas prices going through the roof," Sen. Chuck Schumer, D-N.Y., said last week. "So we have to be really mindful of the fact we should look at every domestic source of energy so we are no longer dependent on foreign oil from places like Libya or Iran or Venezuela."

Sen. Kirsten Gillibrand, D-N.Y., said she supports building new nuclear plants in New York communities where there is local support for such facilities. "There's lots of places in the state that would certainly welcome a nuclear facility," she said. Unemployment rates in some upstate communities still exceed 9 percent. Rep. Nan Hayworth, R-Mount Kisco, said it "would be a challenge" to evacuate 15 million in the event of an emergency at Indian Point. The odds of that being necessary, she said in an Associated Press report, were "exceedingly remote." She described herself as "a supporter of the continued operation of Indian Point."

More answers and questions come this week. The five-member Nuclear Regulatory Commission meets in public on Monday to discuss the crisis in Japan; the members doubtless will also discuss Indian Point and the comprehensive review of US facilities that President Obama ordered. Also Monday, a Westchester County Board of Legislators committee takes up disaster preparedness. Entergy officials, now an earthquake, tsunami and nuclear crisis removed from their woes over Hudson River fish, were invited to attend the meeting in White Plains. According to a statement out Wednesday, the plants are in the midst of a "comprehensive review" of their ability to respond to "catastrophic events." The statement said Indian Point is designed to withstand an earthquake "greater in size than the area has ever experienced." The question now is whether that is good enough.

A Journal News editorial

Schneiderman Pushes NRC On Indian Point (Updated) (ATU)

Capitol Confidential

By Liz Benjamin

[Albany Times Union](#) \af39\dbch\af31505\loch, March 21, 2011

AG Eric Schneiderman is pressuring the Nuclear Regulatory Commission to consider seismic risk in relation to the relicensing of Indian Point, an argument the state has heretofore been unsuccessful in making while seeking to prevent the nuclear plant from getting permission to remain open for another 20 years. In a letter to the NRC commissioners, Schneiderman argues that the unfolding nuclear crisis in Japan, coupled with a new report that ranked Indian Point's Reactor No. 3 as at the highest risk of quake damage in the US, merits consideration.

"As the NRC has acknowledged, Indian Point Unit 1, which was authorized in 1956, was built prior to any specific requirement for earthquake protection," the attorney general wrote. "Although the NRC revoked the operating license for the Indian Point Unit 1 power reactor in 1980, many of Unit 1's systems, structures, and components were conjoined to Unit 2 and Unit 3 and are still in use today."

"These aging Unit 1 systems, structures, and components were built to inferior seismic specifications, and Unit 2 and Unit 3's continued reliance on these systems today poses significant safety questions." "The NRC has consistently blocked consideration of New York's seismic concerns, as well as related concerns about population, emergency evacuation, fire safety, and site security."

Indian Point's operator, Entergy Corporation, has applied for its two reactors to be allowed to continue operating for another two decades past 2013 and 2015 when their 40-year licenses expire. Entergy insists Indian Point's reactors can easily withstand the sort of low-magnitude quakes that occur in the Northeast, which are nothing compared to the 8.9 monster that ravaged Northern Japan, causing a massive tsunami.

Yesterday, the Obama administration ordered a safety review of all the nation's nuclear power plants. Earlier this week, Gov. Andrew Cuomo, who has long maintained that Indian Point should be closed and began the process to block its relicensing when he was AG, expressed renewed concern about the facility and ordered a complete safety review. Cuomo said the proximity

of the plant to NYC – just 24 miles to the north in Westchester County — makes it too risky to keep open. But Mayor Bloomberg said yesterday that he supports the plant's continued operation, noting it generates up to 30 percent of the city's energy.

"Short term, we have to have power if we are going to grow, and Indian Point at the moment is a big part of that," Bloomberg said. "All of these other alternatives are a number of years down the road."

The full text of Schneiderman's letter appears after the jump.

UPDATE: John Durso Jr., executive director of a business/labor/community group called the New York Affordable Reliable Electricity Alliance (NY AREA) released a pro-Indian Point statement that appears just before the AG's letter. "For more than 30 years, independent experts have studied seismic related issues about Indian Point and continually found the facility to be safe," Durso said.

"In 2008 a panel of highly renowned, independent experts evaluated 64 safety issues at Indian Point, including seismic design, and also determined the plant is very safe." "There are also fundamental differences between Indian Point and the Fukushima plants. Indian Point is on a river, 24 miles from the coast, while Fukushima is on an ocean. Tsunamis are known to occur in Japan; there is no record of them in New York State, especially so well inland."

Important lessons will be learned from Fukushima and there will be even higher safety standards and practices at US nuclear plants. We urge all policy makers as well as the nuclear power industry to pay attention to these findings so that nuclear power in New York and the United States will continue to provide clean, reliable and safe energy in the future."

March 18, 2011

Chairman Gregory B. Jaczko

Commissioner Kristine L. Svinicki

Commissioner George Apostolakis

Commissioner William D. Magwood, IV

Commissioner William C. Ostendorff

US Nuclear Regulatory Commission Washington, D.C. 20555

Via electronic and US Mail

Re: Seismic Risk at Indian Point Nuclear Generating Station

Dear Chairman Jaczko and Commissioners Svinicki, Apostolakis, Magwood, and Ostendorff:

I am writing you as a nuclear crisis, initiated by the March 11 earthquake and subsequent tsunami in Northern Japan, is still unfolding. In addition to its potentially devastating impact on the people of Japan, this crisis serves as a graphic demonstration that nuclear power facilities in the US may be vulnerable to seismic activity and experience catastrophic failures that compromise their ability to control and cool multiple nuclear reactors.

Data from your staff analysis (GS-199), which demonstrates an increased risk of seismic activity at some nuclear power plants in the country add to my concern. These factors underscore the importance of a fair, open, and full assessment of seismic risks in the relicensing of Indian Point. New York State has raised concerns about seismic risk and other issues in relation to the relicensing of Indian Point with your staff on numerous occasions.

At each turn, however, the NRC has refused to consider these critical issues in the relicensing review process.

As you know, the Indian Point nuclear power station in Buchanan, New York sits 24 miles from New York City. Of all the power reactors in the United States, the two operating Indian Point reactors have the highest surrounding population both within a 50-mile radius and a 10-mile radius. Seventeen million people live within 50 miles of these reactors. Indian Point Units 2 and 3, which initially came on line in 1973 and 1975, are currently the subject of an adjudicatory proceeding to extend their license by another 20 years (Unit 1 ceased generating in the 1970s). As the NRC has acknowledged, Indian Point Unit 1, which was authorized in 1956, was built prior to any specific requirement for earthquake protection.

Although the NRC revoked the operating license for the Indian Point Unit 1 power reactor in 1980, many of Unit 1's system, structures, and components were conjoined to Unit 2 and Unit 3 and are still in use today. These aging Unit 1 systems, structures, and components were built to inferior seismic specifications, and Unit 2 and Unit 3's continued reliance on these systems today poses significant safety questions. The NRC has consistently blocked consideration of New York's seismic concerns, as well as related concerns about population, emergency evacuation, fire safety, and site security.

In November of 2007, the Attorneys General of New York, Connecticut, Delaware, Illinois, Kentucky, and Vermont submitted a letter to the NRC which expressed the states' serious concerns about the NRC's failure to confront issues such as local seismic activity when deciding whether to renew the operating license of a nuclear power plant beyond its initial forty-year term. The states requested that the NRC expand relicensing criteria to include seismic analysis. On December 30, 2007, the NRC rejected this request.

The NRC also disregarded New York's "scoping" comments in 2007, which noted that the Indian Point operator's Environmental Report and Updated Final Safety Analysis Reports do not reflect seismic information developed after the early 1980s, and which asked the NRC to require the owner to revise those outdated documents. The NRC subsequently issued a Draft Environmental Impact Statement (DSEIS) based on this out-of-date information.

The DSEIS failed to mention new information regarding seismic activity developed recently by the United States Geological Survey (USGS) that included the area around Indian Point or to account for the findings of Columbia's Lamont-Doherty Earth Observatory 2008 study. In fact, the NRC has not revised any of its Indian Point-related environmental analyses to take into account findings from this important independent study. Perhaps most egregious is the NRC Staff's issuance of the Final Supplemental Environmental Impact Statement (FSEIS) for Indian Point, which it issued three months after Staff issued the GS-199 analysis on seismic activity.

The FSEIS did not make any reference to the NRC's own findings of increased seismic risk at Indian Point. In November of 2007, the state submitted two contentions in the license renewal proceeding arguing that the applicant's "Updated" Safety Evaluation Report and Environmental Report insufficiently analyzed alternatives for mitigation of severe accidents like earthquakes in that it: (1) failed to include recent information regarding the type, frequency, and severity of potential earthquakes and; (2) failed to include an analysis of mitigation measures which could reduce the effects of an earthquake damaging the parts of inactive Indian Point Unit 1 which are currently in use at Units 2 and 3.

The NRC Staff opposed acceptance of these contentions, and the Atomic Safety and Licensing Board excluded them from consideration in the adjudicatory proceeding because, it said, the state did not suggest feasible alternatives to address risks posed by the new data, or estimate the cost of the increased margin of safety that would result from any severe accident mitigation action.

This burden is clearly not the public's to bear and these contentions were excluded in error. Earlier this week, in testimony before the Senate Committee on Environment and Public Works, Chairman Jaczko stated the NRC's intention to conduct a review of the earthquake-related risks faced by nuclear power facilities operating in the central and eastern US. He stated that this review would take one to two years to complete, followed by a similar period of time to consider and implement mitigation measures. Indian Point Units 2 and 3 are currently the subject of a proceeding to extend their licenses by another 20 years – proceeding in which the NRC has consistently ignored serious consideration of the risks that earthquakes and related issues pose to the Indian Point facility. NRC should not contemplate relicensing Indian Point without first completing an open and public review of earthquake-related risks faced by this facility.

For this reason, the NRC must undertake an immediate, full, fair, and open assessment of all public health and safety risks that earthquakes pose to this facility, and provide the public an opportunity to fully review and comment on all phases of this review.

In addition, the NRC must take the following actions: Promulgate an amendment to Part 54 and any other relevant regulations, which exclude seismicity analysis from the scope of safety review in relicensing proceedings, to specifically require the preparation of a public site-specific seismic analysis for the Indian Point and other reactors; Open up the GS-199 seismic analysis proceeding for meaningful participation by states and the public so that all assumptions can be identified and tested and ensure that all information used in this proceeding is made available in the public record; Address the risk posed by the Indian Point Unit 1 facilities, which share many common components and systems with the other Indian Point units, in a complete and transparent way; Incorporate USGS findings and Columbia Lamont-Doherty's findings into the Indian Point FSEIS for license renewal and re-issue the document for additional public review and comment; Make public immediately the Commission's plans, in their entirety, for addressing seismic risk at all three Indian Point plants; and Maximize public involvement in the Commission's and the NRC Staff's actions regarding seismic risk at Indian Point. Whether or not one supports the re-licensing of Indian Point Units 2 and 3, we can all agree that we must protect the health, safety, and environment of the nearly 20 million people living in close proximity to the facility.

Only through a full, fair, and open assessment of the earthquake and related security risks surrounding this uniquely-situated plant – one that precedes any consideration of approving an extension of the Indian Point facility for another 20 years – can we provide these fundamental protections. I thank you for your attention this request, and please do not hesitate to contact me at any time if I can provide additional information or you would like discuss this matter in greater detail.

Sincerely,
Eric T. Schneiderman
Attorney General

NRC Spokesperson: We Don't Rank Plants By Seismic Risk (MalvernPatch)

By David Powell

Malvern (PA) Patch.com, March 21, 2011

The Nuclear Regulatory Commission's Neil Sheehan wrote a clarification regarding yesterday's article about the earthquake risk to Exelon Nuclear's Limerick Generating Station.

[Updated: See below for Bill Dedman's response to the NRC letter.]

The assertions made in an msnbc.com article published March 16, which Patch linked to soon after, have been challenged by a Nuclear Regulatory Commission spokesman.

In the article, investigative reporter Bill Dedman wrote that, "the US Nuclear Regulatory Commission has calculated the odds of an earthquake causing catastrophic failure to a nuclear plant here."

Below is the letter the NRC issued in reply:

Regarding: "NRC: Risk of quake event at Limerick plant third highest in US"

The MSNBC [msnbc.com] story has to do with a seismic risk ranking it created. It is not the result of an NRC review. The NRC does not rank plants by seismic risk.

The objective of the NRC study was to perform a conservative, screening-level assessment of earthquake risk. The NRC results to date should not be interpreted as definitive estimates of seismic risk. The nature of the information used to make these estimates are useful only as a screening tool.

Currently operating nuclear power plants in the US remain safe, with no need for immediate action. This determination is based on NRC staff reviews of updated seismic hazard information and the conclusions of the screening panel. Existing plans were designed with considerable margin to be able to withstand the ground motions from the largest earthquake expected in the area around the plant.

Neil Sheehan, NRC Public Affairs

UPDATE: Bill Dedman of msnbc.com responded to the NRC statement in a comment at West Chester Patch:

Our story made clear that the NRC does not rank the nuclear plants. But it does publish its estimates for each plant, by which we ranked the plants.

If the newspaper starts publishing the American League East standings in alphabetical order, it's entirely appropriate for the reader to put the teams in order by winning percentage.

Don't be misled. NRC hasn't said our numbers are wrong. I checked my interpretation with Scott Burnell in Public Affairs, who checked with the NRC technical staff before publication. No challenge from NRC has arrived after publication.

After all, they're NRC's numbers.

What NRC is saying is that it doesn't do rankings. That's right. We did, from NRC's data. Just as the story says.

You can see for yourself in the NRC report that:

- NRC says the risk of quakes in the central and eastern states is higher than previously thought.
- It still thinks plants are safe.
- but their margin of safety is reduced.
- and some plants are now near the point where they should be re-examined, and perhaps retrofitted.
- and the staff says this should now move from being a research issue to a regulatory issue.
- and it has made its best estimates of the frequency (chance, odds) of an earthquake that would cause core damage to a plant.

A link to the report is on our report: http://www.msnbc.msn.com/id/42103936/ns/world_news-asiapacific/

Bill Dedman, msnbc.com

NRC Disavows MSNBC Study Showing Callaway Nuclear Plant Earthquake Risk (FULTON)

By Don Norfleet

Fulton Sun, March 21, 2011

An msnbc.com study showing the Callaway Nuclear Power Plant faces the least risk from damage from an earthquake of all 104 US nuclear plants has been disavowed by the US, Nuclear Regulatory Commission (NRC).

Lara Uselding, a NRC spokeswoman, said the NRC does not rank plants based on risk of damage from an earthquake.

Uselding said MSNBC reached its own conclusions in its rankings and the NRC did not approve the rankings.

"It was an incomplete report on the overall research that had been done by the NRC. Somebody at MSNBC took numbers and threw them together to create the rankings. We have said that is not accurate because the NRC does not rank plants by seismic risk," Uselding said.

She said the NRC did do a study on earthquakes in 2008 to update a previous 1982 study of recent seismic activity but the NRC did not rank each plant for seismic risk.

"We did a generic issue 199 safety risk assessment. The objective of that was to perform a conservative screening level assessment to evaluate further investigations of seismic activity of Central and Eastern United States," Uselding said.

"We continue to say, even after what has been going on in Japan that all operating nuclear plants in the United States remain safe and there is no need for any immediate action and that of course includes the Callaway Nuclear Power Plant. All nuclear plants in the United States are built to withstand the most severe natural threats recorded for that area. Even plants that are not in areas of heavy seismic activity are designed for safety in the event of a seismic disaster. Then we add a margin of error on top of that to make sure the plant is safe," Uselding said.

Uselding said nuclear plants are not engineered based on earthquake Richter Scale probabilities. "It's actually based on probable and previous ground motion and shaking. Plants are planned with safety related systems and reactor analysis," Uselding said.

Mike Cleary, an Ameren Missouri spokesman, said he had heard about the MSNBC study and was excited to learn that the Callaway plant was ranked as the least likely to be damaged by an earthquake. But when he contacted the NRC about the study, he was told the study was not valid because the rankings were done by MSNBC, not the NRC.

Cleary said that does not affect the fact that the plant was built to be safe and still is safe. He noted the New Madrid fault is 200 miles away from the Callaway Nuclear Power Plant. He said the plant was built specifically not only to meet but also to exceed the likely earthquake activity for this area as well as tornadoes and other threats.

"The plant's safety design is not tied to the Richter Scale. The same magnitude of earthquake on the Richter Scale could have a totally different impact on the nuclear plant, depending upon the type of soil present at a particular area. It is based on the geology of the Callaway Nuclear Plant site itself when the specific standards were developed for this plant," Cleary said.

MSNBC reported it did the rankings based on information provided by the NRC.

The MSNBC study showed the odds of an earthquake damaging the nuclear reactor at the Callaway County nuclear plant are only one in 500,000 each year compared to the least safest plant with odds of one in 10,000 located near New York City.

The MSNBC study showed that nuclear plants that were near heavy seismic activity were built much stronger than plants that are not near earthquake areas of the nation.

Rick Eastman, supervisor of business operations at the Callaway Nuclear Power Plant, said the plant was built to meet worst case scenarios regarding seismic activity or tornadoes.

Bill Dedman, who wrote the msnbc.com report, issued the following statement:

"Our msnbc.com story made clear that the NRC does not rank the nuclear plants. But it does publish its estimates for each plant, by which we ranked the plants.

"If the newspaper starts publishing the American League East standings in alphabetical order, it's entirely appropriate for the reader to put the teams in order by winning percentage.

"Don't be misled by the NRC's non-denial denial. NRC hasn't said our numbers are wrong. I checked my interpretation with Scott Burnell in Public Affairs, who checked with the NRC technical staff before publication. No challenge from NRC has arrived after publication.

"After all, they're NRC's numbers.

"What NRC is saying is that it doesn't do rankings. That's right. We did, from NRC's data. Just as the story says.

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"– NRC says the risk of quakes in the central and eastern states is higher than previously thought.

"– It still thinks plants are safe.

"– but their margin of safety is reduced.

"– and some plants are now near the point where they should be re-examined, and perhaps retrofitted.

"– and the staff says this should now move from being a research issue to a regulatory issue.

"– and it has made its best estimates of the frequency (chance, odds) of an earthquake that would cause core damage to a plant.

"A link to the NRC report is on the msnbc.com report: http://www.msnbc.msn.com/id/42103936/ns/world_news-asiapacific/."

NRC: Seismic Refits Not Yet Needed (INTLBIZ)

International Business Times, March 18, 2011

The Nuclear regulatory Commission has no plans to retrofit existing nuclear power plants due to seismic hazards, despite an increase in measured seismic risk at some sites.

Joey Ledford, of the office of public affairs at the NRC, said nuclear reactors in the US are all designed to take into account historical earthquakes, as well as some additional margin. How much that is depends on the plant and the individual permits.

An NRC study from 2008 looked at the seismic hazards facing nuclear power stations, focusing on those in the central and eastern US. There are 104 power stations in the United States, and 99 of them are in the regions in the study.

Ledford said the study was largely a screening tool, to see which plants, if any, require further evaluation. The idea was to see which plants might be at higher risks than government agencies thought and if any remedial action was needed. The 2008 study was an update to one done in the 1980s, as the data on earthquake hazards from the US Geological survey has improved since then.

There are no plans for any immediate action, Ledford said, because the data doesn't warrant it. The study says that using the updated data, all of the nuclear plants have a 1 in 10,000 or less chance per year of damage to the reactor core from a seismic event. That doesn't mean the plants won't be studied at all - merely that there isn't any need for immediate retrofits.

According to the study, there are anywhere between two and three dozen power plants that should be looked at more closely. Some of that work involves getting better data for each individual site. Another will be checking the plants themselves, some of which have been modified since they were built.

An MSNBC.com story ranked the plants according to seismic risk, using data from the NRC. The NRC doesn't rank plants that way, and has distanced itself from the way MSNBC presented the data.

The earthquake that generated the tsunami which struck the Fukushima Daiichi reactor in Japan was magnitude 9.0. The tsunami disabled the cooling systems and leaving the reactors in danger of melting down. But such earthquakes are much less likely in the eastern half of the US, though the harder rock makes even small tremors felt in much wider areas.

Another issue for the Fukushima plant was the tsunami. Before the tsunami hit the plants had shut down exactly as they were designed to do with only minor damage. It was the tsunami flooding the generators and shutting down the cooling pumps that created the current crisis.

New York Governor Andrew Cuomo has stated that he wants to see the Indian Point Energy Center, a nuclear power station in Buchanan, N.Y., shut down because of the increase in seismic risk.

While earthquakes have happened in the state of New York, the USGS notes that the biggest quakes have all occurred in the St. Lawrence River valley, near Canada. A strong temblor occurred in 1884, on Long Island, which was felt in New York and the shaking was intense enough to cause minor damage buildings. The most powerful quake so far was in 1944, centered near Massena, N.Y., near the Canadian border. At magnitude 5.8, it was felt as far south as New York, but it was not intense enough for most people to notice.

Robert Alvarez, senior scholar at the Institute for Policy Studies and senior advisor to the Department of Energy under President Bill Clinton, says the problem with relying too much on historical data is that the intensity of an earthquake can sometimes exceed historical norms. "They didn't expect a quake that powerful in Japan," he said. "Nature has a way of doing that."

Nuclear plants, he said, are designed for a 7.5 magnitude earthquake. The most powerful earthquake in California was the 1906 tremor, at magnitude 7.7 to 7.9. Earthquakes in Missouri have hit 8.0, as in the New Madrid quake of 1811. There are two nuclear reactors in Arkansas and one in Calloway, Mo., in the zone near where that earthquake took place. (The MSNBC story listed the Calloway reactor with the lowest odds of being damaged by a seismic event, at one in 500,000).

Another issue is the power station design. Alvarez notes that the reactor isn't the big problem for plants like the ones in Fukushima. So-called boiling water reactors - there are 31 in the US of the same design - have a large, elevated pool of water above the reactor vessel. That's where the spent fuel is kept. The water is both a radiation shield and a coolant.

In an earthquake, Alvarez says, the container for the pool of water could be damaged. The water would drain out, and the heat from the spent nuclear fuel could reach dangerous levels. If the fuel gets too hot, the zirconium alloy of the casing could react with the air and steam, releasing hydrogen. That risks a fire or explosion.

The reactors at Indian Point are pressurized water reactors, which operate somewhat differently and do not have the elevated pools. Instead, the spent fuel is in a separate building, which eliminates the problem of trying to elevate millions of gallons of water. The pumps that drive the water over the spent fuel still need to keep functioning, however.

Blog: EDITORIAL: US NRC Confirms MSNBC.com Reporter Mislead, Sensationalized Nuclear Story (DAYTECH)

By Jason Mick

Daily Tech, March 19, 2011

On Wednesday MSNBC.com published a story, which claimed to analyze a report [PDF] sponsored by the US Nuclear Regulatory Commission. That story, written by MSNBC.com Investigative Reporter Bill Dedman discussed which commercial US nuclear plant was at "the most risk" of exposing the public to radiation.

We wrote a piece on Wednesday criticizing numerous factual inaccuracies in Mr. Dedman's piece. At the same time we contacted the US Nuclear Regulatory Commission (NRC). On Friday, after two lengthy phone interviews and an email dialogue with the NRC we had the complete story – the NRC backed nearly every one of our assertions.

All journalists make mistakes. But Mr. Dedman made nearly every one in the book in this report.

Sensationalism and factual errors – the report and Mr. Dedman's assertions demonstrate an appalling disregard for the facts and a blatant attempt to alarm the public.

But don't take our word for it, read the facts.

I. Reporter Refuses to Correct Factual Inaccuracies: Report DID NOT Assess Public Exposure

Mr. Dedman (MSNBC.com) writes:

It turns out that the US Nuclear Regulatory Commission has calculated the odds of an earthquake causing catastrophic failure to a nuclear plant here. Each year, at the typical nuclear reactor in the US, there's a 1 in 74,176 chance that the core could be damaged by an earthquake, exposing the public to radiation.

But the US Nuclear Regulatory Commission says they calculated no such risk.

The report itself states:

In contrast [to the seismic core damage frequency], the containment performance analyses conducted under the IPEEE program did not produce sufficient quantitative information to allow the estimation of either LERF or public dose.

That seems pretty clear – the report does not talk about the risk of public exposure to radiation, so we helpfully suggest to Mr. Dedman:

This seems to be a clear cut factual error that's misleading and disingenuous – be it intentionally or unintentionally so. It seriously discolours the estimates and makes them something they explicitly are said to NOT be by the NRC.

Mr. Dedman writes us back:

No, Jason, the article is about core damage, which the NRC says would release radiation. You've decided that I must have been talking about something else, which I wasn't, and now you're saying, why aren't about that something else...

That is a clear mistake – intentional, or unintentional.

Engaging in the due diligence that Mr. Dedman neglected to we discussed Mr. Dedman's comments and our analysis with government authorities at the US regulatory commission. They told me they never told him that.

Their spokesperson, Neil Sheehan writes us:

Seismic CDF is the probability of damage to the core resulting from a seismic initiating event. It does not imply either a meltdown or the loss of containment, which would be required for radiological release to occur. The likelihood of radiation release is far lower.

That was only the first of several falsehoods and factual errors in Mr. Dedman's correspondence and work that we were able to definitively verify.

States a separate NRC team member, "There were numerous inaccuracies in that story."

And this was but the first.

[MSNBC and its employee Mr. Dedman have not corrected this error in their story, despite knowing about it, at the time of this article's publication.]

II. Another Mistake - MSNBC.com Was Told to Use the "Weakest Link" Model

In Mr. Dedman's original piece he writes:

The chance of a core damage from a quake at Indian Point 3 is estimated at 1 in 10,000 each year. Under NRC guidelines, that's right on the verge of requiring "immediate concern regarding adequate protection" of the public.

In our report we question this number, pointing out that there's three different models and Mr. Dedman seemingly purposefully picked the most severe one. The other models take into account other scenarios of vibration damage so they seem equally valuable to "weakest link" scenario, as it's unclear what parts would be damaged by what vibration frequency.

Mr. Dedman writes us stating:

You're cherry picking. You've decided that the weighted average is the right column to use. Based on what? The NRC staff prefers the column that we've used, the "weakest link." That's the number it sent us, when it sent us one number for each plant. And as the report explains, the NRC has no basis on which to weight the averages, so it says a weighted average wouldn't be meaningful.

There are three separate falsehoods in this statement. As you will see, the NRC told Mr. Dedman nothing of the sort and he's clear mislead me, as he's done to his readers.

And again, Mr. Dedman mistakes the work of the USGS, for the NRC, clearly indicating his lack of understanding of the material he's writing on.

We write him:

Do you have a contact at the NRC who can substantiate your claims? How can you weight data without having a factor to do so? If you get me this information I can [edit my article].

Virtually always weighted data is what you would use in a case like this, as the data is typically weighted by the frequency of occurrence of the event (e.g. a probability of the probability). It's possible your correct, that would just be a bit unusual.

Mr. Dedman refused to provide us the identity of his phantom "contact" at the NRC, so we contacted them ourselves.

We asked them if they told Mr. Dedman to use this figure or told him that the weighted average was non-meaningful.

We inquire:

Did an NRC spokesperson tell MSNBC's Bill Dedman that the weighted risk was invalid and to use the weakest link model?

They respond:

No.

And they add:

The weighted average is not invalid (see Answer 5 below). All of the values in Appendix D were developed by NRC staff. Table D-1 in Appendix D uses the (2008) US Geological Survey (USGS) seismic source model, but the Seismic Core Damage Frequency results were developed by US NRC staff. The USGS seismic source model is the same one used to develop the USGS National Seismic Hazard Maps.

Tables D-1 through D-3 in Appendix D of the US NRC study show the "simple" average of the four spectral frequencies (1, Hz, 5 Hz, 10 Hz, peak ground acceleration (PGA)), the "IPEEE weighted" average and the "weakest link" model. These different averaging approaches are explained in Appendix A.3 (simple average and IPEEE weighted average) and Appendix A.4 (weakest link model). The weighted average uses a combination of the three spectral frequencies (1, 5, and 10 Hz) at which most important structures, systems, and components of nuclear power plants will resonate. The weakest link is the largest SCDF value from among the four spectral frequencies noted above. Most nuclear power plant structures, systems, and components resonate at frequencies between 1 and 10 Hz, so there are different approaches to averaging the Seismic Core Damage Frequency (SCDF) values. By using multiple approaches, the NRC staff gains a better understanding of the uncertainties involved in the assessments.

In other words, each model is important to gaining a full understanding of various possible scenarios and Mr. Dedman erroneously selected the most sensational model and then falsely claimed the NRC told him to.

The NRC adds:

The weakest link model is a method for evaluating the importance of different frequencies of ground vibration to the overall plant performance. The model and its details are not integral to understanding the fundamental conclusions of the study.

That conclusion? The nation is quite safe (as we write in our piece).

[MSNBC and its employee Mr. Dedman have not corrected this error in their story, despite knowing about it, at the time of this article's publication]

III. More Misinformation – Did the Report Evaluate Risk at All 104 Plants?

We admit, we missed this error in Mr. Dedman's report initially, but the NRC pointed it out for us:

The US Nuclear Regulatory Commission study, released in September, 2010, was prepared as a screening assessment to evaluate if further investigations of seismic safety for operating reactors in the central and eastern US (CEUS) are warranted, consistent with NRC directives. The report clearly states that "work to date supports a decision to continue ...; the methodology, input assumptions, and data are not sufficiently developed to support other regulatory actions or decisions." Accordingly, the results were not used to rank or compare plants. The study produced plant-specific results of the estimated change in risk from seismic hazards. The study did not rely on the absolute value of the seismic risk except to assure that all operating plants are safe. The plant-specific results were used in aggregate to determine the need for continued evaluation and were included in the report for openness and transparency.

In other words Mr. Dedman claimed the study looked at all plants and discussed what risk they were at. It did not.

The NRC adds:

The plant-specific results were used in aggregate to determine the need for continued evaluation and were included in the report for openness and transparency. The use of the absolute value of the seismic hazard-related risk, as done in the MSNBC article, is not the intended use, and the NRC considers it an inappropriate use of the results.

In other words, Mr. Dedman abused the data to support his own fallacious conclusions.

Mr. Dedman accused me:

I don't mind criticism at all, but twisting of facts...

We agree with his assessment. His statements were unacceptable.

[MSNBC and its employee Mr. Dedman have not corrected these errors in their story, despite knowing about it, at the time of this article's publication.]

IV. Textbook Alarmism

Mr. Dedman claimed the results of the study showed that the chance of a plant disaster was as likely as winning a \$10,000 prize in the national Powerball lottery. This is factually inaccurate. The powerball frequency per population is greater than 1 per year. The chances of a core meltdown per population are less than 1/7,400th per year, according to the report.

Further, Mr. Dedman writes:

How much risk is too much? Is a roller coaster safe only if no one ever dies? If one passenger dies every 100 years? Every year?

This is alarmism at its finest. People are not dying every year from quake-induced plant damage in the US And there's little chance a single life will be lost over the course of the next century from quake damage in the US

The report explicitly states:

Plants have seismic margin and the results of the GI-199 Safety/Risk Assessment confirm that overall seismic risk estimates remain small. GI-199 is not an adequate protection issue.

And the NRC tells us:

The study is still under way and it is too early to predict the final outcome. However, the NRC staff has determined there is no immediate safety concern and that overall seismic risk estimates remain small. If at any time the NRC determines that an immediate safety concern exists, action to address the issue will be taken. The NRC is focused on assuring safety during even very rare and extreme events. Therefore, the agency has determined that assessment of updated seismic hazards and plant performance should continue.

[MSNBC and its employee Mr. Dedman have not removed these misleading statements from their story, despite knowing about it, at the time of this article's publication.]

V. The Moral of This Story

The moral of this story is that sensationalism and alarmism may be a ticket to cheap page views, but when you get the facts wrong and then cook up tall tales to cover up your tracks, someone will eventually call you out.

One must wonder what MSNBC.com thinks of this performance.

After all, Mr. Dedman's story apparently touched off a US Senate inquiry into plant quake safety. In other words it not only created mass public panic and misinformation, it triggered a knee-jerk response by the federal government.

Most journalists make mistakes, but most don't reach as many people as Mr. Dedman does or trigger government inquiries. And few journalists would refuse to fix blatant factual errors like Mr. Dedman did when we clearly discussed these points with him.

Thus far Mr. Dedman has defiantly refused to correct the numerous factual inaccuracies and mistakes in his piece, even when his source, the NRC, clearly stated his story was inaccurate.

We feel that it is critical to MSNBC.com's reputation as a legitimate news site that this story be removed and/or corrected immediately. And they need to take a long hard look at Mr. Dedman's reporting and how he conducts himself.

Otherwise, they are allowing themselves to become a tabloid.

Update 1: Saturday, March 19, 2011 2:20 a.m.

We've temporarily removed a paragraph referencing the ownership of MSNBC. It appears that Google Finance and Yahoo Finance may have inaccurate information with regards to Microsoft's stake. We've contacted MSNBC for more information and hope to resolve the question of ownership briefly.

We also amended the text in the opening paragraph to clarify that the NRC was responsible for Appendix D, but was not responsible for any assertion about public radiation exposure.

MSNBC.com's Bill Dedman sent us the following statment with some remaining criticism of this post:

Mr. Mink (sic) chastises me for using the weakest-link number in the NRC report, but that's the number the NRC staff provided to me. Several times I sent to Mr. Mick a copy of the spreadsheet the NRC sent to me, containing the weakest-link model as the single number it reported for the risk estimates. (We already had the eastern and central plant data from the report; this spreadsheet, for all plants, gave us the western plant data as well, as we told our readers.) Mr. Mink (sic) fails to mention this in his article. The point, as I told him, was that the NRC staff uses the weakest-link model as the best representation of the risk,

and, as I explained to our readers, this is the most conservative estimate. I also pointed out to Mr. Mink that the NRC report describes that its actually has no basis for knowing how to weight a weighted average in this case; he fails to mention this.

The NRC says, "the results were not used to rank or compare plants." Mr. Mink (sic) twists this: "In other words Mr. Dedman claimed the study looked at all plants and discussed what risk they were at. It did not." That's completely nonsensical. Yes, the NRC looked at all the plants, and made an estimate of the risk at each one. Did it rank them? No. We ranked them, from the NRC data, just as we explained in the original article.

If the newspapers starts reporting the American League East standings in alphabetical order, the reader is free to arrange them by winning percentage.

He later adds: Perhaps you're naive. Perhaps you have a bias for nuclear power. Perhaps – who knows? But for some reason, you've fallen for the oldest page in the government PR playbook: the non-denial denial.

We will let you know if he shares any further criticism.

Nuclear Power Report: 14 'Near Misses' At US Plants Due To 'Lax Oversight' (CSM)

By Mark Clayton, Staff Writer

Christian Science Monitor, March 19, 2011

Nuclear plants in the United States last year experienced at least 14 "near misses," serious failures in which safety was jeopardized, at least in part, due to lapses in oversight and enforcement by US nuclear safety regulators, says a new report. Skip to next paragraph

While none of the safety problems harmed plant employees or the public, they occurred with alarming frequency – more than once a month – which is high for a mature industry, said the study of nuclear plant safety performance in 2010 by the Union of Concerned Scientists, a Washington-based nuclear watchdog group.

The report, the first in what the UCS expects will become an annual study, details both successes and failures by the US Nuclear Regulatory Commission, which it calls "the cop on the beat." Charged with overseeing America's fleet of 104 nuclear reactors, the NRC made some "outstanding catches," but was also inconsistent in its oversight, seeming at times to nod off when most needed.

"The chances of a disaster at a nuclear plant are low," the report states. "But when the NRC tolerates unresolved safety problems – as it did last year at Peach Bottom, Indian Point, and Vermont Yankee – this lax oversight allows that risk to rise. The more owners sweep safety problems under the rug and the longer safety problems remain uncorrected, the higher the risk climbs."

Severe accidents at Three Mile Island in 1979 and Chernobyl in 1986, for instance, occurred when a few known problems were combined with worker mistakes to "turn routine events into catastrophes," the report said. Nuclear plant owners "could have avoided nearly all 14 near-misses in 2010 had they corrected known deficiencies in a timely manner," which suggests the industry is engaged in a game of "nuclear roulette" that could someday end badly, wrote David Lochbaum, the UCS nuclear engineer who authored the report.

Ironically, the most significant near-miss occurred on the 31st anniversary of the Three Mile Island accident – March 28, 2010 – at the HB Robinson nuclear plant in South Carolina. A high-voltage power cable at the plant failed and started a fire, shutting the plant down and causing an alert – the third-most serious emergency classification. Equipment failures and a remarkable number of operator errors transformed "a relatively routine event into a very serious near-miss," the report said.

"Unbelievably poor worker performance" contributed, too, suggesting bad training, the study said. Hours after the fire was put out, workers decided to re-energize the cable that started the fire – igniting a second fire that caused further damage. Six months later, the plant had another "near miss" due to another set of preventable factors.

Other examples include the Calvert Cliffs nuclear plant in Maryland, which on Feb. 18 automatically shut down when rainwater leaked in through holes in the roof and dripped onto electrical equipment. Workers had noticed a number of leaks across many months before this event, but plant managers had put off repairs. "After all, the roof only leaked when it rained," the report said.

Nuclear Safety: Five Recent 'Near Miss' Incidents At US Nuclear Power Plants (CSM)

By Staff

Christian Science Monitor, March 21, 2011

Fourteen safety-related events at nuclear power plants required follow-up inspections from the Nuclear Regulatory Commission, the NRC reported in 2010. These "near-miss" events "raised the risk of damage to the reactor core – and thus to

the safety of workers and the public," concluded a new report, "The NRC and Nuclear Power Plant Safety in 2010," by the Union of Concerned Scientists.

Here are five of these 14 "near miss" examples:

1. Diablo Canyon, California – Emergency systems disabled

At the Diablo Canyon nuclear plant, operators found themselves unable to open the valves that provide emergency cooling water to the reactor core and containment vessel, during a test on October 22, 2009.

A misguided fix of an earlier problem had prevented the emergency valves from opening, the NRC team sent to investigate found.

Tests after the valve repairs had failed to detect the problem, meaning that the reactor had operated for nearly 18 months with vital emergency systems disabled. Although the earlier modification impaired the emergency core cooling systems, workers could have opened the valves manually, which reduced the severity of the violation, the report said.

2. Wolf Creek, Kansas – Emergency system leaks

Seven hours after the Aug. 19, 2009 automatic shutdown of the Wolf Creek nuclear plant, due to an electric problem related to a lightning strike, an NRC inspector found water leaking from the system that cools the emergency diesel generators and virtually all other emergency equipment.

An internal study in 2007 had forecast such leakage, showing that a vital cooling system was prone to rust damage that would result in leaks. Management did nothing, the UCS report says. In 2008, the same piping developed the leaks, just as predicted. Management only patched the leaks, doing little about the rusting causing the problem. In 2009, the piping developed more leaks. This time, workers failed to notice the water puddling on the floor until an NRC inspector found it 7 hours later.

(While the event occurred in 2009, the NRC report appeared in 2010.)

3. Brunswick, North Carolina – Delayed reactor time

At the Brunswick nuclear plant, Halon gas – a fire suppression agent – was mistakenly discharged into the basement of the building housing the emergency diesel generator, on June 6, 2010. The release of the toxic gas into a vital area prompted control room operators to declare an alert – the third-most-serious emergency classification.

Workers did not know how to notify emergency responders, the NRC team discovered, so it took 2-1/2 hours to fully staff and activate onsite emergency response facilities – twice as long as specified in the plant's emergency response procedures.

Fortunately, the incident was not an actual emergency, the report author notes.

4. Fort Calhoun Nuclear Plant, Nebraska – Failure of emergency equipment

On Feb. 17, 2010, the NRC sent a team to the nuclear plant after the turbine-driven auxiliary feedwater (AFW) pump automatically shut down shortly after operators started the pump during a monthly test.

The AFW system is an emergency system that remains in standby mode during normal plant operation. However, although the AFW system plays a vital role in an accident, the NRC investigators found that the pump had failed numerous times over many years. The owner had never found the cause of the problem, and therefore had never taken steps to prevent it.

The NRC identified four violations of its safety regulations.

5. Surry Nuclear Plant, Virginia -- Failure to recognize a problem

Degraded electrical equipment caught fire in the control room of Unit 1, about 90 minutes after an electrical short led to an inadvertent shutdown of the reactor, on June 8, 2010.

Six months earlier, a fire had broken out in the Unit 2 control room – because of similarly degraded electrical components.

After putting out the Unit 2 fire in November 2009, workers had asked technicians to investigate, but the company closed the report without any investigation or evaluation.

After the second fire, workers tested electrical components in both control rooms and found many were degraded, including some that produced visible sparks during testing.

Because the company had taken no action to protect Unit 1 from the problem they had been warned of in Unit 2, NRC's investigation team sanctioned the company.

Report: US Nuke Plant Problems Ignored, Including In Vt. (BOSBIZ)

By Kyle Alspach

Boston Business Journal, March 21, 2011

The Cambridge, Mass.-based Union of Concerned Scientists said in a report released this week that federal regulators "overlooked or dismissed" serious safety problems in 2010 at US nuclear plants, including at the Vermont Yankee plant near the Massachusetts border.

The report also says there were 14 "near-misses" at US nuclear plants during 2010 — inspections launched by the Nuclear Regulatory Commission in response to "troubling events, safety equipment problems and security shortcomings at nuclear power plants."

"While none of the safety problems in 2010 caused harm to plant employees or the public, their frequency — more than one per month — is high for a mature industry," the report states.

Plant owners could have avoided nearly all 14 near-misses in 2010 if they'd corrected the problems in a timely manner, the report says, suggesting that "our luck at nuclear roulette may someday run out."

At Vermont Yankee, a 540-megawatt nuclear plant in Vernon, Vt., plant owner Entergy informed the NRC in January 2010 that it had detected radioactively contaminated water in an onsite monitoring well, according to the report.

The regulators allowed the company to continue operating Vermont Yankee while workers searched for the leak, which took weeks, the report says.

"At Vermont Yankee, an actual unmonitored and uncontrolled release of radioactively contaminated water from spurred no response from the NRC," according to the report.

Entergy also owns the 688-megawatt Pilgrim Nuclear Station in Plymouth, Mass. This week, the plant was named the second-highest risk for suffering core damage from an earthquake among US nuclear power plants, according to a report from MSNBC that cites data from the NRC.

US Nuclear Regulations Aren't Tougher Than Japan's, Group Says (BLOOM)

By Jim Snyder

Bloomberg News, March 21, 2011

US regulation of nuclear-power plants isn't more strict than Japan's and in some cases requires operators to do less, said an official with the Union of Concerned Scientists, which monitors the nuclear industry.

"It's unfair for us to say Japan has weaker regulation," Dave Lochbaum, the director of the group's nuclear safety project, told reporters today on a conference call. The Japanese "just had worse luck," he said.

Japan has a lower threshold for replacing damaged pipes than US regulators, and requires back up power systems to run for twice as long, Lochbaum said.

Batteries to operate cooling-water pumps that help prevent reactor fuel from melting and causing an explosion must operate for eight hours in Japan, he said. In the US, 93 of the 104 reactors operating have batteries that last four hours, he said.

Nuclear plants in Japan have additional backup generators running on diesel fuel to keep the cooling-water systems operating. The units at the crippled Fukushima Dai-ichi plant were apparently washed away in the tsunami created by the magnitude-9 earthquake, leading some reactors and spent fuel pools to overheat and release radiation, he said.

"All reactors have hazards," Lochbaum said. "We need to revisit our design and procedure so our reactors become less vulnerable."

President Barack Obama has sought a comprehensive safety review of all US reactors. The nuclear industry has sought to reassure policy makers in Washington about the safety of US plants.

"We feel like we have a very good regulatory regime in the US," said Bryant Kinney, a spokesman for the Washington-based Nuclear Energy Institute, in an interview.

To contact the reporter on this story: Jim Snyder in Washington at jsnyder24@bloomberg.net

Morton Kondracke: Japan Quake Must Not Trigger Nuclear-phobia (MC)

By Morton Kondracke

Muskegon Chronicle, March 19, 2011

I never agree with Rush Limbaugh about anything, but here's an exception: The mainstream media habitually spreads panic in the population. Right now, it's about the safety of nuclear power.

The danger of a meltdown at Japan's Fukushima Daiichi reactors is real, but the media made it a "crisis" from the get-go. The New York Times said the crisis had "veered toward catastrophe."

And on MSNBC's "Morning Joe" on Wednesday, co-host Mika Brzezinski opined it might prove "apocalyptic," which is to say, world-ending.

In California, alarmed people have started stocking up on potassium iodide to guard against radioactivity-induced cancer even though 5,000 miles of ocean separate them from Japan.

The real threat here is that nuclear-phobia will take hold in the United States as happened following the partial meltdown and radioactive release at Three Mile Island in 1979, resulting in no new nuclear plant construction for 30 years.

As Sen. Lamar Alexander, R-Tenn., said in a speech on Monday, "today 104 civilian reactors produce 20 percent of America's electricity and 70 percent of our clean electricity.

"Without nuclear power, it is hard to imagine how the United States, which uses up 25 percent of all the energy in the world, could produce enough cheap, reliable clean energy to keep our economy going and keep our jobs from going overseas."

The good news is that the Obama administration is not running away from its support of loan guarantees for new nuclear facilities, and nuclear power has significant Republican support.

It also has been gaining public support, with 62 percent of US adults favoring nuclear power in a 2010 Gallup poll. New polls, post-Japan, should appear shortly.

As Energy Secretary Steven Chu testified this week, the United States "naturally" will thoroughly study the lessons of Japan's experience and try to ensure that existing and planned new plants are safe.

That should especially apply to two California nuclear reactors located near seismic faults.

But opponents of nuclear power are seizing on the disaster in Japan – caused by a gigantic tsunami triggered by the fourth-most-powerful earthquake in recorded history – to stop nuclear power in its tracks.

That would compound the lack of a coherent US energy policy that has resulted from polarized US politics.

Republicans (and some Democrats) are determined to maintain fossil fuels – oil, natural gas and coal – as the mainstays of US energy for as long as possible.

They pooh-pooh evidence that fossil fuels cause global climate change and are trying to defund conservation and alternative energy programs.

Meantime, most Democrats (but hardly any Republicans) think the world is menaced by global warming and are determined to close down the carbon economy and substitute wind, solar and other "renewables" for oil, gas and coal.

The public is confused – and divided – about what to think. According to a March Gallup poll, only 51 percent – down from 66 percent three years ago – are "worried" about global warming.

That includes 72 percent of Democrats (who also think it's caused by human activity), but only 31 percent of Republicans, two-thirds of whom think (with Limbaugh) that its seriousness is exaggerated by the news media.

Sixty percent favor increasing offshore drilling for oil (83 percent of Republicans, 40 percent of Democrats) while a whopping 83 percent say Congress should pass an energy bill that provides incentives for solar and other alternative energy as a top priority.

Actually, the public may have it right, given \$4-a-gallon gasoline and possible oil disruptions in the Mideast. The fact is that, for the foreseeable future, the US will primarily depend on fossil fuels for its energy, so domestic production should be increased.

But longer term, cleaner fuels make sense. Global warming is a fact – the polar ice caps are melting – though it's debatable whether the consequences will be as dire as worst-casers like Al Gore maintain. A carbon tax would encourage new energy sources.

Clearly, expansion of nuclear power should be part of the solution. Utilities now find it cheaper to use natural gas as fuel, so government loan guarantees – not direct subsidies – are needed to get plants built. They cost, on average, \$6 billion.

But once they are built – if they are built – they produce energy at a much cheaper long-run cost than any other fuel. It's why nuclear accounts for 80 percent of France's electricity generation and coal-rich China is building 27 new nuclear reactors.

As Alexander said in his Senate speech, "the United States invented nuclear power, but ... of the 65 reactors under construction around the world, only one is in the United States," part of the Tennessee Valley Authority anchored in his state.

He pointed out that "no one has ever died from a nuclear accident at any of our commercial or naval reactors," including the Three Mile Island incident, which led to vast upgrades in safety oversight.

And, he said, while nuclear energy has risks, "it is also important to remember that we do not abandon highway systems because bridges and overpasses collapse during earthquakes. ...

"We cannot stop drilling after a tragic oil spill unless we want to rely more on foreign oil, run up our prices, turn our oil drilling over to a few big companies and all our oil hauling to leaky tankers."

That's on the mark. America needs a do-it-all energy policy, and if nuclear isn't part of it, we will be under-powered.

Morton Kondracke is executive editor of Roll Call, the newspaper of Capitol Hill.

Japan Crisis Has Ind. Backing Off Nuclear Plan (AP)

Associated Press

Associated Press, March 21, 2011

An Indiana effort to promote nuclear power in the state is losing steam as concerns mount about radiation from Japan's crippled nuclear power reactors following the island nation's devastating earthquake and tsunami.

"With the events in Japan, I think you really need to take a step back," said Sen. Beverly Gard, R-Greenfield, who helped author a bill that would encourage the construction of Indiana's first nuclear plant. "I think it's going to take months, if not years, for an investigation to get to the source of the problem."

The Senate last month passed Gard's bill, which would provide financial incentives to companies to build a nuclear plant and allow them to pass along construction costs to customers years before the plant goes into operation, The Indianapolis Star reported.

But Gard says the issue should be put on the back burner until the situation in Japan is under control.

Senate President David Long, R-Fort Wayne, agreed.

"We need to take a step back, try to understand how this happened, what the circumstances were," he said. "We don't have the answers to that right now, and we need to have some answers."

Indiana has long relied on coal for energy but has been looking at other options in recent years. Illinois has 11 nuclear plants, Michigan has four and Ohio has two, but Indiana has none.

Two efforts in the 1980s to build nuclear power plants were scrapped because of opposition and cost concerns. The Northern Indiana Public Service Co. proposed a 644-megawatt plant near the Indiana Dunes National Lakeshore in 1967, but it was never built. Public Service Indiana's planned Marble Hill Nuclear Power Station in southeast Indiana was halted 1984 mid-way through construction.

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

Critics say the state should focus more on clean energy such as wind and solar power.

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

Supporters say the technology has improved and that nuclear plants have a good overall safety record.

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

Opponents of Gard's bill had said its incentives would circumvent the state's utility regulatory review process and damage efforts to boost Indiana's clean-energy sector.

US Nuclear Output Rises As American Starts Reactor In Michigan (BLOOM)

By Colin McClelland

Bloomberg News, March 21, 2011

US nuclear-power output rose for the fourth day after American Electric Power Co. started the Donald C. Cook 1 reactor in Michigan, the Nuclear Regulatory Commission said.

Production nationwide increased by 382 megawatts, or 0.4 percent, from yesterday to 87,543 megawatts, or 86 percent of capacity, according to a report today from the NRC and data compiled by Bloomberg. Fourteen of the nation's 104 reactors were offline.

American Electric's 1,060-megawatt Donald C. Cook 1 reactor was operating at 28 percent of capacity. The plant is located on the eastern shore of Lake Michigan, 26 miles (42 kilometers) northwest of South Bend, Indiana. The 1,009-megawatt Cook 2, another unit at the site, is operating at full power.

Constellation Nuclear Energy Group LLC, a joint venture of Constellation Energy Group Inc. (CEG) and Electricite de France SA, boosted its 867-megawatt Calvert Cliffs 2 reactor in Maryland to 95 percent of capacity from 83 percent yesterday.

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

Some reactors close for maintenance and refueling during the spring and fall in the US, when demand for heating and cooling is lower. The outages can increase consumption of natural gas and coal to generate electricity.

The average US reactor refueling outage lasted 41 days in 2009, according to the Nuclear Energy Institute.

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Utah Gov. Gary Herbert Says 10-year Energy Plan To Include Nuclear Power, Renewable Energy :: The Republic (REPUBLIC)

Republic (Columbus, IN), March 21, 2011

Nuclear power must be an important part of Utah's future energy portfolio, Gov. Gary Herbert said Friday, adding that a 10-year plan he was set to unveil will emphasize the need for nuclear energy alongside traditional fossil fuels and renewable sources.

The disaster at a Japanese nuclear power plant, where workers were trying to avert a meltdown after a huge earthquake and tsunami, highlights the need for serious study about nuclear power, Herbert told The Associated Press.

Still, nuclear power cannot be discounted as an option, he said.

"The practical reality is that going forward, the demand will increase and the equation doesn't work without nuclear," he said.

Matt Pacenza, policy director for the Healthy Environment Alliance of Utah, said the danger should be enough to persuade the governor to oppose nuclear power. There are also waste and water problems to consider, he said.

"Even in a technologically advanced country like Japan, and with a well-designed plant, things can go wrong," Pacenza said. "With nuclear, it becomes a major disaster."

There are 104 nuclear power plants in the United States — none in Utah. One plant has been proposed for eastern Utah, near Green River. Water demands in the arid region have posed the biggest roadblock to development.

Utah's 10-year plan was put together by a committee of energy executives, government officials and environmental groups.

The state has one of the lowest energy costs in the country, which makes it easier to attract businesses, Herbert said.

Utah has two major coal-fired power plants, plus multiple smaller municipal power plants. Geothermal plants have been running in southern Utah, and the federal government has designated a region in the West Desert as a prime spot for solar power.

Sara Baldwin, senior policy director with Utah Clean Energy, said if cheap power is the goal, the plan fails because it overestimates the cost of renewable energy and doesn't consider the potential cost of climate change.

"We need a more balanced and diverse portfolio," Baldwin said.

View the discussion thread.

Gov. Gary Herbert's Energy Plan Includes Nuclear (DESMN)

By Lee

[Deseret Morning News \(UT\)](#), March 21, 2011

Despite the nuclear power-plant meltdown in Japan and its associated risks, Utah's governor said nuclear energy should be considered as the state develops its long-term energy strategy.

Speaking at the University of Utah on Friday, Gov. Gary Herbert said the issue of nuclear energy should be discussed and debated seriously regarding its possible use in the state's energy future.

"There's the role of nuclear power in the world ... in America, and specifically there's the role of nuclear power in Utah," he said. "The practical reality that we face here in this country and particularly in our state is we have a need for carbon-based fuels — which has its own challenges — and or nuclear power," Herbert said. "We need to have a vigorous debate and discussion on the viability of nuclear power in Utah."

The governor unveiled a 10-year strategic energy plan that combines using the state's abundant natural resources such as coal, along with increased development of alternative and renewable fuels like wind, solar, geothermal, as well as considering a nuclear power component.

The 42-page report stated that accomplishing the state's energy goals would require developing resources thoughtfully through careful evaluation of resource potential, impact on economic development, the natural environment, human health, along with weighing physical and regulatory constraints.

The plan was developed by the governor's energy task force, which included industry, academic, environmental and government leaders who gathered public input statewide. While the initiative included a 10-point plan of goals and mentioned using a combination of fossil fuels, renewable alternatives and nuclear power, it offered no definitive recommendations for the overall makeup of the state's energy portfolio or specific dates to reach energy milestones.

A new KSL/Deseret News poll found that a majority of Utahns surveyed have a less than favorable opinion about building a nuclear power plant in Utah. The surveyed of 432 Utahns by Dan Jones & Associates found 55 percent opposed the idea. The poll, conducted March 15-17, had a 4.75 percent margin of error.

Amanda Smith, Utah Department of Environmental Quality director and newly appointed state energy adviser, said the inclusion of nuclear power can be "an emotional issue" for Utahns, given the state's history with nuclear testing and the resulting health fallout.

"Let's really focus on how we are going to meet our future baseload (power needs)," she said. "Every energy source that has the potential to meet baseload has issues ... and they are all kind of at their breaking point with technology."

NRC Sets Japan Staff Briefing, Scraps Meeting On Restart Of Fla. Plant (EPPM)

By Hannah Northey

E&ENews PM, March 18, 2011

The Nuclear Regulatory Commission has canceled a meeting to discuss restarting the 838-megawatt Crystal River nuclear plant in Florida after a second gap was discovered in the plant's concrete containment building.

The March 22 meeting had been intended to address Progress Energy Inc.'s pressurized water reactor that's been shuttered since 2009 for refueling. The agency has said a similar meeting will be rescheduled before the plant is restarted. The plant is about 80 miles north of Tampa.

In the fall 2009, the company replaced steam generators located inside the plant's containment structure, a large concrete building that houses the entire reactor system, NRC spokesman Roger Hannah said.

During the process, the company had to cut a hole in the 42-inch containment wall to accommodate the generators and noticed a gap within the wall about 9 inches from the outer surface, he said.

The wall contains steel cables and provides extra protection from any internal pressure.

After extensive analysis and repair, Progress Energy is now reporting indications of an additional separation or gap resulting from the repair work on the original containment wall.

NRC is also reviewing an application Progress submitted to relicense the reactor for another 20 years. The plant's license expires in 2016.

Concerns about the safety of nuclear plants have surged since a massive earthquake and tsunami on March 11 crippled the Fukushima Daiichi nuclear plant in Northeast Japan.

The Japan nuclear crisis will be discussed at an NRC public meeting on March 21 at the agency's Rockville, Md., headquarters. NRC announced the staff briefing today.

Coakley Warns On Spent Fuel Rods (BOS)

AG says storage at Vt. Yankee, Pilgrim a risk

By Beth Daley

Boston Globe, March 21, 2011

Federal officials have underestimated the potential danger posed by radioactive spent fuel storage pools at the Pilgrim and Vermont Yankee nuclear power plants, the Massachusetts attorney general charged yesterday, underscoring five years of legal challenges the state has waged to force the Nuclear Regulatory Commission to examine the risks more thoroughly.

The unfolding Japanese nuclear crisis at the Fukushima Daiichi plant — including a spent fuel pool that US officials have said appears to have gone dry and released radioactive material — has riveted attention on possible vulnerabilities at US plants. Late last week, President Obama and the nuclear industry pledged a full review of reactors, including their cooling systems and spent fuel storage.

Massachusetts has long argued that the lack of a federal repository where plants can send spent fuel rods, coupled with plans by plants such as Pilgrim and Vermont Yankee to operate 20 years beyond the 40 years they were originally licensed for, will ramp up the number of radioactive rods in pools on site — and the risk from an accident, natural disaster, or terrorist attack.

"Since 2006, we have urged the NRC to consider alternative storage at these plants, but the NRC concluded that further study was unnecessary because the risk of breach and subsequent fire was 'insignificant.' We believe it is surely worth reconsidering that assessment," Attorney General Martha Coakley said in a statement.

Coakley has failed through past legal efforts to get the NRC to budge, and she has limited legal options now, but she is hoping to bring pressure to bear on the NRC.

She said nuclear energy is an important way to help meet the state's and country's energy needs, but the NRC "should be doing all it can to ensure the safety of these plants, and reevaluating the risks of wet spent fuel storage in light of the events in Japan must be part of that process."

In previous court filings, her office has suggested the NRC look more closely at dry storage, which usually involves placing the spent fuel in stainless steel containers surrounded by concrete.

But the NRC, nuclear industry officials, and spokesmen for Pilgrim, in Plymouth, and Vermont Yankee, in Vernon near the Massachusetts border, said yesterday the spent fuel pools were sturdy and safe.

"The NRC has extensively studied the safety and security of spent fuel storage at US nuclear power plants. This includes a fresh assessment after the 9/11 attacks," agency spokesman Neil Sheehan said in a statement.

Yesterday, NRC chairman Gregory Jaczko told the C-Span "Newsmakers" program that post-9/11 safety analyses at US nuclear plants have made them especially robust, and said the commission is meeting, starting today, to look at lessons it can learn from the Japan crisis.

Spent nuclear fuel is still radioactive and must be stored in pools with circulating water to prevent radioactive release. Nuclear plant operators originally assumed that some spent fuel would be recycled and the rest disposed at a federal repository. But commercial reprocessing never happened, and amid strong local opposition, a nuclear fuel repository never opened at Yucca Mountain in Nevada.

Plants have been left to deal with growing numbers of spent fuel rods in near-capacity and, state officials say, densely-packed pools. Japan's plants also have years worth of spent fuel rods on site.

Dozens of nuclear plants now place some partially cooled rods in dry storage, a technology that nuclear critics say is more secure than pools because it doesn't risk large-scale radioactive release that can occur in spent fuel pools. However, dry storage is significantly more expensive.

In recent years Vermont Yankee has moved some fuel to dry storage, according to a spokesman for Entergy, which owns the plant. Spokesman Larry Smith said the pools were safe and the move to dry storage was to get some rods ready for when the federal government would have a repository to take them.

The spent fuel rod issue has "been looked at in detail and the questions have been answered," Smith said. The NRC voted to extend the license of Vermont Yankee the day before the Japan earthquake, but its staff has not issued it because the agency has been too busy helping Japan, the NRC said last week.

Yesterday on C-Span, Jaczko said the Vermont Yankee decision was done and we are going "through some of the last paperwork." However, he said if special concerns were raised about design or other issues, they would be corrected right away.

A vigil and protest outside the plant yesterday drew a crowd that local police estimated at 200 to 250 people, but organizers said the number was more than double that.

Pilgrim, also owned by Entergy, is in final design stages for moving some rods to dry storage, said a spokesman, and also stressed the safety of the pools. Pilgrim has not yet been relicensed by the NRC.

Both Pilgrim and Vermont Yankee have come under extra scrutiny in the last 10 days because their spent fuel pools are elevated, like the compromised one at Fukushima Daiichi. Critics say this design makes them more vulnerable to loss of coolant that can spill from the structures if they suffer structural damage.

The spent fuel pool of the Seabrook nuclear plant in New Hampshire is below grade.

The Massachusetts attorney general first intervened in the Pilgrim and Vermont Yankee relicensing proceedings in 2006, arguing that post-9/11 terrorism concerns and new studies about the risk of fires in spent fuel pools called for additional analysis.

But the NRC said those issues affected all nuclear facilities and if they were to be considered at all, it should be as part of a general rule-making process instead of an individual license application. Massachusetts appealed, and lost. The NRC also decided against doing the broader analysis of spent fuel pools; Massachusetts, New York, and Connecticut appealed that decision and lost again.

Yesterday, Coakley seemed to express frustration at the lack of information released by NRC officials, who often cite terrorism or national security concerns as a reason they cannot disclose studies on spent fuel pools or risks.

"In conducting its review, the commission also should be open with the public regarding the facts, studies, and opinions it considers when making its rulings," Coakley's statement said.

Opponents of the Pilgrim nuclear plant said they hope Coakley's renewed effort could result in more say over the plant's relicensing.

"We now have a pool jam-packed way beyond its original design," said Mary Lampert of Pilgrim Watch, a group that has opposed the plant's relicensing. "If the water drops for any reason — acts of malice, a storm — there would be a fire we could not put out and the consequences would be disastrous."

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Calls Heat Up For Reviews Of California Nuclear Plants (LAT)

State and federal officials are pushing for comprehensive checkups of the San Onofre and Diablo Canyon facilities, which have been cited repeatedly in recent years for safety lapses.

By Ken Bensinger, David Sarno

Los Angeles Times, March 21, 2011

Pointing to Japan's nuclear crisis, state and federal officials have begun pushing for comprehensive reviews of California's two commercial nuclear plants, which are near powerful fault lines and have been cited repeatedly in recent years for safety lapses.

If reviewers identify new problems, it could lead to added safety measures — or potentially, delays or denials for renewals of the operating permits for the plants. The two plants, which have been online for decades, supply nearly 15% of the state's electricity.

"The fundamental question is whether these facilities should be located next to active faults and whether they are operated safely," said state Sen. Sam Blakeslee (R-San Luis Obispo), who holds a doctorate in geophysics. "With what's unfolding in Japan, why would anyone approve a permit for these plants to keep operating until every question is answered?"

Federal regulators have cited Southern California Edison's 2,350-megawatt San Onofre nuclear power plant near San Clemente dozens of times in recent years for safety violations that include failed emergency generators, improperly wired batteries and falsified fire safety data, records show.

At Pacific Gas & Electric's 2,240-megawatt Diablo Canyon facility on the Central Coast, inspectors in late 2009 found that safety valves designed to allow cooling water into the reactor core in emergencies had been stuck shut for 18 months.

In light of the crisis at Japan's Fukushima reactors, some state and federal lawmakers are now questioning whether the two utilities have underestimated the severity of earthquakes that could strike the plants.

Less than three years ago, a previously unknown fault was discovered within a mile of Diablo Canyon, and although regulators have asked the companies to conduct further seismic studies, neither has sought permits necessary to do so.

Edison has said that its facility, which houses two reactors, could withstand the equivalent of a magnitude 7 quake and is protected by a 30-foot seawall that is higher than the calculated maximum tsunami for the area.

PG&E, for its part, said that Diablo Canyon's two reactors could survive a magnitude 7.5 temblor, noting that it's built on a cliff 85 feet above sea level.

The reactors at these facilities are a different type — which experts say may be more robust — than the one at the Fukushima plant in Japan.

But some lawmakers and regulators point to the still-uncontrolled nuclear crisis in Japan after the massive quake and tsunami there as a strong justification for taking a hard look at the safety of this state's reactors and for possibly requiring additional retrofitting or even the eventual closure of the plants.

Blakeslee plans to ask PG&E to withdraw its application to the US Nuclear Regulatory Commission to extend permits for its two reactors to operate until 2045 until further seismic studies are completed. Edison has not yet decided whether it would submit its own renewal application.

The NRC licenses each nuclear reactor separately. Licenses for the two reactors at Diablo Canyon expire in 2024 and 2025, while those for San Onofre both expire in 2022.

On Monday, the state Senate Select Committee on Earthquake and Disaster Preparedness will conduct a hearing on nuclear safety, focusing on lessons learned from Japan.

Last week, California's Public Utilities Commission said it was delaying an April hearing on extending the Diablo Canyon license to take into account events in Japan. And at the federal level, California's two senators asked the NRC last week to conduct a complete safety review of both facilities.

"Our two plants need immediate inspections and investigations, and they need to look at the increased risk of serious earthquakes, an increased risk of tsunamis and at the safety cultures at those plants," said Sen. Barbara Boxer (D-Calif.). She noted that more than 7 million people live within 50 miles of San Onofre, while nearly half a million are within that distance from Diablo Canyon.

In 2006, state lawmakers passed a bill calling on the California Energy Commission to review the safety at both plants; the commission in turn urged both utilities to conduct new high-tech surveys to update earthquake risk assessments.

San Onofre's chief nuclear officer, Pete Dietrich, said SCE was seeking more funds from the state before obtaining permits for new geological surveys. Dietrich said the utility hadn't decided whether it would apply to renew federal licenses for its two reactors.

Regarding Diablo Canyon, the PUC had asked PG&E to complete a thorough seismic review of the area before submitting its renewal application to the federal government.

But in 2009, PG&E applied to renew the licenses without having performed the new studies. The renewal application, which would allow the plant to operate until 2045, is now being considered by the NRC.

PG&E spokesman Paul Flake said that although the company began work on some new seismic surveys in January, it had not yet sought permits for the most conclusive testing urged by regulators.

"Our license renewal application and our seismic studies are two separate issues," Flake said.

Dan Hirsch, a nuclear policy lecturer at UC Santa Cruz and president of the Committee to Bridge the Gap, an anti-nuclear group, said California's reactors were built when the seismic risks involved were not well understood.

In Diablo Canyon's 1967 application to the PUC, PG&E said the site had only "insignificant faults that have shown no movement for at least 100,000 and possibly millions of years." Four years later, researchers discovered the Hosgri fault about three miles offshore, which led to expensive retrofitting of the plant.

In 2008, PG&E argued to the state Assembly that it had thoroughly reviewed its local geography and that no further seismic risks existed.

Yet weeks later, the US Geological Survey revealed that it had found a second fault less than a mile from Diablo Canyon. That fault, called Shoreline, is thought by geologists to be capable of producing a magnitude 6.5 quake, while the Hosgri fault is rated up to 7.3.

Geophysicist Jeanne Hardebeck of the USGS helped discover the Shoreline fault. She said that the network of faults in the area appeared to be connected and that she feared a rupture at one could compound into a larger quake.

"There is a real issue of uncertainty when we put a magnitude on a fault," Hardebeck said, noting that the Japan quake occurred on a fault with a predicted maximum potential quake of magnitude 7.9, but in fact reached 9.

In its 2008 report, the California Energy Commission warned that San Onofre "could experience larger and more frequent earthquakes than had been anticipated when the plant was designed."

NRC spokesman Scott Burnell said that the quake risk at the two plants was acceptable. "All 104 licensed reactors in the country are meeting the agency's requirements to operate safely," he said.

Even so, NRC reports show that Diablo Canyon operated for 18 months with flawed valves that would have prevented cooling water from automatically flowing into the reactor core in an emergency. The problem was discovered in October 2009, and the NRC issued several sanctions against the plant.

The Union of Concerned Scientists, an environmental group, called the event a "near miss," singling it out as one of the most serious incidents at an American reactor in the last several years.

PG&E spokesman Flake contended that valves could still have been opened manually in an emergency. "PG&E has a very strong safety record," he said.

At San Onofre, the NRC cited operators for failed diesel generators in 2007 and again in 2009. In December 2008, inspectors found that a battery used to power emergency systems at the plant had been incorrectly connected and probably had been inoperable for four years.

The NRC noted in January 2008 that San Onofre employees had "willfully" falsified fire safety records for five years. That string of citations led the agency, a year ago, to issue a letter highlighting what it called a "chilling effect" in the plant's safety culture in which employees "have the perception that they are not free to raise safety concerns."

On March 4, the NRC issued its annual review of San Onofre, identifying improvements but noting that in the area of human performance, "corrective actions to date have not resulted in sustained and measurable improvement."

Dietrich, the plant's chief nuclear officer, acknowledged that the plant had safety problems in the past but said they were corrected, and that Edison was "working very diligently to make sure we have an environment where people feel comfortable to discuss these issues."

Dale Bridenbaugh, a nuclear engineer who left his job at General Electric 35 years ago, said that crises at nuclear facilities generally come when small errors add up.

"It's an attitude of not caring about details that in and of itself won't cause an accident, but in certain situations can cause a cascading series of failures," said Bridenbaugh, who worked as a nuclear consultant until he retired in 1996. "Things seem fine and all of a sudden you're in deep yogurt."

Nuclear Industry Aims To Grow Despite Disaster (SDUT)

By Mike Lee

San Diego Union-Tribune, March 19, 2011

A slow revival of atomic power in the United States will hang in limbo for the immediate future, but industry experts said Japan's crisis isn't likely to derail US energy policy, which has been trending toward nuclear sources for the past decade.

Despite concerns raised by radiation leaks caused by the earthquake and tsunami in Japan, Atlanta-based Southern Co. said it does not expect delays as it tries to build what would be the nation's first new nuclear power units started in a generation. President Barack Obama has renewed his support for loan guarantees designed to give Wall Street confidence in financing more nuclear plants. And some investment bankers already regard a recent sell-off of nuclear-based stocks as a good chance to buy.

Officials at the Nuclear Energy Institute, the industry's policy arm, said they expected between four and eight new nuclear plants to be built nationwide by 2020 before the earthquake and tsunami slammed Japan — and they said this week that the forecast remains unchanged.

California has banned new nuclear power facilities since 1976 over concerns about long-term storage of spent fuel. A statewide poll last year showed building more nuclear plants continues to lack majority support, a stance that's unlikely to change in the wake of Japan's turmoil.

What's virtually certain is that radioactive releases north of Tokyo will spark detailed reviews of disaster preparedness at the United States' aging fleet of 104 nuclear reactors at 65 plants. One analysis projected that all but a handful of those facilities will reach the end of their lifetimes by 2050, forcing the nation to consider replacements in light of widespread demands to decrease reliance on fossil fuels and energy imports.

The toughest short-term questions already are hitting places such as the San Onofre Nuclear Generating Station north of Oceanside because it's just a few miles from a major earthquake fault. Those assessments will play into relicensing for San Onofre, where approvals are due for renewal by 2022, and other sites nationwide.

"People are going to say, 'Is this the direction we want to be headed in, and if so, what are the policies, procedures and safety precautions that we need to make it work?'" said Scott Anders, director of the Energy Policy Initiatives Center at the University of San Diego.

Federal regulators are reviewing applications for about 20 new nuclear power plants, which can cost \$5 billion or more, including the Southern Co.'s proposed reactors in Georgia. None of the permits under review are in California.

Obama has cheered the industry. "We're going to have to build a new generation of safe, clean nuclear power plants," he told a crowd in Maryland last month.

The vast majority of nuclear reactors — both existing and planned — are in the eastern half of the country, where quakes and tsunamis aren't a top concern. Still, Japan's crisis has stalled pronuclear measures in Indiana, North Carolina and elsewhere, while policy makers and residents are taking a wait-and-see approach.

Industry leaders and analysts said setbacks were temporary.

"Nuclear concerns appear to be overblown," said a stock note issued this week by the global securities firm Jefferies & Co. "We believe there is minimal impact to the nuclear operators in the US and any design changes implemented as a result of the incident in Japan will be minimal."

Such predictions could change once more is known about the specific failures at the Fukushima Daiichi power plant north of Tokyo.

As of Friday, Japanese authorities ranked it as a 5 on a seven-point international scale for ranking nuclear incidents, making it similar to the partial meltdown at Three Mile Island nuclear plant in Pennsylvania in 1979. That accident essentially put the domestic nuclear industry on ice for decades.

Problems in Japan "will slow things up, but it won't kill it again," said Eric Smith, assistant director of the Energy Institute at Tulane University, which is sponsored by power companies. "The reason is the situation is radically different from what it was 30 years ago. Thirty years ago, we could just build more coal plants."

Current concerns about air pollution and greenhouse gas emissions linked to global warming mean coal plants aren't nearly as politically palatable as they in the 1970s and 80s. Other alternatives face their own challenges.

The United States gets about 20 percent of its electricity from nuclear power, and it has by far the most nuclear generation of any country in the world. California is among the top 10 states in nuclear power production, and it gets about 13 percent of its electricity from nuclear plants.

In testimony before Congress this week, Energy Secretary Steven Chu reiterated Obama's "bold but achievable goal" of generating 80 percent of America's electricity from "clean sources" — including nuclear — by 2035. Nuclear energy is expected to grow but at a lower rate than overall energy generation.

Other energy options such as solar and hydro, along with concerns about plant safety and a focus on conservation, have limited the support for more nuclear power in California. In 1989, voters in Sacramento County became the first in the nation to shut down an operating nuclear plant — Rancho Seco — by a referendum.

Republicans in the state are much more likely to approve of nuclear power, while the majority of Democrats oppose new plants, according to a July 2010 survey of 2,502 residents by the Public Policy Institute of California. Overall, it showed 49 percent against new plants, 44 percent in favor and 7 percent undecided.

Murray Jennex, a veteran of the nuclear industry and a business professor at San Diego State University, said people with strong views on nuclear power probably won't be swayed by recent events.

"The ones who will have to decide are the majority of people who are in the middle," he said. "Four-dollar gasoline ... will force them to think about the ability to generate power without fossil fuels."

The challenge of safely storing spent fuel continues to hamper nuclear sites, but the technology creates little air pollution, runs efficiently and offers a potentially large source of jobs.

Those factors make new nuclear plants acceptable even to some left-leaning groups such as Third Way, a think tank in Washington D.C. The long layoff since the last facilities were built and the fear of cost overruns mean government loan guarantees backed by Obama are needed to jump-start the industry, the group said.

Revive Yucca (CHIT)

Chicago Tribune, March 19, 2011

Before the nuclear disaster in Japan, most people probably didn't know that there is something potentially worse than a nuclear reactor core meltdown. That's the breach and exposure of containers holding hundreds of radioactive rods of spent nuclear fuel.

That's what crews are battling at the crippled Fukushima nuclear facility.

Here's why that is potentially a bigger problem than a meltdown: In the Japanese reactors – as in many US reactors – the spent fuel is housed in large water-filled pools in the reactor building but outside the concrete-and-steel fortress that surrounds the reactor core.

If the core melts down, any radiation released is likely to be partly bottled up by the containment vessel.

Not so for the spent fuel pools, which often contain far more radioactive material than in the reactor. If the water that keeps those rods cool drains or boils away, the used fuel can catch fire. Result: A dangerous plume of extremely high radioactivity spewed into the air.

Obvious question: Why do nuclear plants store spent fuel that way?

Obvious answer in the US: Yucca Mountain isn't open. In the 1980s, the federal government launched plans to ship nuclear waste to a storage lair carved into the mountain in Nevada and let it slowly and harmlessly decay.

But lawsuits, politics and environmental challenges stalled the project for decades.

Last year – 12 years after it was supposed to open – the Obama administration declared Yucca dead and created a panel to study "alternatives."

"We're done with Yucca," White House energy adviser Carol Browner said at the time. "We need to be looking at other alternatives."

Alternatives that, presumably, weren't in Senate Majority Leader Harry Reid's backyard.

The decision to mothball Yucca was a huge mistake, and the Obama administration should recognize that in the wake of the nuclear disaster unfolding in Japan.

The storage caverns at Yucca would be 1,000 feet below the surface and 1,000 feet above the water table in the Nevada desert. They would be geologically stable. Water seepage from the surface is minimal.

Wake-up call: Illinois is home to more spent fuel rods than any other state in the nation.

The US doesn't have another three decades to dither about where to store nuclear waste. Those spent fuel rods are piling up in reactors near major cities – including at the scuttled Zion nuclear power plant here. About 1,100 tons of highly radioactive spent fuel rods stand about a football field away from Lake Michigan. Another 6,100 tons are stored at other Illinois plants.

A breach of those fuel pools and a release of huge radioactive plumes could create a disaster as bad as, or worse than, Chernobyl.

In 1997, the Brookhaven National Laboratory on Long Island studied the worst-case toll of a spent fuel conflagration. The scary results: 101 immediate deaths in a 500-mile range, 138,000 eventual deaths, 2,170 miles of land contaminated. Estimated economic damages: \$546 billion.

Until the Japanese earthquake and tsunami ruined the Fukushima reactors, the likelihood of a spent-fuel cataclysm seemed remote. No, we're not going to have a 9.0 earthquake in Zion or tsunami on Lake Michigan. But let's not mask that there is substantial risk to stalling on a central, secure storage location for the nation's spent nuclear fuel.

In the short term, America's nuclear industry can reduce risks by moving more spent fuel from reactor buildings into dry casks – sturdy concrete and steel containers nearly the size of a truck trailer – elsewhere on site.

In the long run, however, nuclear waste shouldn't be scattered near population centers across the country. It should be entombed in Yucca Mountain.

Millstone Vulnerable, Activist Warns - StamfordAdvocate (STAMADV)

By Bill Cummings

Stamford Advocate, March 21, 2011

NIANTIC – A group dedicated to closing the Millstone Nuclear Power Station warned Friday that the same type of disaster now unfolding in Japan could happen here in Connecticut.

Nancy Burton, director of the Connecticut Coalition Against Millstone, said the two operating reactors and one mothballed reactor at the Waterford plant could melt down much like what is happening at the Fukushima Daiichi Nuclear Power Station in Japan.

"A tsunami is not likely to occur in the Long Island Sound off Millstone, nor is an earthquake measuring 9 on the Richter scale," Burton said during a news conference along Niantic Bay, within sight of the Millstone complex.

"However, hurricanes, tornadoes and other storm events can and do occur and they and other factors can set off a chain of events crippling the nuclear power station and even leading to a meltdown," Burton said.

She said poor regulatory oversight, old reactor design and the presence of spent fuel in storage pools could all contribute to a disaster. A terrorist attack could cripple the plant and trigger a catastrophic release of deadly radiation.

"I'm here to talk about whether it could happen here. The answer is very definitely, 'Yes,'" said Burton, who has lobbied since the late 1990s to force Millstone to close. Burton's group claims the plant causes cancer, regularly releases radiation and is generally a hazard to the surrounding human and animal populations.

Kenneth Holt, a spokesman for Dominion, the utility which owns Millstone, dismissed Burton's comments as more of the same. He said the plant was built with a variety of backup systems and its design took into account the possibility of natural disasters.

"The plants ... were designed with all manner of natural destruction in mind, whether hurricanes, earthquakes or tornadoes. They were designed to withstand not only the historical worst but they added extra margins," Holt said.

Burton used the disaster that has engulfed a series of waterfront reactors in Japan as a backdrop for her comments. That disaster began nearly two weeks ago after a tsunami, triggered by a massive, deep-ocean earthquake, ripped through the shoreline area around the plants and cut off electricity.

Pumps that circulate water throughout the plant to cool the reactor and keep water circulating in spent fuel pools stopped working, leaving nuclear fuel exposed. Some of that fuel has caught fire or is melting, releasing radioactive elements into the air.

Millstone consists of two operating reactors and one mothballed reactor. Unit 1 is no longer operating and its spent nuclear fuel is being stored in an above-ground pool within the containment dome. Unit 2, which began operating in 1975, produces 875 megawatts of electricity while Unit 3, which began operating in 1986, produces 1,154 megawatts of electricity. Nearly 50 percent of Connecticut's electricity comes from the plant.

Burton said Millstone is vulnerable to attack by firing a torpedo-like device at the three water intake ports that draw liquid from Niantic Bay to cool the reactor and spent-fuel pools. She said buildings that house those pools could also be struck by aircraft, triggering a pool fire that would release tremendous amounts of radiation and possibly cause the reactor itself to melt down.

Anti-nuke Activists In Conn. Point To Japan Crisis (NECN)

New England Cable News, March 18, 2011

(NECN: Brian Burnell, Niantic, Conn.) - An anti-nuclear activist here in Connecticut says what's happening with the reactor in Japan could happen at this nuclear power plant in southeastern Connecticut. But a spokesman for the company that runs the plant says not likely.

Nancy Burton, CT Coalition Against Millstone: "We know that these are radioactive clouds because of what has happened here. Cascading, out of control meltdowns."

Nancy Burton compares the release of radioactive clouds from the Fukushima nuclear power plant to steam released from the Millstone Nuclear Power Station in Waterford, Connecticut in 2005. She has worked for years to get Millstone shut down. While she admits the likelihood of an earthquake and tsunami similar to what hit Japan is remote here in Connecticut she worries about a hurricane or tornado and the failure of systems designed to keep spent fuel cooling pools similar to the pools in Japan intact.

Nancy Burton, CT Coalition Against Millstone: "If there were to be a loss of coolant and the rods, which are highly radioactive, in that spent fuel pool were to overheat and water drain out there could be the same kind of calamity that seems to be taking place not at just one but several nuclear reactors in Japan on the northeast coast."

Kenneth Holt is a spokesman for Dominion Power which runs Millstone. He says the pool Burton is talking about cools spent fuel from unit one which was shut down in 1998.

Kenneth Holt, Dominion Power: "That reactor hasn't operated for more than 15 years so that fuel is actually very cool right now relatively speaking so as long as we maintain that equipment and keep it cool we will not see the problems that they're seeing in Japan right now."

He adds the systems that handle that are designed to withstand worse than the worst case scenario in terms of a natural disaster.

"When we consider the possibility of an earthquake and a tsunami on the Atlantic like what happened in Japan consider this. That's Long Island out there... a natural barrier to that happening here.

Folks Concerned About CT Power Plants (WTNHTV)

By Tina Detelj

WTNH-TV Hartford, CT, March 18, 2011

NIANTIC, Conn. (WTNH) - After an earthquake and tsunami crippled a nuclear complex in Japan, some folks in southeastern Connecticut are expressing concern about the safety of the state's nuclear power plants.

Some wonder if what is happening in Fukushima, Japan can happen in Niantic, Connecticut. That's a question being asked by many living within view of the Millstone Nuclear Power Plant.

Nancy Burton who heads the Connecticut Coalition Against Millstone has her answer.

"I'm sad to say that the answer is most definitely yes," says Burton.

Millstone' Nuclear Power Plant spokesperson Kenneth Holt disagrees. Holt says the plant is built to withstand a 6.2 earthquake, the biggest one ever felt in East Haddam was 5.9 back in the 1790's.

"We have flooding barriers, we have tornado doors," says Holt.

He says there are back up systems in place.

"We have had cases where we've lost off site power in all of those cases our emergency diesel generators have kicked on like they're supposed to," says Holt. "The back up was to be diesel generators just as at Fukushima, unfortunately the diesel generators failed."

Burton compared steam release. Fortunately Millstone does not use mox fuel.

Millstone two and three is different than Japan's which is considered vulnerable.

"It is the same type but it has been shut down since 1997 I'm sorry 1998 we permanently decommissioned. There is still fuel being stored in spent fuel pool there, and we maintain those systems to keep that fuel cool," says Holt.

Allen Kushner went on line to set his mind at ease.

"I was able to determine that the probability of a problem with the Millstone plant was about one in 44,000 and that was good enough for me," says Kushner.

Representatives from Dominion which runs Millstone are meeting with the new DEP Commissioner in his office in Hartford on Mar.18. The meeting was set up earlier this month because Daniel Esty was just appointed, but no doubt safety concerns at the plant will be discussed.

The Day - Dominion Weighs Removing Waste From Closed Reactor | News From Southeastern Connecticut (NLDAY)

By Patricia Daddona

New London (CT) Day, March 21, 2011

A nuclear activist said Friday that the owner of Millstone Power Station should remove radioactive waste from the pool atop its closed reactor, a step the company said is already under review.

Paul Gunter, director of reactor oversight for the activist group Beyond Nuclear of Takoma, Md., said Friday that Millstone owner Dominion should remove the waste from Unit 1 and put it in some of the dry-cask storage available on site, since the pool could be vulnerable if ever exposed in a catastrophe like that occurring in Japan.

Dominion spokesman Ken Holt said Friday, however, that the company had been evaluating the possibility of moving spent fuel into dry storage before the events still unfolding in Japan took place.

Japan's situation "is a factor in making our decision and will be considered when we make our decision," Holt said.

"While wet storage of fuel is safe and the way it's being stored now is safe, dry storage has some benefits to it," Holt said. "Mainly, it's a passive system. It doesn't require pumps or motors. It uses natural air circulation to keep the fuel cool."

The spent fuel pool at Unit 1, which was permanently closed in 1998, sits atop the reactor building, which is a boiling-water reactor design similar to the plants at the Fukushima Daiichi Nuclear Power Station in Japan. Two of the Fukushima reactors

have experienced fire or explosions in their pools in the aftermath of the earthquake and tsunami that battered the nation's northeast coastal area last week.

The Millstone nuclear complex on Long Island Sound has two other operating reactors, Units 2 and 3, in addition to the one that's shut down. Units 2 and 3 are pressurized water reactors whose spent fuel pools are in concrete buildings adjacent to the reactors.

Twenty-three reactors in the United States are Mark 1 boiling-water reactors like those in Fukushima. Unit 1 at Millstone is a Mark 3 reactor with Mark 1 containment, Holt said.

The risk to the public involves the release of radiation during a catastrophe. Millstone Unit 1's reactor pool is covered by a vented, fire-retardant metal roof and surrounded by walls made of reinforced concrete, Holt said. But the roof could be torn off in an explosion or calamity and expose the fuel.

Dry-cask storage at Millstone today includes 19 concrete bunkers the size of one-car garages lined up hundreds of yards away from the reactors. Fourteen of those bunkers house one canister each filled with 32 fuel assemblies from the Unit 2 reactor. Each Unit 2 assembly holds 176 used, 14-foot-long fuel rods.

Inventory needed

Gunter says President Barack Obama's call for a comprehensive review of safety issues at the country's 104 reactors should include the inventory of nuclear waste still sitting in these nuclear-waste storage pools.

"It's not just the seismic event that one needs to be concerned about; it could be an accident initiated by any kind of event," Gunter said.

Nancy Burton, an anti-nuclear activist from Redding Ridge and Mystic who called Friday for the Millstone complex to be completely closed, also noted Unit 1's vulnerability in extreme circumstances.

Moving spent fuel to dry-cask storage is complex, said Holt.

Dominion now has permission to build up to 49 bunkers but is only allowed to move waste from Units 2 or 3 into them, Holt said. The company would have to return to the Connecticut Siting Council to add more bunkers and move Unit 1 waste into the new ones, he said, adding that the NRC would also have to grant permission to move the Unit 1 fuel.

"It's a process to do it safely and right," he said.

Neil Sheehan, a spokesman for the federal Nuclear Regulatory Commission, which Obama has ordered to conduct a review, said in an e-mail it is too early to say whether that national review would include moving spent fuel into dry storage. The NRC plans to meet early next week on Obama's directive, he said.

"The NRC certainly intends to carefully study the Japanese events for implications for US reactors," Sheehan wrote. "However, the immediate focus is on providing technical assistance to the Japanese and monitoring any developments there."

The Nuclear Energy Institute has also asked reactor owners to examine their safety systems in connection with fires, aircraft impact, explosions and loss of power.

On Wednesday, Dominion put together a team of engineers, operators, maintenance personnel and other key workers to look at the kinds of safety issues the Japan incident has raised and "to ensure we are prepared as we can be in the event of an event like this," Holt said.

"We're doing our own investigations," Holt said. "We want to do what we can to increase the safety of our reactors. They're safe now, but we feel we can make them safer."

Millstone Nuclear Plant To Review Disaster Plans (NB)

Norwich Bulletin, March 19, 2011

Waterford, Conn. —

An official at Connecticut's only nuclear power plant says it will be reviewing its disaster contingency plans in light of the crisis surrounding Japan's crippled reactors.

Spokesman Ken Holt says the Millstone Power Station in Waterford is starting to pull together teams that will evaluate response plans for earthquakes, floods or other natural catastrophes.

The Dominion-owned plant at the entrance to Niantic Bay in southeast Connecticut opened in 1970. Its two units generate about 2,000 megawatts of electricity, enough to power half a million homes.

Holt said the plant has been following developments closely in Japan. He said the crisis has not prompted any changes in Millstone's inspection regimen, although the plant will look to make any needed improvements.

Conn. Nuclear Plant To Review Disaster Plans (AP)

Associated Press, March 21, 2011

HARTFORD, Conn.—An official at Connecticut's only nuclear power plant says it will be reviewing its disaster contingency plans in light of the crisis surrounding Japan's crippled reactors.

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Connecticut's Millstone Power Station In Waterford To Review Disaster Plans After Japan Crisis (WCBS)

WCBS-TV New York, March 21, 2011

HARTFORD, Conn. (CBSNewYork/AP) – An official at Connecticut's only nuclear power plant says it will be reviewing its disaster contingency plans in light of the crisis surrounding Japan's crippled reactors.

Spokesman Ken Holt says the Millstone Power Station in Waterford is starting to pull together teams that will evaluate response plans for earthquakes, floods and other natural disasters.

For more on the situation in Japan go to CBSNews.com

The plant, owned by the power company Dominion and located at the entrance to Niantic Bay in southeast Connecticut, opened in 1970. Its two units generate about 2,000 megawatts of electricity, enough to power half a million homes.

The news coincides with concern from New York's Attorney General, Eric Schneiderman, regarding the Indian Point nuclear plant in Westchester County.

On Friday, Schneiderman sent a letter to the Nuclear Regulatory Commission saying earthquake resistance should be taken into account when granting new licenses to its reactors.

The NRC said it would review the request and get back to the attorney general.

New York Attorney General Demands Earthquake Study On Nuclear Plant (ABC RADIO)

ABC News Radio, March 20, 2011

(NEW YORK) – New York Attorney General Eric Schneiderman demanded Friday that federal nuclear regulators investigate the earthquake readiness of a nuclear power plant just north of New York City before they renew its license to operate. The Indian Point Energy Center, 24 miles from the city in Buchanan, N.Y., has been leaking water from a safety lining since 1993.

"It is beyond troubling that at the same time the federal government acknowledges increased seismic safety risk at some nuclear power plants in this country, it refuses to fully and openly assess these specific risks to Indian Point as part of its relicensing process," said Schneiderman at a press conference Friday, a week after a massive earthquake damaged nuclear reactors in Japan. "While the possibility of an intense earthquake is low, the potential for harm is so catastrophic that it has to be taken into account. . . . We are adamant that the relicensing of Indian Point not go forward until seismic risks are evaluated."

In 2007 Entergy, the Louisiana-based company that runs Indian Point, applied for a 20-year license extension for its operating reactors. The decision from the Nuclear Regulatory Commission (NRC) is expected in 2013. In a letter to the NRC, Schneiderman declared that the agency must amend its regulations to include seismicity in the scope of its licensing review.

Entergy says the site can withstand a 6.0 quake. Two fault lines intersect just north of Indian Point, but the biggest earthquake in New York in the past 70 years measured 5.8 and occurred near the Canadian border.

Both Schneiderman and his predecessor as attorney general, current New York governor Andrew Cuomo, have been harsh critics of the plant because of the potential danger it poses to those living nearby. More than 20 million people live within 50 miles of its two operating reactors. Cuomo ordered a state safety review of the plant Thursday.

In a move that may complicate the relicensing, the state has denied a request for water-quality certification of the plant, saying that the cooling plants "do not and will not comply with existing New York State water quality standards."

Schneiderman said he is also concerned about the spent fuel rods that are currently in a decommissioned reactor on site. "We know from Japan that there is long-term risk from nuclear waste stored at Indian Point," said Schneiderman.

An NRC spokesperson declined to comment to ABC News about Schneiderman's statements, but said that the agency would respond to the Attorney General's letter after reviewing it.

Fed Official: 'Insane' To Have Reactors So Close To NYC

Indian Point, where the first reactor was licensed in 1962, has been controversial for decades. In 1979, Robert Ryan, director of the NRC's Office of State Programs, told a presidential commission, "I think it is insane to have a three-unit reactor on the Hudson River in Westchester County, 40 miles from Times Square, 20 miles from the Bronx."

"I'm sorry," said Ryan. "I just don't think that that's the right place to put a nuclear facility."

More than 30 years later, Indian Point has become the focal point of government and scientific community pressure to repair or shut many of the nation's aging and leaking plants. Indian Point is one of dozens of US plants with licenses scheduled to expire by 2015.

On Thursday, the Union of Concerned Scientists called new attention to the leak at Indian Point, which is in a lining in the refueling cavity that is meant to stop leakage of radioactive materials in the event of an earthquake.

"NRC inspectors at Indian Point recently found that the liner has been leaking 2 to 20 gallons per minute since at least 1993 and that the plant owner has not yet delivered on repeated promises to fix the leak," said the activist group in a report. "That means the device installed to prevent leakage after an earthquake is leaking before an earthquake even occurs."

"By allowing this reactor to continue operating with equipment that cannot perform its only safety function, the NRC is putting people living around Indian Point at elevated and undue risk," the report says.

A spokesperson for Entergy said the container that is leaking is only filled during refueling, which occurs every two years, and leakage from the structure is captured and pumped out.

"This is something we have been aware of and the NRC is aware of, and there are no safety issues with it," the spokesman said. "There is no leak of fuel."

Indian Point Safety Issues

But Indian Point's safety issues have not been confined to a single leak. In 2005, Entergy reported leakage in the spent fuel pool of reactor two, resulting in the emission of strontium and tritium. There was leakage from the spent fuel pool in reactor one in 2008.

In 2009, 100,000 gallons of water contaminated with trace amounts of tritium leaked out through a broken pipe. Indian Point is one of about two-dozen plants in the US that have reported tritium leaks. The NRC noted that the amount of tritium was well below the level allowed to be released.

In 2010, the state denied Entergy's request for water-quality certification at the plant, saying that Indian Point's two operating units violate state law and the federal Clean Water Act because they kill close to 1 billion marine organisms annually, including an endangered sturgeon, while consuming 2.5 billion gallons of water per day.

Even skeptical scientists acknowledge, however, that so far, the environmental concerns at Indian Point and other aging reactors around the country fall short of the potential for catastrophe.

"The chances of a disaster at a nuclear plant are low," the Union of Concerned Scientists noted. "When the NRC finds safety problems and ensures that owners address them -- as happened last year at Oconee (Georgia), Browns Ferry (Alabama), and Kewaunee (Wisconsin) -- it keeps the risk posed by nuclear power to workers and the public as low as practical. But when the NRC tolerates unresolved safety problems -- as it did last year at Peach Bottom (Pennsylvania), Indian Point, and Vermont Yankee -- this lax oversight allows that risk to rise. The more owners sweep safety problems under the rug and the longer safety problems remain uncorrected, the higher the risk climbs."

Druggists Report Run On Potassium Iodine Pills (DNT)

By John Burgeson

Danbury (CT) News Times, March 21, 2011

BRIDGEPORT – The crippled Fukushima Daiichi nuclear reactor is a half a world away, but that hasn't stopped people from calling their local pharmacies to ask about potassium iodide pills.

An informal survey of about 25 pharmacies in Fairfield County revealed that most druggists have had at least a few requests for the tablets and some are getting dozens of calls every day.

The trouble is there are almost no supplies of the over-the-counter drug anywhere in the state, they say. This is in part because the tablets have a shelf life of only five years, and there is no demand for the drug most of the time. The last rush on the drug was after the 9/11 terrorist attacks.

At Hope Street Pharmacy in Stamford, the "calls have been coming in every day, left and right," said Lisa Wolfe, the manager. "It's not something that we normally stock. We have three wholesalers that we normally deal with and it's on back order. We've been calling some of the other wholesalers that we don't usually deal with on a daily basis, and everyone's been telling us 'We don't have it.'"

The song was the same at the Grannick's Pharmacy in Darien. "Tons of requests," said owner Harris Grannick. "Usually, I'll stock a couple bottles, but I've been getting calls from people who are either going to the West Coast or who know people who live there."

About the only pharmacy in the region that has supplies of the potassium iodide is Compounded Solutions in Pharmacy LLC, at 179 Main St. Monroe, which can formulate the drug from the raw materials, potassium and iodine, according to Janis Covey, who works there.

"We've been getting multiple phone calls all week, so we decided that we are going to stock it," she said. "We can make the tablets on-site because we're a compounding pharmacy," she said. "Fourteen tablets for 10 dollars."

But potassium iodide, or KI as it's called in the trade, is of very limited use in preventing radiation disease, experts say.

Michael Nailor, clinical assistant professor of the University of Connecticut School of Pharmacy, said that KI only offers some protection for certain types of thyroid cancers, and only when the patient has been in contact with radioactive iodine.

"In healthy people, the thyroid gland takes up iodine to make hormones. The idea is to flood the body with nonradioactive iodine to prevent the thyroid from absorbing radioactive iodine," he said. "It only works for about 24 hours, so the patient should not be taking it now, because it would be ineffective."

He also said that since it is an over-the-counter drug, "there's always a risk of counterfeits and dubious pills entering the market."

CBS News is reporting that there are fake potassium iodine pills on the market. Officials are warning that any bottle of "iodide" pills that says it can cure a variety of ailments is bogus, even if it has a "no risk, money-back" guarantee.

Experts say Connecticut residents have little to be fearful of in terms of an earthquake causing a nuclear meltdown at the Millstone Nuclear Power Station in Waterford.

"Here in the Northeast, it's a very different setting in terms of the plate tectonics," said Maureen Long, a professor of geology at Yale who specializes in seismology. "Japan is in a subduction zone, so it's in a region that's capable of producing very large earthquakes. That isn't the case here in the Northeast. We don't think that there is any risk of a very large earthquake in this region."

Long, who studies subduction-zone quakes, just like the kind that occurred off of Honshu's Pacific coast last week, said that while there is some seismicity in the Northeast – there was a magnitude 5.1 quake that shook Au Sable Forks, N.Y. in April, 2002 -- a 5.1 quake is small potatoes compared to the one that occurred off of Honshu.

"In Japan, they're on a plate boundary, and there's a lot more opportunity to build up the strain for a major earthquake," she said. "But here, in the Northeast, we're nowhere near a plate boundary -- we're in the middle of the North American plate, which extends from the mid-Atlantic Ocean all the way to California."

She added that although there are dozens of fault lines running this way and that through the state, just about all of them are old and inactive.

But Friday, Nancy Burton, the director of the Connecticut Coalition Against Millstone, said that earthquakes aside, poor regulatory oversight, old reactor design and the presence of spent fuel in storage pools could all contribute to a meltdown at the two operating reactors and one mothballed reactor at the Millstone Nuclear Power Station in Waterford.

"However, hurricanes, tornadoes and other storm events can and do occur and they and other factors can set off a chain of events crippling the nuclear power station and even leading to a meltdown," Burton said.

You can reach John Burgeson at 203-330-6403 or by e-mail at jburgeson@ctpost.com. Follow twitter.com/johnburgeson.

Folks Seek Radiation Pills In Groton (WTNH-TV)

Iodide pills in high demand

By Tina Detelj

WTNH-TV Hartford, CT, March 21, 2011

GROTON, Conn. (WTNH) - Potassium iodide pills are a hot commodity for folks living near the nuclear plant in Groton following the plant meltdown in Japan.

The Japanese people paused today for a moment of silence, and prayers. The official death toll from this disaster stands at more than 65-hundred people. Half a world away in Connecticut the events in Japan are raising radiation concerns.

Though the risk is low that a similar disaster could happen in the state, some people in Groton are stocking up supplies to fend off radiation sickness. The little pills have become a hot commodity ever since the nuclear contamination concerns in Japan, but at pharmacies they may be hard to find.

"I've had a couple of people come in asking for them for friends and family in Japan and I've had a lot of phone calls seeing if we can order in which we've had trouble finding," says Pharmacist Jennifer Stone.

The potassium iodide pills are said to block the thyroid's absorption of cancer-causing radioactive iodine released from a nuclear reactor or bomb. Stone lives near the Millstone Nuclear Power Plant and is concerned herself.

"I am and I know there's some documentation we had to sign for the school that allows the school to dispense it to the children," says Stone.

There is a heightened awareness at Fort Hill Pharmacy in Groton.

"If anyone's gonna have those pills it's gonna be the staff here if you're concerned. We don't have any in stock and we used to carry them for a long time just in case because of Millstone but they ended up going outdated," says Stone.

For a while folks like Chelsea Chanady weren't very concerned but now they're keeping a closer eye on Japan's nuclear crisis.

"I'm more lets be prepared for the worst and stock up in case ever were to go wrong," says Chanady.

The pills are available to those living in towns close to Millstone.

"Oh we're seeing a huge increase, in fact yesterday alone we had 200 pills that we gave out which is probably much more than we had in the last number of years," says Paul Formica, East Lyme First Selectman.

The potassium iodide pills come with a map showing the emergency evacuation routes. The state had given them out to folks who live or work near the nuclear power plant.

The Centers of Disease Control warns that Americans should NOT be taking iodide pills.

Nuclear Safety: Five Recent 'Near Miss' Incidents At US Nuclear Power Plants (CSM)

Christian Science Monitor, March 21, 2011

Fourteen safety-related events at nuclear power plants required follow-up inspections from the Nuclear Regulatory Commission, the NRC reported in 2010. These "near-miss" events "raised the risk of damage to the reactor core – and thus to the safety of workers and the public," concluded a new report, "The NRC and Nuclear Power Plant Safety in 2010," by the Union of Concerned Scientists. Here are five of these 14 "near miss" examples:

- Staff

Degraded electrical equipment caught fire in the control room of Unit 1, about 90 minutes after an electrical short led to an inadvertent shutdown of the reactor, on June 8, 2010.

Six months earlier, a fire had broken out in the Unit 2 control room – because of similarly degraded electrical components.

After putting out the Unit 2 fire in November 2009, workers had asked technicians to investigate, but the company closed the report without any investigation or evaluation.

After the second fire, workers tested electrical components in both control rooms and found many were degraded, including some that produced visible sparks during testing.

Because the company had taken no action to protect Unit 1 from the problem they had been warned of in Unit 2, NRC's investigation team sanctioned the company.

Our Nuclear Future (RICHTD)

Richmond (VA) Times-Dispatch, March 21, 2011

Until the catastrophic tsunami that struck Japan last week, nuclear power had been enjoying something of a renaissance in popularity, thanks to its status as the only zero-carbon-emissions technology capable of providing reliable power on an industrial scale. The problems at Japanese reactors have prompted second thoughts among erstwhile enthusiasts, and strident demands for a moratorium from those who never were convinced of nuclear power's merits in the first place.

As difficult and alarming as the explosions and radiation leaks at Japan's facilities have been, however, they need to be put in context. The reactors have served the Japanese people extremely well for many years. They were struck by a natural disaster of biblical proportions. And they largely withstood it. Thousands – perhaps tens of thousands – of people have died in the catastrophe. Nearly no nuclear-related casualties have been reported. That may change as time wears on, but it's worth noting that even the worst nuclear accident to date – Chernobyl – is responsible for vastly fewer lives lost than the number who have died from the production and use of fossil fuels.

The difference, of course, is that sudden disasters take lives quickly and in a spectacular fashion, while the far more numerous people who have died from the production and use of fossil fuels die singly, in ways that go unnoticed: a pipeline worker gets crushed in a machinery accident; an old woman dies of complications from an infection made worse by air pollution; and so on. The odds that you will die in a plane crash in any given year are one in 400,000. The odds that you will die walking across the street in any given year are one in 48,500 – eight times higher. Yet countless Americans are dreadfully more afraid of

entering an airplane than they are of entering a crosswalk. By the same token, people fear nuclear power when they ought to fear the lack of it.

Nuclear power boasts an astoundingly good safety record, and will continue to do so even after the events in Japan are taken into account. Dominion Virginia Power sets a standard in this regard. It would be the height of foolishness to let the panic of the hour divert the country from a future in which nuclear power plays a much bigger part.

Don't Give Up On Nuclear (NB)

Norwich Bulletin, March 21, 2011

The growing nuclear crisis at the Fukushima Daiichi Nuclear Power Station in Japan is certainly reason for concern and reflection on the wisdom of nuclear power as an alternative energy source.

In comparison to nuclear plant mishaps at Chernobyl and Three Mile Island, the crisis at the Daiichi plant appears to pose a far greater threat with the potential of a catastrophic release of radioactivity into the ground, air and water.

A massive release of radioactivity poses the gravest threat to human life. A last-ditch effort of using sea water to cool the reactors and avoid a meltdown has shown little success thus far in diminishing the threat.

We have long supported nuclear power as an alternative energy source, and will concede that the events of the past week have caused us to take pause and reconsider that position. However, despite the dangers the situation in Japan now presents, we remain convinced nuclear power is a safe alternative form of producing electricity.

But it is also quite clear that there are lessons to be learned and additional safeguards developed and implemented. As we've come to learn, being prepared for a worse case scenario is one thing; having to actually face it is something entirely different.

The Daiichi station, constructed 40 years ago, suffered no structural damage from either the earthquake or the 23-foot tsunami. Earthquakes are not uncommon in Japan, and clearly this plant was constructed with that in mind — as are all nuclear power plants built on or near fault lines.

The earthquake, however, did knock out power to the plant, crippling the pumps that supply the water to cool the reactors. Backup generators were damaged by the tsunami, leaving plant officials with only the third and final line of defense in the emergency contingency plan — batteries.

The plant was equipped with eight-hour batteries that clearly were not enough.

The 104 US nuclear power plants have similar contingency plans, with backup generators and batteries. What is a concern, however, is that the average battery life at many US plants is six to eight hours — similar to those used at the Japanese facility. That is certainly one change that needs to be addressed.

Local power stations

At the Dominion Millstone Nuclear Power Station in Waterford, in a population range of 2.9 million within 50 miles, batteries that can be charged while in use, along with an additional generator in reserve, are part of the emergency plan.

Because of its proximity to Long Island Sound, earthquakes, floods and prolonged off site electrical blackouts were all considered in its initial construction so it is assumed and expected that it too, can withstand natural disasters without suffering structural damage.

But what the situation in Japan has shown us is, that may not be enough.

The Daily Beast ranked Millstone 37th out of 65 “most-at-risk” nuclear plants based on risk of natural disaster, safety performance assessments and surrounding population. However, according to Bill Bradley, Nuclear Energy Institute director of risk assessment, it is almost impossible to rank the absolute safety risk due to a number of variables.

Nuclear energy, in our opinion, remains a viable source of electric generation. A re-examination of the safeguards to ensure its safe operation, however, is clearly needed.

Keep Nuclear Part Of Energy Future (MHTR)

Manitowoc (WI) Herald Times Reporter, March 21, 2011

Nuclear safety is on everyone's mind as events play out in Japan, where nuclear plants were damaged or compromised following a devastating earthquake and ensuing tsunami.

We don't know the full extent of the damage there, or its impact on human health or the environment. That will become more clear in the days and weeks ahead.

Manitowoc County has two nuclear reactors — at Point Beach — and another located in neighboring Kewaunee County. Combined, they provide one-fifth of all the electricity used in Wisconsin.

The inevitable question arises: Could what happened in Japan happen here?

The answer is yes. Natural disasters — and their severity — defy even the best the science of prediction has to offer. This was, after all, the largest earthquake ever to strike Japan, and there was no advance warning.

Don't pack up the kids and your belongings just yet, though.

Those in the nuclear industry said reassuring things following the Japan disaster. Viktoria Mitlyng of the US Nuclear Regulatory Commission said the Kewaunee and Point Beach nuclear plants were made to survive the worst natural disasters on record.

Sara Cassidy of the Point Beach plant said the facility's design and maintenance are based on the worst-case seismic scenario for the plant's location.

And Mark Kanz of the Kewaunee nuclear plant said its owner, Dominion Resources, would review all of its safety systems.

They all are comforting, albeit predictable, statements.

In this case, however, we put more stock in the past than in what might happen in a future impossible to predict. The Point Beach and Kewaunee facilities have, for the most part, had clean safety records since going online in the 1970s.

There have been occasional glitches, but they were thoroughly examined by the NRC and corrective measures were taken. None of the instances rose to the level of seriously compromising public safety.

We can be thankful that current and previous management of the local nuclear facilities has been, if not always stellar, at least proficient to the point of keeping the plants operating safely and efficiently.

That says a lot in an industry coming under increasing fire from those who believe the US nuclear footprint should be much smaller, if not eliminated altogether.

President Obama has asked the NRC to conduct a "comprehensive review" of the safety of all 104 US nuclear plants following the disaster in Japan. It's another in a series of predictable responses.

Ongoing review of nuclear safety is, after all, what the NRC does. We hope that those reviews are, indeed, comprehensive. New data from the Japan disaster can prove helpful.

More to the point in the president's recent remarks is this: "Nuclear energy is an important part of our own energy future."

That bodes well for an industry in the midst of battles over plant decommissioning, new and costly rules, and environmental regulations.

We hope that nuclear power, with ongoing and thorough oversight, will continue to be part of the nation's energy landscape for many years to come.

After Japan's Disaster, Will Nuclear Energy Have A Future In America? (WP)

Washington Post, March 19, 2011

The Post asked energy experts, lawmakers and others how the recent events in Japan would affect the "nuclear renaissance" in the United States. Below, responses from Steven F. Hayward, Virginia Gov. Robert Mc-Don-nell (R), Ellen Vancko, Marvin Fertel, Douglas E. Schoen and Frances Beinecke.

STEVEN F. HAYWARD ·

Fellow at the American Enterprise Institute

Japan's nuclear disaster came at a time when nuclear power seemed poised for a new birth in the United States. Opinion polls have shown rising support for nuclear power over the past decade, after more than two decades of opposition. More significantly, environmentalists were slowly, tentatively abandoning their reflexive opposition to nuclear power because of the bigger problem of climate change. Japan's catastrophe hits the reset button on the whole issue. One irony is that the climate campaign is a big near-term loser, as carbon dioxide emissions in Japan and Germany (which switched off seven nuclear plants) will go up.

It is remotely possible that the aftermath of this disaster might ironically lead to the go-ahead for a new generation of smaller, safer nuclear designs that are in development. If Japan can come through the worst-case scenario, it might calm our longtime nuclear phobia. But many big questions remain unresolved: Putting aside Wall Street's reluctance to finance new nuclear plants, the insurance industry's inability to price the risk and underwrite new plants, and Congress's resistance to large loan guarantees, it is not clear that nuclear power can compete with suddenly cheap natural-gas-fired power on a level playing field.

ROBERT MCDONNELL (R)

Governor of Virginia

We have all watched with shock and sadness the recent events in Japan. While Americans donate generously to relief efforts, we must also keep a proper perspective about what Japan's disaster means for energy policy here. I believe it would be most unwise to let this unprecedented tragedy lead to the retraction or abandonment of the American nuclear energy industry.

Nuclear energy is clean, reliable, affordable and critical to generating the volume of electricity we need to power our homes and businesses and grow our economy.

Virginia is home to two nuclear facilities, in Surry and Louisa counties. They generate roughly 40 percent of our electricity. They have multiple redundant systems to provide backup electrical power. The stations were also analyzed against worst-case acts of nature, such as earthquakes, floods and hurricanes, and modified as necessary to protect them. There are 19 emergency drills scheduled for this year.

We must use all our God-given resources here in America to pursue our goal of greater energy security. Nuclear energy is an important part of our energy portfolio. Virginia is moving forward with plans to build a third reactor in Louisa, and I support that effort. We should of course learn from the tragedy in Japan and use the unparalleled ingenuity and know-how of American scientists and our free-enterprise system to ensure that our nuclear plants continue to be prepared and improved. What we should not do is turn our back on an industry that provides needed clean and affordable energy while creating good jobs for Americans.

ELLEN VANCKO

Nuclear Energy and Climate Change Project Manager at the Union of Concerned Scientists

With Japan's nuclear disaster still unfolding, not all lessons have been learned, but a few things are already clear:

The Nuclear Regulatory Commission must review the safety of US nuclear plants and ensure that existing rules and regulations are stringently enforced and that any new nuclear plants are significantly safer than existing ones. Forthcoming NRC regulations that will require owners to integrate security measures into reactor designs should specify that the NRC — not reactor owners — will determine which measures meet that criterion.

The nuclear renaissance in the United States was in trouble long before Japan's earthquake and tsunami. Spiraling construction cost estimates, declining energy demand, low costs of natural gas and the government's failure to place a price on carbon already threatened the industry's future. This month the nation's top nuclear executive told a gathering at the American Enterprise Institute that he would not invest in new nuclear reactors because they are not economically competitive — nor will be for the next decade or two — when compared with such other low-carbon alternatives as energy efficiency, natural gas and upgrading the generating capacity of existing reactors. (I would add cost-effective windpower and other renewable energy technologies to the list.)

It is impossible to fully plan for natural disasters, but we can at least put in place all practical mechanisms to protect our citizens and environment from known hazards. Utilities and first responders are not yet prepared to respond to a combination of disruptive events, natural or man-made, that could damage critical infrastructure and precipitate a nuclear accident. Adding more safety features to nuclear reactors will make nuclear power more expensive, as will improving our emergency preparedness, compared with other, less risky low-carbon energy alternatives. The American people will need to decide how much safety they want to pay for.

MARVIN FERTEL

President and chief nuclear officer of the Nuclear Energy Institute

It is premature to reach conclusions, but I believe that expansion of the nuclear energy sector will proceed. Our industry has been forecasting the development of four to eight new reactors between 2016 and 2020; four are under development. The forecast beyond 2020 is unclear simply because so much depends on market conditions.

Over the past week, industry leaders have reached out to their customers and met with members of Congress and other policymakers to ensure that they understand the facts in Japan. Broadly speaking, these meetings show that support for nuclear energy remains strong. As national leaders seek to enhance our energy security with an expanded domestic portfolio, they are doing so based on the full knowledge of nuclear plant capabilities and our steadfast commitment to safety.

The president and congressional leaders have had a measured response to the Fukushima accident based on their understanding of the US nuclear energy safety record and its unique contributions to the nation's electricity portfolio: power plants that generate low-carbon electricity virtually around the clock, with an industry-average capacity factor of 90 percent; and a key component of a diversified energy mix that enhances national security.

The tragic forces of nature and the accident at the Fukushima nuclear power plant will have repercussions for our industry but also will result in changes for the better. President Obama has reassured our nation that there is no threat to public health from the Japanese accident and that the US industry is safe. Every US nuclear power plant is reexamining the programs in place to respond to extreme natural events or significant loss of critical plant systems.

DOUGLAS E. SCHOEN

Democratic pollster and author

There will be no new nuclear renaissance in the United States, and there frankly shouldn't be one, until we know the full extent of the damage caused by the earthquake and tsunami in Japan.

That means that the Nuclear Regulatory Commission should put on hold its review of the 20 license applications from companies eager to initiate or complete new nuclear plants.

It also means that the president's proposed \$36 billion for loan guarantees to construct new facilities should also be frozen.

Before the tragedy in Japan, those of us in the center were advocating bipartisanship to promote a broader-based expansion of the use of nuclear power as part of our energy mix.

Now we need a different kind of bipartisanship to promote more offshore drilling and the development of domestic energy resources.

What happened in Japan can be a trigger of a new commitment to energy independence, casting aside divisive fights about cap-and-trade and concentrating on bringing the right and left together to address one of our huge national challenges.

FRANCES BEINECKE

President of the Natural Resources Defense Council

The future of nuclear power in America depends on whether plants are safe, cost-effective and environmentally sound. The crisis in Japan underscores the fact that these critical concerns have not been fully addressed.

The explosions, fires and radioactive releases from Daiichi are resulting from the failure of cooling water pumps following the loss of electricity. The majority of US nuclear reactors have just four hours of backup capability, which poses serious risks in the event of our own disaster.

Threats at Daiichi are also coming from spent fuel pools. Tons of spent fuel are in similar pools at US reactors. The Nuclear Regulatory Commission should require that fuel be moved out of pools and into safer, hardened casks once the fuel has cooled.

We also need an environmentally safe geologic repository for nuclear waste, which is radioactive for thousands of years. Such waste must be safely stored if nuclear power is to be used, and we need to address the harm done to water and lands from the entire nuclear fuel cycle, from uranium mining to plant operations.

Taxpayers pony up billions of dollars in nuclear subsidies each year to guarantee loans and assume the risks of a catastrophic disaster. After more than five decades, this mature industry shouldn't rely on public subsidies. That money should be invested instead in energy efficiency and the development of safer, sustainable sources of power and fuel. Creating an energy future that strengthens our economy and makes our country more secure transcends politics and ideology. That's where Democrats and Republicans alike can, and should, find common ground.

FitzPatrick, Nine Mile Point 1 Reactors Are Similar In Design To Japan's Out-of-control Nuclear Plants (SPS)

By Tim Knauss

Syracuse Post Standard, March 21, 2011

Scriba, NY – The March 11 earthquake that devastated Japan was more than 1,000 times stronger than any quake that has hit New York state.

The tsunami that followed rose from an ocean that makes Lake Ontario look like a puddle.

But the Japanese nuclear plants that flared out of control after that one-two punch are very similar to — in some cases, mirror images of — Oswego County's three nuclear reactors along Lake Ontario.

The similarities have nuclear watchdogs and the public asking whether US nukes are sturdy enough to withstand nature's worst.

Three General Electric-designed Japanese reactors rocked by explosions at the Fukushima Daiichi plant are nearly identical to 23 US plants, including the FitzPatrick and Nine Mile Point Unit 1 reactors in the town of Scriba.

The spent-fuel pool at a fourth Fukushima plant, where US officials say exposed fuel rods spewed dangerous radiation, is similar to pools at many US sites, including all three plants in Scriba.

Nobody here is panicking.

The three Oswego County plants have a combined 95 years of operation, and they are humming along better now than they did in decades past. Their safety records are relatively pristine, according to the US Nuclear Regulatory Commission.

The three nukes made about 15 percent of the electricity used by New York state in 2009, the last year for which records are available.

But the Fukushima disaster chills American nuclear experts in a way that the 1986 Chernobyl meltdown in Ukraine did not.

The devastation at Chernobyl, which polluted more than 1,000 square miles and caused thousands of cancers, stemmed largely from a faulty plant design that allowed the reactor core to rupture and send radiation skyward, said physicist Frank Congel, of Jefferson County, who retired in 2005 as of director of enforcement at the Nuclear Regulatory Commission.

The troubled Fukushima plants, on the other hand, are General Electric-designed Mark I boiling water reactors — BWRs in nukespeak — like FitzPatrick and Nine Mile 1. And they're similar to the next-generation Mark II BWR at Nine Mile 2.

"Chernobyl was a totally different piece of equipment," Congel said.

Just how bad a beating the Fukushima plants took from the earthquake and tsunami is still unknown, at least to US observers. But the crisis that made the plants uncontrollable was the loss of electrical power, said David Lochbaum, a nuclear engineer at the Union of Concerned Scientists.

Lochbaum, who worked at nuclear plants for 17 years and later as an NRC trainer, said American nukes are vulnerable to power disruptions, too.

"Ice storms in the Northeast or a tree in Cleveland can cause an extensive blackout that puts us in a very similar situation," he said.

The Northeast blackout of 2003, precipitated in part by trees falling on lines in Ohio, knocked out power to all six nuclear plants in New York. Each of the three Oswego County reactors was running at full capacity when the blackout struck. They automatically shut down.

For about seven hours, until outside electricity was restored, plant operators relied on backup diesel generators the size of locomotives to run water pumps and other equipment to cool the radioactive fuel and maintain stability, according to government reports.

Nine Mile 1 has two diesel generators, and Nine Mile 2 has three, said Jill Lyon, speaking for owner Constellation Energy Nuclear Group. FitzPatrick, owned by Entergy Corp., has four emergency generators, said spokeswoman Tammy Holden.

At the Nine Mile Point station, there's enough fuel in underground oil tanks to run one of the generators flat out for four days, Lyon said. FitzPatrick stores enough fuel for seven days, Holden said.

If the generators fail or run out of fuel, the plants have batteries that are supposed to keep vital equipment running for at least four hours. After that, without power, comes "station blackout," a dreaded event that could lead to loss of control over hot fuel in the reactor core, in the spent-fuel pool, or both.

"That's well, well recognized to be a vulnerability, a severe one," said Congel, the former NRC official. "That's why it's backed up so deeply."

At Fukushima, batteries provided eight hours of backup service after the generators were disabled by the tsunami, said Lochbaum, of the Union of Concerned Scientists. The NRC should consider beefing up backup power requirements in this country, he said.

Beefed-up containment

Although the loss of power and the inability to cool fuel rods are believed to have caused partial core meltdowns in some Fukushima reactors, observers remained hopeful there would be no major breach in the large steel-and-concrete containment structures that encircle the reactors.

John Berry / The Post-Standard, 2007The Nine Mile Point and FitzPatrick nuclear facilities sit on the shore of Lake Ontario.

Containment held during the 1979 emergency at Three Mile Island in Pennsylvania, the worst in US history, Congel said. The fuel melted, but most of the radiation remained trapped inside the vessel.

Some critics have expressed anxiety about the Fukushima reactors because they use the Mark I containment structure, designed by General Electric in the 1960s. By the early 1970s, several GE engineers and US regulators began warning that the Mark I might not withstand a "loss-of-coolant accident."

But all 23 Mark I reactors in this country have been extensively modified since the 1980s and made safe, said NRC Chairman Gregory Jaczko, speaking at a Senate committee meeting last week. That includes FitzPatrick and Nine Mile 1. Key improvements included vents to release pressure and a system to remove oxygen, reducing the risk of explosions inside the vessel.

The explosions that rocked the Fukushima plants appear to have occurred outside the containment structures after hydrogen gas was vented to relieve pressure, experts say.

GE officials issued a statement last week saying there had never been a breach of a Mark I.

"To be fair to GE — and Japan, for that matter — any reactor design currently operating today that had been faced with an earthquake followed by a tsunami that took out primary power and backup power would likely be in a very similar situation to what we have," said Lochbaum, of the Union of Concerned Scientists.

What about the fuel?

But the spent-fuel pools at Mark I and Mark II facilities are a problem, said Lochbaum and his colleague, physicist Edwin Lyman. The pools are located on the upper level of the reactor buildings, outside primary containment areas, and are used to cool fuel rods removed during refueling.

Because there is no long-term storage facility for US nuclear waste, spent-fuel pools have evolved into semi-permanent storage sites. Both FitzPatrick and Nine Mile 1 have received permission over the years to increase the number of fuel rods in their pools.

At Fukushima, the water in a similar pool has leaked out or burned off, exposing the fuel rods and allowing radiation to escape, according to NRC Chairman Jaczko.

The NRC considers the pools safe. In December, the agency adopted a rule allowing US nuclear plant operators to store used fuel on-site for as long as 60 years after a plant closes. At Nine Mile 2, the youngest of the three Scriba reactors, spent fuel rods could remain in the pool until 2106.

Attorneys general from three states, including New York, have gone to court to try to block the new NRC rule. Attorney General Eric Schneiderman — like his predecessor, Gov. Andrew Cuomo — cites problems at Entergy Nuclear's Indian Point facility, where leaks from spent-fuel pools have contaminated groundwater.

According to the NRC, the leaks have been repaired.

Some nuclear plants, including FitzPatrick, have moved their oldest fuel rods into 135-ton "dry cask" containers that are passively air-cooled and can be stored outside the plant without any connection to electricity. Lyman, of UCS, advocates a more aggressive use of dry storage to lessen the risks from pools.

Constellation plans to begin using dry cask storage soon at the Nine Mile Point reactors, Lyon said. Construction of a storage facility and associated equipment is expected to be complete by 2012, she said.

Planning for earthquakes

Beginning in the 1960s, US regulators required nuclear plants to withstand the strongest earthquake known to have occurred within 200 miles of the plant, said consulting engineer John Stevenson, of Cleveland, Ohio, who has worked in the nuclear industry for 45 years.

John Berry / The Post-Standard, 1986The first 12 1/2-foot, 400-pound fuel rod assembly is loaded into the reactor core under 65 feet of water at Nine Mile 2 in Scriba.

In the case of Oswego County, that benchmark was the 1944 earthquake at Massena, which registered a magnitude of 5.8, Stevenson said.

In the late 1980s and early 1990s, as better geological information became available, regulators required all nukes to double their resistance to seismic forces, adding a margin of safety beyond the original standard, Stevenson said.

Actual specifications for the Oswego County plants were not immediately available, operators and NRC officials said.

Unidentified security issue

Other than the Three Mile Island accident in 1979, during which pregnant women and preschool-age children within a 5-mile radius of the plant were advised to leave, there has never been an evacuation around a US nuclear power plant, said Neil Sheehan, speaking for the NRC.

Should that day come to Oswego County, the decision would fall to county Legislature Chairman Barry Leemann to order an evacuation. Leemann, who participates in nuclear emergency drills, said the chairman makes that decision in consultation with nuclear plant operators and emergency personnel from the state and county.

Oswego County's nuclear emergency plan, like most, calls for evacuating an area up to 10 miles from the Scriba plants. In Japan, American officials have warned people to stay at least 50 miles from Fukushima.

Jaczko said the NRC plans extensive reviews of the Japanese disaster to decide whether changes should be made to US policies.

In the meantime, the agency goes about the day-to-day task of looking over the shoulders of nuclear operators.

The most recent NRC inspections at the three nuclear plants in Scriba resulted in good report cards, Sheehan said. One exception was a "security-related inspection finding" at FitzPatrick that will result in elevated NRC scrutiny on that subject during 2011, he said.

Sheehan declined to give details. Security issues have to do with plant procedures to prevent attacks or sabotage.

"We do not provide details on security-related inspection findings because we do not supply potential plant adversaries with any information that might be useful," he said.

Cleanup mistakes

At the Nine Mile station, the NRC's biggest concern recently was Constellation's response to an accident that disabled two pumps that suck cooling water from Lake Ontario into the plant.

On Nov. 4, 2008, two divers went down to clean silt and sludge away from water intakes, according to an NRC report. One of the divers inadvertently allowed a section of his 6-inch-diameter plastic hose to trail in front of the pipe grate, where the 9,000-gallon-per-minute rush of water ripped off a piece and sucked it into the pump.

Rather than stop the dive and notify plant managers, the team tried to correct the problem. In the process, another piece of hose was sucked into a different pump, disabling it.

After clearing pieces of hose from the pumps, the workers did not test the pumps. Several days later, when the pumps were started up again, they failed. More parts of hose were discovered.

The incident never threatened plant safety, the NRC said.

Mark Sullivan, a Constellation spokesman, said nuclear operators constantly try to learn from events.

"Continuous improvement is a founding principle of our business," he said.

SIDEBAR: Fukushima, Oswego County plant similarities

There are similarities between three nuclear power plants in Oswego County and the reactors at the Fukushima Dai-ichi plant in Japan, which was damaged by the March 11 earthquake and tsunami. Four of the six Japanese reactors there have experienced explosions, structural damage, partial meltdowns or rising temperatures in spent fuel pools. Radioactive gases are believed to have escaped four of the reactors, prompting an evacuation and creating serious risks to humans and the environment.

Common traits between the Oswego and damaged plants include:

- All are boiling-water reactors designed by General Electric.
- All began operating in the 1970s except Nine Mile Point Unit 2, which is newer. • All except Nine Mile Point Unit 2 use the GE Mark I type of reactor containment vessel, which some nuclear industry officials have criticized.
- Spent fuel rods from all of the reactors are stored onsite in pools of water that are less protected than the reactor vessels. At Fitzpatrick, the oldest rods are stored in hardened casks of steel and concrete

SIDEBAR: Nukes in our backyard

There are three nuclear power plants 34 miles from downtown Syracuse in the Oswego County town of Scriba.

FITZPATRICK NUCLEAR POWER PLANT

Operator: Entergy Nuclear Operations

Licensed: Oct. 17, 1974

Re-licensed: Sept. 8, 2008

License expires: Oct. 17, 2034

Reactor type: Boiling water reactor

Electrical output capacity: 852 megawatts

2009 output: 7.4 million megawatt hours, or 5 percent of the state total

Reactor designer: General Electric

Containment vessel type: Mark I

NINE MILE POINT UNIT 1

Operator: Constellation Energy Nuclear Group

Licensed: Dec. 26, 1974

Re-licensed: Oct. 31, 2006

License expires: Aug. 22, 2029

Reactor type: Boiling water reactor

Electrical output capacity: 621 megawatts

2009 output: 4.5 million megawatt hours, or 3 percent of the state total

Reactor designer: General Electric

Containment vessel type: Mark I

NINE MILE POINT UNIT 2

Operator: Constellation Energy Nuclear Group

Licensed: July 2, 1987

Re-licensed: Oct. 31, 2006

License expires: Oct. 31, 2046

Reactor type: Boiling water reactor

Electrical output capacity: 1140 megawatts

2009 output: 9.9 million megawatt hours, or 7 percent of the state total

Reactor designer: General Electric
Containment vessel type: Mark II

Japan Crisis Casts Pall Over Maryland Nuclear Power Expansion (GLFDPTCH)

Radiation dangers in wake of earthquake, tsunami could sour public opinion on building more reactors.

By Andy Marso

Guilford Patch, March 21, 2011

WASHINGTON - Maryland's only nuclear power plant is fundamentally different from the endangered Fukushima plant in Japan, but what's happening on the other side of the world could suppress the public's appetite for more reactors here.

The Fukushima plant, damaged by a 9.0 earthquake and ensuing tsunami on March 11, has six boiling water reactors. Maryland's Calvert Cliffs Nuclear Power Plant, located in Lusby on the southwest coast of the Chesapeake Bay, has two pressurized water reactors. Proposals to add a third reactor stalled in financial negotiations and a French company's bid to take on the expansion now appears even less likely to come to fruition.

"Public opinion has changed in the last couple days," Maryland Comptroller Peter Franchot said.

Franchot said economics are still the biggest obstacle for proponents of a Calvert Cliffs expansion, but the situation in Japan would have a "huge impact on the Nuclear Renaissance" across the country.

Questions about the design of boiling water reactors appear to date back almost to the time when Fukushima started operating in 1971. The Center for Public Integrity reported March 15 that in 1972 Stephen Hanauer, a senior member of the Atomic Energy Commission staff, said the "pressure suppression" safeguards built into such reactors were not as effective as "dry" radiation containment structures like towers or domes.

As a pressurized water reactor plant, Calvert Cliffs does not allow water to boil within the reactor core, but rather transfers the heat to a steam generator which produces electricity. Pressurized water reactors have domed containment units that enclose the reactors entirely -- including the steam generator and pressurizer.

Diane Screnci, of the Nuclear Regulatory Commission's Office of Public Affairs, said the containment units are made of reinforced concrete with a steel lining. Screnci said boiling water reactors and pressurized water reactors have similar safety records.

"Both of those types of plants are operating in the United States and operating safely," she said.

Constellation Energy owns the Calvert Cliffs plant. Mark Sullivan, director of communications for the company's nuclear group, said via e-mail that safety was the company's top priority.

"We have emergency response plans in place which are approved at the federal, state and local government agencies," Sullivan said. "The plans have detailed procedures which are routinely reviewed and used in training of our teams. We have training exercises and drills to test our ability to effectively implement our plan and are formally evaluated by the NRC."

Sullivan also said Calvert Cliffs' reactors would be shut down if certain levels of seismic activity were detected in the area and that the NRC required all plants to be designed to withstand natural phenomena like tsunamis.

Quakes and tsunamis are exceedingly unlikely around Calvert Cliffs. According to the US Geological Survey, there has never been an earthquake centered in the Washington, D.C., area in recorded history (though the area has felt mild effects from quakes centered elsewhere).

Nathan Hultman, a University of Maryland professor in the School of Public Policy who is an expert on atomic energy policy, said reactor containment units in the US are built to withstand tremendous impacts -- even the force of a plane flying into them, a scenario that came up after the terrorist attacks of Sept. 11, 2001.

But Hultman said the cooling ponds where used nuclear rods are placed at most facilities are sometimes more vulnerable. Spent rods must be radioactively cooled for several years before they can enter "dry cask" storage. Fires have broken out in some of the pools at the damaged Fukushima plant, sending high levels of radiation into the atmosphere.

"Even if someone did try to fly an airplane into a nuclear reactor ... it's likely not going to actually break the reactor and release radioactivity," Hultman said. "But if you fly the airplane into the pool of spent fuel, you can create essentially a dirty bomb, right, from just this activity and maybe even set the thing on fire."

Sullivan did not respond to an e-mail and phone message Wednesday inquiring about how Calvert Cliffs stores and protects spent nuclear rods during cooling.

Hultman said Fukushima was on the "knife edge" Wednesday -- that there is still the possibility of containment, but the plant is teetering on the brink of disaster. He said that if containment fails, low levels of radiation might reach the US, which could sour the nation on nuclear power for a long time.

Even if the Fukushima crisis is completely contained today, he added, it would still be the second-worst nuclear power accident in history, trailing only the Chernobyl disaster. That explosion at a nuclear power plant in Ukraine in 1986 gave off a cloud of radioactive fallout that caused thousands of cancer deaths.

Fukushima could lead to more US regulations, which would make it more costly to operate old plants or build new ones. Hultman said that could be all it takes to stop a "Nuclear Renaissance" in its tracks after 30 years of safe operation.

"In the end you're only boiling water to create electricity – that's all you're doing with a nuclear power plant," Hultman said. "You can create electrical potential in all kinds of other ways and move electrons in all kinds of other ways. So if a utility's looking at needing to fill a load, the combination of public opinion and changes in costs, both of those have to go into their decision. Clearly it's going to be more difficult, in the near term at least."

David Saleh Rauf contributed to this report.

Nuclear Risk Is Just Too Great (BSUN)

Baltimore Sun, March 21, 2011

Our prayers go out to the people of Japan who must cope with the fear of exposure to radioactive contamination from the nuclear reactor and nuclear waste partial meltdowns in Fukushima following the devastating earthquake and tsunami. The Daiichi nuclear accidents occurred on the eve of the 25th anniversary of biggest nuclear disaster of all, at Chernobyl. The death toll for the 25 years since the catastrophe has recently been estimated at 900,000 in Europe and Russia.

Those of us who have been concerned about the "insurmountable risks" with nuclear power know that a disaster unfortunately could occur here, no matter how reassuring industry and government officials try to be. Recently we learned that the US nuclear power plant at the highest risk for core meltdown due to an earthquake is at Indian Point, less than 50 miles from the 20 million people who live in and around New York City. Governor Andrew Cuomo has called for its closure.

Our own Calvert Cliffs, also near a fault line, is lower down on the earthquake likelihood scale. Yet it has its own very risky variables, as detailed in a recent article in the Washington Post. It is "next door" to a liquefied natural gas plant. It is subject to dangerous weather events such as in 2000, when a tornado with winds of 200 miles that passed in its vicinity. Finally, evacuation from an emergency at the plant would be a nightmare with limited highways to the north and one bridge to the south that can cause 45-minute delays on an ordinary day. Imagine the scene on the escape routes were the sirens to sound the alarm.

In general, risks of a malfunction at a nuclear power plant are greatest for very old and very new power plants. The very old nuclear power plants should be closed rather than the present Nuclear Regulatory Commission pattern of approving all extensions. There should be a moratorium on approval of new plants with their unproven and questionable safety features. Power plants in risky environments (Indian Point, Calvert Cliffs) should be reassessed.

Radioactive contamination from a nuclear meltdown would cause death and destruction long after the memory of the disaster has faded. The land would be left uninhabitable for hundreds of years or longer. These are risks too big to take. We have alternatives: wind, solar, conservation and higher efficiency standards.

Dr. Gwen L. DuBois

The writer is a member of Chesapeake Physicians for Social Responsibility.

Experts Criticize Design Of Plant (times dailu)

By Eric Fleischauer

Times Daily, March 21, 2011

The Tennessee Valley has more reason than much of the world to study the nuclear disaster unfolding in Japan.

Browns Ferry Nuclear Plant — 30 miles east of the Shoals — has the same General Electric reactor design — the Boiling Water Reactor Mark I — as the damaged reactors at the Fukushima Dai-ichi plant in Japan. The disaster in Japan has, according to some experts, highlighted problems in the Mark I design.

GE defended the Mark I design Monday, calling it an "industry workhorse" and saying, "There has never been a breach of a Mark 1 containment system."

By Wednesday, indications from Japan were that there has been at least two such breaches.

The event jeopardizing the reactors in Japan was cataclysmic. A 9.0 earthquake was followed by a tsunami. By itself, the earthquake did not create an unforeseen nuclear emergency. The plants successfully inserted neutron-absorbing control rods, which ended the nuclear fission within the reactors.

The combination of earthquake and tsunami, however, was disastrous.

All power to the plant was lost. Flooding from the tsunami rendered the backup power supply, diesel generators, useless. The final electrical backup, batteries that could operate the plant's essential functions for eight hours, did not last long enough to permit replacement with another power supply.

The power loss disrupted efforts to cool the still-hot fuel rods in the reactors and spent-fuel pools. It also disabled hydrogen igniters, designed to remove the gas before it reached explosive levels. Hydrogen explosions damaged the buildings around three of the reactors, disabling a last-resort system designed to keep radiation from entering the atmosphere.

The combination of earthquake and tsunami could not happen in Alabama, but similar double disasters could, said David Lochbaum, a nuclear engineer who worked at Browns Ferry.

"While many of our plants may not be vulnerable to the one-two punch of earthquake and then tsunami, many of our reactors are in situations where earthquakes or hurricanes in the Gulf or ice storms in the Northeast or a tree in Cleveland can cause an extensive blackout that puts us in a very similar situation," he said.

A tornado could disrupt the power grid and compromise Browns Ferry. An earthquake could damage both Browns Ferry and, by disabling dams on the Tennessee River, cause flooding. Either an earthquake or tornado could cause a fire at Browns Ferry, potentially damaging the backup power supply.

Spent-fuel pools

An increasingly dangerous problem in Japan involves the spent-fuel pools. In the Mark I design, the pools are essentially in the plant's attic, above the reactor.

Fuel rods in the pool are thermally hot and radioactive.

They rely on water and circulation pumps to avoid reaching temperatures that melt the metal cladding around the fuel rods, a condition that releases radiation. The spent fuel is not as well protected as the fuel in the reactor. In Japan, the spent fuel is now open to the atmosphere in at least two plants. The danger posed by the pools is significant. According to Lochbaum, a US study shows a drained spent-fuel pool delivers a lethal dose of radiation to a worker at its railing in 16 seconds.

Browns Ferry is more vulnerable to problems with the spent-fuel pools than are the plants in Japan. Delays in constructing a storage facility for depleted fuel — planned at Yucca Mountain in Nevada — resulted in Browns Ferry and other plants stockpiling the fuel in the cooling pools. TVA is gradually moving the spent fuel to on-site dry casks, but the pools remain near capacity.

That means they have more radioactive content than the pools at the Japan reactors, and they are more dependent upon electric pumps to circulate water within the cramped quarters.

"Our spent fuel pools in the reactors like the one in Japan are almost filled to the brim, and the risk from the spent fuel pools — either from an accident or from an act of malice — are about as high as you could possibly make them," said Lochbaum, director of the nuclear safety program at the Union of Concerned Scientists, which describes itself as a watchdog group that neither supports nor opposes nuclear power.

Another issue that some experts fear will come into play in Japan involves the consequences of melting fuel rods within the reactor.

Fuel rods melting

If cooling efforts fail, the fuel rods ultimately will melt into a lava-like substance. The heat would melt the steel reactor vessel, allowing the melted fuel to drop to the concrete containment vessel. In Mark I reactors, the containment vessel is concrete with steel at the edges.

"In the Mark I containment, there is a known vulnerability to containment failure known as liner melt-through," said Ed Lyman, a physicist at Union of Concerned Scientists. "If that melt spreads to the corners, then it may be able to melt through the steel shell of the containment as it ate through the reactor vessel."

If it happens, especially if the containment vessels are damaged as they are in Japan, "that would essentially mean large radiological release to the environment."

TVA Chief Operating Officer Bill McCollum said he is confident the authority's reactors are safe, but TVA will seek to learn from the problems in Japan.

"TVA's plants are designed, built and operated to be safe," McCollum said. "That's our No. 1 mission. Our plants are designed to be very robust against all types of occurrences.

"It's far too early to assess the total impact of this. I believe we'll have to wait to understand the facts and events as they've really occurred, and what actions may need to be taken and lessons to be learned out of this."

Expert: Browns Ferry Vulnerable To Leak Like Japan Plant (DECD)

By Eric Fleischauer

Decatur Daily, March 20, 2011

A nuclear engineer's theory for why a spent fuel pool at a Japan reactor is losing water, and thus is spewing radiation, raises the possibility similar problems could occur at Browns Ferry Nuclear Plant in the event of a power outage.

Reactor No. 4 at Japan's Fukushima Dai-ichi plant was down for refueling on March 11, when the earthquake and tsunami hit. Initially, most attention was focused on the plant's No. 1 and No. 3 reactors. On Tuesday, however, a fire broke out at No. 4.

If spent fuel rods — deprived of adequate water — get too hot, they can suffer damage and release radioactive gases into the atmosphere. Eventually they can catch fire, releasing even more radiation.

Another fire started at No. 4 on Wednesday, followed by a surge in radiation that forced workers to leave the plant. On Thursday, Japanese workers used water cannons to try to blast water into the No. 4 spent fuel pool. The efforts were ineffective.

David Lochbaum, a nuclear engineer who served at Tennessee Valley Authority's Browns Ferry from 1980 to 1983, suspects water is leaking out of the No. 4 spent fuel pool through a seal that, because of the loss of power, is no longer water tight. Browns Ferry, he said, has the same kind of seal.

Ray Golden, a spokesman for TVA's nuclear operation, said Saturday it is too early to draw conclusions from the situation at the Japanese plant. Once TVA and the Nuclear Regulatory Commission know what happened, Golden said, they will apply the lessons to any vulnerabilities at Browns Ferry and other nuclear plants.

Browns Ferry, located 11 miles northwest of Decatur in Limestone County, has three reactors. They are General Electric Mark I boiling water reactors, the same design and about the same age as those at the Fukushima Dai-ichi plant.

The nuclear disaster in Japan relates primarily, if not exclusively, to one fact: the reactors lost all three power systems. An earthquake separated the reactors from the AC power grid. Flooding from the tsunami destroyed diesel generators intended to back up the AC power. The last resort, batteries, worked for eight hours as designed.

Eight hours was not long enough to replace either of the other power sources, however, so major problems began once they burned out.

Electric power is essential to the operation of a nuclear plant, even after control rods have been inserted in the reactor and ended the nuclear reaction, as had taken place in the No. 4 reactor before the earthquake. Monitoring equipment relies on electricity. Hydrogen igniters, designed to keep hydrogen gas from collecting to explosive levels — as it did in Japan — rely on electric power. Electricity runs pumps designed to push cooling water into the reactor and spent fuel pools, and runs pumps that circulate the water to maximize cooling of the closely packed fuel rods. Keeping seal tight

Another role of electric power, explained Lochbaum on Saturday, is to keep a seal between the reactor and spent fuel pools water tight.

Lochbaum, a nuclear engineer, worked in the US nuclear industry for 17 years before becoming director of nuclear safety at the Union of Concerned Scientists.

Water is essential when dealing with fuel rods. Not only does it keep the rods thermally cool, it is a shield that prevents radiation from escaping into the atmosphere.

Consequently, the insertion of fresh fuel rods into the reactor and the transfer of the spent fuel from the reactor to the spent fuel pools is performed under water.

To facilitate this operation, a large concrete door — about 20 feet tall and three feet wide — is installed when refueling operations take place. To keep water from leaking through this door and into a large cavity between the reactor and spent fuel pool, a seal like a bicycle inner tube surrounds its side and bottom edges. Pressure is maintained in this seal with an electric compressor powered, said Lochbaum, exclusively by the AC electrical grid.

The spent fuel pool remains full of water during refueling operations. The reactor containment vessel, normally dry above the reactor head, is flooded with water to facilitate refueling. That gives operators the ability to lift fuel rods out of the reactor without removing them from water, after which they can be transferred through the door into the pool.

"When the earthquake occurred that took out the electrical grid, the air compressors for that seal were lost. The seal stopped getting air. That doesn't mean it immediately deflates, but as the air leaks out of the seal it becomes less and less effective at closing the gap between the gate and the walls," Lochbaum said. "The Browns Ferry reactors, like the reactors in Japan, are vulnerable to that situation."

In 1986, a similar event occurred at the Hatch Nuclear plant in Georgia, which also has a GE Mark I reactor design.

"At the Hatch plant it took four or five hours for the inflatable seal to deflate and 141,000 gallons of water — about half the water from the spent fuel pool — leaked out through the gap between the gate and the walls," Lochbaum said. "It was discovered at Hatch before the fuel heated up and was exposed to any kind of damage."

A leak in the seals would hinder efforts to replenish water in the cooling pools in two ways, Lochbaum said. First, replacement water would have to enter the pool faster than it is leaking through the deflated seals. Second, the reduced water

levels mean the water in the pools is much hotter as a result of its exposure to the heated fuel rods. This means much more water is lost through steam and evaporation, increasing the amount of replacement water needed.

Potentially complicating the problem, Lochbaum said, is that the seal — both in Japan and at Browns Ferry — operates solely on AC power from the electric grid. That means even with effective power back up, water leaks could begin after an AC power outage.

TVA's Golden said any loss of seal in the door only plays a role if there is a power disruption while the door is installed, generally during refueling.

Unit 4 of the Fukushima Dai-ichi plant was in the midst of a refueling outage at the time of the earthquake and tsunami.

"What (Lochbaum) is postulating — and this is my struggle with all of this — everybody is trying to fill this (information) void and speculate as to what has and hasn't happened," Golden said. "Honestly, until this event is over — and maybe sometime after that when they can get robotics or whatever in based on radiation levels — then we'll know. Right now, we don't." Same backup supplies

Browns Ferry relies on the same backup power supplies as those used unsuccessfully in Japan, with one exception.

The battery backup at Browns Ferry lasts only four hours, half the duration of the Japan batteries. While Browns Ferry's battery backup duration is less, Golden said, the Limestone County plant has more diesel generators than required.

Golden said there are eight diesel generators at Browns Ferry, even though only one is required for each reactor.

"They are above the flood plain," Golden said of the generators. "They're also in a water-tight, solid concrete building. The exhaust is off the roof, so there is not a path for water to get in."

Japan Nuke Crisis Sheds Light On Stability Of Browns Ferry (ATHENNC)

By Adam Smith

Athens (AL) News Courier, March 21, 2011

By now, most Americans are fully aware of the devastation in Japan and the realization that country is on the precipice of a catastrophic nuclear disaster.

An earthquake measuring 9.0 rocked the northeastern portion of the country on March 11, triggering a massive tsunami that killed at least 7,000. Thousands more are still missing, and at least 45,000 are homeless.

Hovering above the unspeakable human tragedy is the status of the Fukushima Daiichi nuclear power plant, severely damaged and left powerless by the earthquake and accompanying rush of water.

On Friday, at least 180 workers were still attempting to cool down spent nuclear fuel rods in the plant's main reactor in hopes of averting a complete meltdown. Earlier this week, the US urged Americans living within 50 miles of the plant to evacuate.

Reporters in Japan raised the notion Friday of sealing the reactors and fuel rods in concrete as an emergency measure. But officials with Japan's nuclear safety agency and the plant's operator did not embrace the idea.

"We believe it is not a realistic option," said Hidehiko Nishiyama of the Nuclear and Industrial Safety Agency. And Teruaki Kobayashi, a manager at the Tokyo Electric Power Co., said the utility would not rule out entombing the reactors but thinks the probability is low.

Nuclear plants emit few heat-trapping gases, but their radioactive fuel must be controlled and contained for centuries. President Barack Obama on Thursday asked the Nuclear Regulatory Commission to conduct a "comprehensive review" of the safety of all US nuclear plants.

The nuclear crisis in Japan has drawn comparisons to the partial meltdown of a reactor at Three Mile Island near Harrisburg, Pa., in 1979 and the Chernobyl nuclear accident in the Ukraine in 1986, which forced a resettlement of about 336,000 residents.

Japan's nuclear safety agency raised the severity rating of the country's nuclear crisis Friday from Level 4 to Level 5 on a seven-level international scale, putting it on par with the Three Mile Island accident.

The hallmarks of a Level 5 emergency are severe damage to a reactor core, release of large quantities of radiation with a high probability of "significant" public exposure or several deaths from radiation.

As a result of the crisis in Japan, countries that rely on nuclear power have been examining emergency procedures in an effort to avoid becoming another Three Mile Island, Chernobyl and now, Fukushima.

The Tennessee Valley Authority has also rushed to quell fears about the safety of its three nuclear power plants in Athens, Soddy-Daisy, Tenn., and Spring City, Tenn. Those three plants supply 30 percent of TVA's power supply, which serves nine million people in seven states.

However, the TVA postponed a long-scheduled media tour Wednesday at its Watts Bar Nuclear Plant near Chattanooga that is the site of the nation's only nuclear reactor currently under construction "while the industry focuses on events in Japan."

Retiree Carolyn McMahan lives near TVA's Sequoyah Nuclear Plant at Soddy-Daisy and said she has confidence in TVA. McMahan said there are risks anywhere you live.

Could it happen here?

Just how safe is the Browns Ferry Nuclear Plant, and could a natural or manmade disaster force the evacuation of hundreds of thousands of residents? Could the beautiful and lush countryside surrounding the facility decay and become overgrown with radioactive moss?

Those are questions elected officials, emergency workers and residents have pondered over the last several days. However, there have been no seemingly concrete answers, but instead positive assurances that the Tennessee Valley is, in fact, safe.

A letter written to employees by TVA Chief Operating Officer Bill McCollum basically said Americans shouldn't worry about nuclear plant safety, while stressing workers should not be arrogant or complacent in regard to knowledge, preparation and capabilities.

"People in our part of the world naturally want to know the implications these events have for American nuclear plants and whether the problems in Japan could happen here," reads the letter. "Those are very natural questions, and the answer is that it's most unlikely."

A worker at Browns Ferry who wished to remain anonymous said he wasn't worried about the safety of the plant and said there was a lot of misinformation being spread about the safety of TVA's nuclear facilities.

"With the regulations we have in place, everything will be fine," he said.

TVA Spokesman Ray Golden said the company is watching the events unfold at Fukushima with "great interest," though he said it's important that residents understand the 9.0 quake and tsunami were unprecedented events.

He said the Fukushima plant would have survived without issue had the tsunami not knocked out power to the plant.

"There was a tank that provided oil for the electrical generators that appears to have been swept away," Golden said. "It was the combination of that, plus the fact that water also got into the lower elevations and electrical switches that provide circuit protection."

He said TVA's nuclear power plants are situated above a maximum flood event to eliminate water intrusion on electrical components. He said fuel tanks are safely located in a hardened underground facility.

Columbia, S.C.-based Friends of the Earth, a nuclear watchdog group, issued a press release this week expressing uncertainty about the safety of Browns Ferry, saying the reactor here and the one at Fukushima are of the same design.

Designed in the early 1970s, the Mark 1 design has been controversial since its inception, the release says, and has been considered a less robust containment than other models.

"The old Mark 1 boiling water reactor design used in the southeast has less robust containment than other reactors and may well pose additional risk, as we have seen by the performance of this same design in Japan," said Tom Clements, Southeastern Nuclear campaign coordinator. "The public is encouraged to pay close attention to the performance of the aging boiling water reactors located near them."

Worst-case scenario

While it's certainly an impossibility the Tennessee Valley could be hit by a tsunami, the area isn't necessarily immune to other natural disasters or domestic terrorism.

Tornados and destructive straight-line winds are a way of life in North Alabama in the spring and early winter months — but could an earthquake happen here?

Though it doesn't run directly through Alabama, the New Madrid Fault Line — which stretches southwest from New Madrid, Mo., through part of Tennessee and Arkansas — could potentially create seismic activity in North Alabama in the event of a major earthquake. However, Golden ruled out the Browns Ferry Plant being affected by an earthquake because there are no major tectonic plates interacting with each other in North Alabama.

"From a risk perspective, you could have tornados or earthquakes that might cause a dam to break; those are the more realistic events," he said.

Browns Ferry was reportedly designed to withstand a 6.0-magnitude earthquake based on its proximity to the New Madrid fault, TVA spokesman Duncan Mansfield said.

The Watts Bar nuclear plant at Spring City, Tenn., and its Sequoyah plant at Soddy-Daisy, Tenn., are designed to withstand a 5.8-magnitude quake based on an 1897 tremor at Giles County, Va., Mansfield said. None of the TVA's reactors are seen as being vulnerable to tsunamis since they are so far inland.

Arkansas' only nuclear plant is located about 150 miles away from the New Madrid fault zone, which produced a series of large quakes in 1811 and 1812, including several over magnitude 7. The shaking was so strong that it reportedly caused the Mississippi River to flow backward and could be felt as far away as New England.

Golden said when designing a nuclear power plant, it must be designed to withstand the worst-case scenario, which he said would most likely be human error or the potential for terrorism.

"After 9/11, the nuclear industry spent billions on security enhancements," Golden said. "We continually try to improve our performance."

To that end, TVA inspectors have been meeting on a regular basis, he said, and have formed teams at all three nuclear plants.

"We're meeting several times a day and going through all the information we can get from any and all sources," he said.

Emergency plans

Most Limestone County residents receive a calendar each year from the Alabama Emergency Management Agency containing information about emergency notification sirens and evacuation routes.

Those unable to flee are advised to stay indoors, close all doors and windows and shut off any devices that blow in outside air.

"If you must go outside, protect your breathing. Place a damp towel over your nose and mouth," the EMA information says. "Do not use the phone unless you have a special emergency. Leave the lines open for officials business."

In case of an emergency evacuation, residents are advised to stay calm, turn off lights and water, leave pets by themselves with an ample supply of food and to follow evacuation routes to the nearest reception center and register as an evacuee. Those forced to flee in the event of an emergency at Browns Ferry can also rest easy, because "law enforcement officers will secure the evacuated areas to protect homes and businesses."

In an ironic twist, the state EMA will be one of 11 states tapped to participate in a national exercise in May featuring the scenario of earthquake response. The scenario will also examine how nuclear plants would fare in the event of an earthquake.

However, Art Faulkner, director of the state EMA, wants to assure residents the drill is not in response to the events in Japan, but instead has been in the planning stages for the last two years.

"We will have 17 counties that will be participating with us and will involve a nuclear power plant," he said. "This is about us taking a proactive approach, because we do know (the scenario) is possible in Alabama and across the nation."

Last week, Faulkner was in Limestone County and met with local EMA officials. The topic of response to an earthquake and nuclear plant emergency was discussed.

"We have had some counties that have received calls from citizens and we've been trying to make sure we put out factual information to our counties around Browns Ferry," he said. "We're always looking at keeping our plans up to date on everything we face in the state."

He said the EMA stays in contact with the Federal Energy Regulatory Commission and the National Radiological Agency in regard to response to a nuclear plant accident.

"The difference this year over previous years is that we do have a real-world situation we can turn to and see if there's anything we can learn out of that," Faulkner said.

Get out of town

In the event of a forced evacuation, would Limestone County's infrastructure be prepared to handle thousands of vehicles and mass panic?

At least one evacuation route — Nuclear Plant Road — has its share of critics. The two-lane road leading away from Browns Ferry Nuclear Plant is riddled with potholes and in need of repair.

Athens Mayor Ronnie Marks said repairing the road has been a top priority of his administration, but finding the available revenue is another matter.

"There's certainly a sense of urgency, and it's important to have a good evacuation route," he said. "We know how important it is to fix it, but it's a \$2 million project."

Marks said he's talked with the TVA and leaders at state and federal levels. However, he called it a "long shot" that available funds could be found for the project in short order.

"Any issue like the horrific events in Japan sends a red flag up," he said. "We're going to keep this as a high priority. We're trying to patch potholes as we can, but it is a critical issue and it needs to be fixed."

— The Associated Press contributed to this report.

ANR To Start Discharge Permit Study For VY (BRATBORO)

By Bob Audette , Reformer Staff

Brattleboro (VT) Reformer, March 21, 2011

BRATTLEBORO – Following the announcement that the Nuclear Regulatory Commission will soon issue a new license for Vermont Yankee nuclear power plant to continue to operate until 2032, the Vermont Agency of Natural Resources announced it will begin its own task – investigating what standards should be in the plant's updated pollution discharge permit.

The state was also awaiting the Environmental Protection Agency to release an updated version of its Draft Guidance for Water Quality-based Decisions. That document is expected by the end of next week.

"This is the right time to start the permit renewal," said Deb Markowitz, secretary of ANR.

Another thing that was holding up the process, she said, was the cost of doing the work required to insure the permit was scientifically valid.

"The Legislature changed the law about a year ago to allow us to charge Vermont Yankee for the cost," said Markowitz.

Because ANR is now allowed to "charge back" expenses related to the permit, it plans to hire a consultant to help ANR's staff to determine the impact of the change in water temperature due to the discharge and its effect on the river's wildlife and habitat.

In addition to awaiting charge-back authority, ANR has been watching developments at another Entergy-owned plant in New York – Indian Point – regarding the second part of Yankee's discharge permit, whether Entergy is using the "best technology

available" to reduce the effects on river life when water is taken from the Connecticut River for cooling purposes.

The permit from the New York Department of Environmental Conservation requires the installation of cooling towers, which Indian Point doesn't have. It operates under what is called an open-cycle cooling system, drawing water from the Hudson River. Using towers only is considered closed cycle.

Yankee has cooling towers and, depending on the time of the year and the ambient temperature of the river, can operate in either mode or a combination of the two.

"We haven't made a decision whether it makes sense to go to closed cycle," said Markowitz. "We need scientific input. If we decide (closed cycle) is the best way to insure a minimum impact on the habitat and the health of the Connecticut River, we will make that decision."

Recently, ANR received a letter from the Connecticut River Watershed Council asking it to begin the process of issuing the permit.

"The technique we think ANR should adopt is closed-cycle cooling," said Laura Murphy, a staff attorney at the Vermont Law School's Natural Resources Law Clinic, who wrote the petition for the watershed council.

Once the draft permit is issued, which might not happen until sometime after March 21, 2012, when the power plant's original license is due to expire, a public comment period will be started.

"We are asking that the state deny or act and issue a renewal permit so that the public process can begin," said Murphy.

Entergy has opposed closed-cycle cooling at Yankee because running the 22 fan cells that make up the two towers requires a significant portion of the energy produced by the plant.

How much it costs on a daily basis is proprietary information, said Larry Smith, Yankee's director of communications, but industry analysts have stated it costs up to \$1 million a day to run the cooling towers.

Three years ago, the Environmental Court held hearings to review the CRWC's contention that the thermal discharge limits of the previous permit issued by ANR were harmful to the river and its indigenous population.

Yankee's discharge is non-radioactive water that is withdrawn from the river, run through the plant's condenser to cool reactor coolant water and released into the river at temperatures around 100 degrees.

The Environmental Court issued a decision limiting the times in which Yankee can release heated water into the river and at which river temperature it had to cease to do so.

CRWC appealed the decision – because it felt it didn't go far enough in restricting the discharge – to the Vermont Supreme Court, which upheld the Environmental Court's decision.

Catherine Gjessing, Associate General Counsel for the Department of Environmental Conservation, a branch of ANR, said the issues that were brought up before the environmental court could be once again brought up during hearings about the new permit.

"The renewal does call for a fresh look at the issues," said Gjessing. "We will have new information that was not considered by the court because of ongoing monitoring associated with the permit."

It's conceivable that new information could be available, said Elise Zoli, Entergy's environmental legal counsel, but she is not aware of anything that would change the conclusions that were reached by the Environmental Court.

However, she said, if new legitimate information arises, which she said was "virtually impossible," Entergy would consider it relevant and would address it.

"But we don't expect that to occur," said Zoli.

"Our position is we're starting from scratch," said Murphy. "We've been through that debate and we might be going through that debate again."

The information the courts considered is seven years old at this point, she said.

"It's an old permit and it needs better limits," said Murphy.

But, according to Zoli, Entergy has been conducting ongoing analyses of the river and its aquatic population and that information will also be presented when ANR begins to consider whether Yankee's cooling system should be closed or open cycle or both.

"If they want to move forward and discuss intake issues, we welcome the discussion," said Zoli.

She said in the summer, when the river has the most fish in it, the cooling towers are used during, thus minimizing the plant's overall effect. Bob Audette can be reached at raudette@reformer.com, or at 802-254-2311, ext. 160.

Vigil At Vermont Yankee Sunday (RUTHER)

By Susan Smallheer

Rutland Herald, March 19, 2011

VERNON — Anti-nuclear activists have organized a vigil for Sunday afternoon at the gates of the Vermont Yankee nuclear plant in what they say is an expression of solidarity with Japanese workers and residents affected by the nuclear disaster in Fukushima.

Bob Bady of Brattleboro, a member of the Safe & Green Campaign, said Friday the event would be a solemn and peaceful vigil in front of Vermont Yankee's main gate on Governor Hunt Road.

The vigil starts at 1 p.m. and is being organized by the Safe & Green Campaign, Citizens Awareness Network and the New England Coalition.

"We were talking and we said, 'Let's do something, let's do something,'" said Bady, who was one of the organizers of the January 2010 walk from Brattleboro to the Vermont Legislature that raised awareness about the issues surrounding the 39-year-old reactor.

Bady said he had been getting a lot of telephone calls from people whom he usually doesn't hear from about the vigil, although he said he had no idea how many people would attend the event.

Bady said that in addition to expressing concern for the Japanese people whose lives are being disrupted by the unfolding nuclear disaster at Fukushima, organizers will call for the closure of Vermont Yankee.

Yankee is also a General Electric-designed boiling water reactor with a Mark 1 containment, the same as the troubled Fukushima reactors, and has had a variety of problems in the past four years. Its state and federal licenses to operate expire March 21, 2012, and so far it appears it will shut down since the Vermont Legislature has effectively blocked its continued operation.

Vigil organizers suggested that people attending the vigil wear black clothing and bring a sign or banner that is in keeping with the focus of the vigil.

People should park at the nearby Vernon Elementary School, which is across from Vermont Yankee.

"It will be a pretty quiet vigil. We have to show solidarity with the people," he said.

Vermont Yankee Neighbors Cite Concern, Need (KSENT)

By Steve Gilbert, Sentinel Staff

Keene Sentinel (NH), March 21, 2011

HINSDALE — The yellow perch and crappies were biting Thursday as Alfred Kempf and Chuck Inderieden ice-fished on the Connecticut River setback, a clear view of Vermont Yankee in the distance.

But their views on Vermont Yankee were quite different.

"I think this one's at its limit," said Kempf, 59, of Hinsdale. "It's showing its age. It's time to go."

"The plant doesn't bother me," said Inderieden, 77, of Wilmington, Vt., who was fishing about a quarter-mile from Kempf. "I know it's a big thing what happened in Japan, but what other options are there? It's something you have to live with."

The nuclear plant in Vernon, Vt., is again under intense scrutiny following last week's devastating earthquake in Japan. The quake and tsunami knocked out power to Japan's Fukushima Daiichi nuclear plant, disabling backup generators and shutting down its cooling systems. Many in Hinsdale say they are well aware Vermont Yankee is the same design as the plant in Japan

and was built by the same company, General Electric. They are following the events in Japan closely, as Vermont Yankee closes in on permission to operate for another 20 years.

Last week the Nuclear Regulatory Commission approved extending Vermont Yankee's license – the nearly 40-year-old plant's license expires in 2012 – by another 20 years, one day before the earthquake.

Still, the plant's future beyond 2012 remains cloudy. Under Vermont law, an extension of the plant's license has to be approved by the Legislature, and in February 2010 the Vermont Senate voted 26-4 to block the continued operation of the plant.

President Barack Obama on Thursday called for a safety review of all US nuclear plants.

Meanwhile, directly across the river from Vermont Yankee, life goes on in Hinsdale.

A sampling of townspeople Thursday showed the Japan disaster hasn't changed anyone's minds, pro or con. Opinions are fierce and free-flowing, though tinged with resignation that it really doesn't matter what they think.

"Get rid of every single one of them," said Sherwin Page, 54, who moved to Hinsdale from Greenfield, Mass., five years ago. "I think they're dangerous, but what's anybody going to do about it? There's one way to change things and that's to move – and I'm not moving."

Nafiz Khatib, 39, has owned the Hinsdale Convenience Store for seven years. He says a majority of customers tell him the plant makes them nervous, especially considering the numerous incidents over the last few years. Khatib rattled off cracks in the steam dryer, a collapsed tower and underground pipes leaking tritium as examples of Vermont Yankee showing its age.

"It's all those things adding up," Khatib said. "You're talking about leaks and leaks and leaks. People are saying, 'what if, what if, what if.' God forgive them if something happens to the plant."

Khatib says no matter how small the potential for disaster, the plant's safety has to be 100 percent assured because the repercussions would be so devastating. "What if it happened here? What would we do?" he said.

In contrast, Robert Butler, a maintenance worker at Hinsdale Elementary School, has lived in town for 14 years. He has no problems with Vermont Yankee as a neighbor.

"I think it's pretty safe," he said, pointing out the extraordinary natural disaster unfolding in Japan is highly unlikely to repeat itself in interior New England.

Robert Bird, 47, lives in subsidized housing just off Main Street. He is a former Army Ranger, horse trainer and construction worker who shattered his leg in a work accident and is disabled.

Bird said socioeconomics play a role in attitudes toward Vermont Yankee. Those who live paycheck to paycheck rely on the nuclear plant to keep electric costs down while those who are financially stable tend to be against it, he says.

He questions the intensity of media coverage toward the plant, wondering if the recent tritium leaks were played up too much.

And yet Bird says the disaster in Japan inevitably hovers over Vermont Yankee. "It makes you question a lot of things, certainly," Bird said. "I think it's horrific what happened there, absolutely horrific."

Charlie Nurse, 74, of Chesterfield has been fishing in the Connecticut River since he was a child. Looking across the river at the plant, he says he really doesn't think about it when he's fishing.

"It's been here long enough so I'm used to it, but the leaks do scare me," Nurse said.

Kempf said Vermont Yankee's age makes him nervous. A former machinist, he worked at Book Press in Brattleboro for 31 years, Georgia Pacific and Troy Mills. He says machines are assigned certain life spans for a reason and Vermont Yankee is at the end of its intended use.

"They're only made for a certain amount of time because then the metal starts breaking down," Kempf said. "You can't run anything like that. I've run machines my entire life and you can't push them past their limit." As he's talking, he pulls up a healthy-looking yellow perch. "I still eat them even though they say they might have tritium."

Sanders Asks President To Inspect Nuclear Sites (WCAX)

WCAX-TV Burlington, VT, March 21, 2011

Washington, D.C. – March 20, 2011

Vermont Senator Bernie Sanders is urging president Obama to take a closer look at the safety of this country's aging nuclear power infrastructure in light of recent event in Japan.

In a letter to the president, Sanders also asked for a moratorium on license renewals by the Nuclear Regulatory Commission.

The NRC authorized Vermont Yankee's 20-year license renewal a day before the devastating Japanese earthquake.

Japan Quake Could Shake Nuclear Plans Key To Region (CHTNGA)

By Dave Flessner

Chattanooga Times Free Press, March 21, 2011

Japan quake could shake nuclear plans key to region

The radioactive fallout from Japan's earthquake-damaged nuclear plant may be minimal in the United States, but America's nuclear power industry could be shaken from what its supporters hoped would be a renaissance in the next decade.

In the Tennessee Valley — a hub for the US nuclear industry and its potential rebound — the outcome of any quake-induced changes in nuclear standards, costs and attitudes could be key to thousands of jobs.

"I think the ongoing problems at the Fukushima plant in Japan clearly indicate it's not a wise long-term strategy for Tennessee or any other state to be betting on nuclear power," said Stephen Smith, a nuclear power opponent who heads the Southern Alliance for Clean Energy.

Nuclear proponents insist that new reactors should still be built to provide a cleaner alternative to burning fossil fuel. US Sen. Lamar Alexander, R-Tenn., who has called for the United States to build 100 new nuclear reactors in the next 20 years, said last week that the nuclear industry should learn from the Japanese disaster. But he insists America can't afford to give up on the technology America developed shortly after World War II.

"Without nuclear power, it is hard to imagine how the United States could produce enough cheap, reliable, clean electricity to keep our economy moving and keep our jobs from going overseas," Alexander said.

China and European countries last week put a temporary hold on nuclear construction as governments around the globe reassessed the safety of the world's 442 nuclear power reactors.

But officials for both TVA and the Southern Co. said they are proceeding with plans for new nuclear plants.

The Tennessee Valley Authority is building the only nuclear power plant under construction in the United States at its Watts Bar plant near Spring City, Tenn. The federal utility is spending \$2.5 billion over five years to finish the Unit 2 reactor that the utility mothballed at Watts Bar 1985 amid rising safety concerns and construction costs following the 1979 meltdown at the Three Mile Island nuclear plant — America's worst nuclear plant accident.

At the next TVA board meeting in Chattanooga on April 14, TVA directors will discuss the future of TVA's unfinished Bellefonte Nuclear Plant in Hollywood, Ala.

For now, TVA Chief Operating Office Bill McCollum told employees last week that TVA has established a central response center in Chattanooga to monitor the Japanese nuclear accident and assess any lessons for TVA's six operating reactors and the utility's preliminary plans to build up to five more reactors by 2030.

"Because of inherent differences in the design, location and vulnerability of natural disasters between the damaged Japanese nuclear plant and American plants, I do not believe it would be appropriate to react before facts are known and propose changing our energy strategy," McCollum said.

Georgia Power Co., a subsidiary of the Southern Co., and its partners, including Dalton Utilities, are proceeding with plans to build the first new nuclear plant at Plant Vogtle near Waynesboro, Ga. The new reactors at Vogtle, if approved, will be built under the combined operating license standards adopted by the Nuclear Regulatory Commission to streamline new construction.

"We do not anticipate that events in Japan will impact our construction schedule or our ability to stay on budget," Southern Co. spokesman Todd Terrell said.

Thaw in the Nuclear winter

No new nuclear plants have been started since the 1979 accident at the Three Mile Island nuclear plant in Pennsylvania where fuel rods melted down in the reactor core and the unit was destroyed.

But amid growing concerns over carbon emissions from coal-fired plants, nuclear proponents are hoping for a revival in new nuclear construction and are counting on what designers say are simpler and safer designs for future plants.

The Nuclear Regulatory Commission has received applications for 25 new reactors using the next-generation designs, including the two new reactors planned at Vogtle and two new units being studied for Bellefonte.

Most of the new construction is in the Southeast and Chattanooga is trying to capitalize on its central location and nuclear fabrication history to capitalize on any nuclear renaissance. Chattanooga Mayor Ron Littlefield told an American Nuclear Society gathering last year that Chattanooga is "a nuclear friendly city" eager to become home to nuclear component manufacturers.

Oak Ridge, Tenn., which bills itself as the atomic city, is home to several nuclear power contractors as well as the government-funded research on new nuclear technologies and materials at the Oak Ridge National Laboratory.

In Chattanooga, Alstom Power recently completed a \$280 million facility on Riverfront Parkway capable of fabricating major reactor components. Westinghouse Electric Corp., built a \$21 million boiling-water reactor center in Chattanooga's riverport last year to train nuclear workers.

The facilities are now servicing many of the 104 operating nuclear reactors in the United States, but the businesses are hoping to expand if new plants are built.

The Nuclear Power Corridor

A new study of the corridor from Huntsville, Ala., to Oak Ridge counted 40 businesses supplying parts or labor to the US nuclear power industry and thousands of skilled workers trained for nuclear-related jobs. Chattanooga State provides radiation specialist training for nuclear plant workers and the University of Tennessee in Knoxville has the nation's third biggest nuclear engineering program.

"I don't think there is another region in the country that has this many educational programs, trained workers and utility customers and their support networks for the nuclear power industry," said Gary Gilmartin, president of Gilmartin Engineering Works and head of the newly formed Tennessee Valley Corridor Nuclear Energy Initiative. "We're the best situated area in the country to support the nuclear industry."

Gilmartin said the nuclear industry will have to assess the Japanese accident at the Fukushima nuclear plant and apply any lessons for making other plants safer.

"But at this point the industry is still moving forward," he said.

But others are far less sure.

"We should use this time for a pause and a time-out to make sure we learn some lessons from what happened in Japan," said New Mexico Gov. Bill Richardson, a former US Secretary of Energy.

Dr. Steven Chu, the current Secretary of Energy, told Congress last week that President Obama still supports nuclear power and the White House budget request for \$36 billion in loan guarantees for new reactors. But Chu said the government will "be looking very, very closely at the events in Japan" and he declined to speculate on what the Japanese accident may mean for continued construction of new plants.

Even before the Japanese accident, TVA and other utilities have pushed back plans for new reactors due to a slowdown in power demand.

That slowdown has pushed some nuclear suppliers to delay their planned investments.

In Marion County, Chicago Bridge & Iron bought 61 acres on the Tennessee River two years ago and obtained permits to construct a \$110 million fabrication facility to serve the nuclear industry. But the company has put those plans on hold until new orders start coming in.

"We're obviously very disappointed that this project and the jobs that it would bring to our county hasn't moved forward," Marion County Mayor John Graham said. "It is a hopeful sign that the company still owns the property and hopefully this facility will someday be built. But the events in Japan are certainly not a hopeful sign of that happening very soon."

AT LARGE: Remembering Browns Ferry, Almost Nuclear Catastrophe (TUSN)

By Tommy Stevenson

Tuscaloosa News (Alabama), March 21, 2011

AT LARGE: Remembering Browns Ferry, almost nuclear catastrophe

Remembering Browns Ferry, almost nuclear catastrophe

The two most well-known nuclear power plant accidents before now were at Three Mile Island in Pennsylvania in 1979 and the apocalyptic 1986 event at Chernobyl in what at the time was the Soviet Union.

Scary as it was, the partial meltdown of a reactor at Three Mile Island was contained and while some radioactive gases did escape and people were injured and died of cancer, it was not nearly as bad as it could have been.

Not so at Chernobyl, in what is now the Ukraine, where an explosion killed thousands, spread a radioactive cloud over much of Europe and is likely still causing cancer in that part of the world. Highly radioactive Chernobyl is and will be a ghost town for many generations.

But before either of these and, of course, the nuclear crisis in Japan, there was an accident at the Tennessee Valley's Browns Ferry Nuclear Plant on the Tennessee River near Athens, Ala. in March 1975 that could have been catastrophic in its own right.

Browns Ferry, whose two reactors went online in 1974, was at the time the most powerful nuclear plant in the world and the first to generate more than one gigawatt of power. I once got to tour the facility and even enter the control room, something no reporter can do today.

The incident on March 22 began at 12:20 p.m. and was a comedy of grim errors. It began with plant employees checking for air leaks in the room where cables that controlled the two units, which were running at 97 percent capacity at the time,

diverged. In one of the most high-tech facilities in the world, two workers were using ordinary house candles, whose flame they held up to seals in the wall to see if there was suction, and thus leaks.

It is easy to see in retrospect what was bound to happen: When they came upon a significant leak, the flame from the candle was sucked through the wall and into the labyrinth of electrical cables that controlled the incredibly complex facility.

The fire knocked out most of the plant's control systems, including the primary and backup emergency cooling systems, although it would be more than 15 minutes before a fire alarm was sounded, in part because those battling the fire didn't have the right telephone extension.

After the alarms sounded, it was five more minutes before the workers in the control room realized they might have a problem on their hands.

According to a post-mortem by the TVA, the decision to cut some systems came only when the Unit 1 operator noticed that "control board indicating lights were randomly glowing brightly, dimming, and going out; numerous alarms occurred" and smoke began to seep into the control room.

"The operator shut down equipment that he determined was not needed — but not the reactor itself — only to have them restart again," the report said.

An additional 10 minutes passed before "the reactor operators began to wonder whether it might be prudent to shut down the reactors," according to a lengthy report by the California chapter of Friends of the Earth.

By that time, it was almost too late, especially in Unit 1 where electric cooling pumps suddenly quit at 12:51 p.m. Four minutes later, the electrical supply was lost to the control systems and the emergency core cooling system.

"Beginning at 12:55, the electrical supply was lost" to Unit 1, the Friends of the Earth account reads. "The normal feedwater system was lost; the reactor core spray was lost; the low-pressure (emergency core cooling system) was lost; the reactor core isolation system was lost; and most of the instrumentation which tells the control room what is going on in the reactor was lost."

Then the same problems began in Unit 2, where the emergency system was lost at 1:45 p.m. The only thing keeping cooling water flowing into the containment rooms and over the incredibly hot nuclear rods to prevent a meltdown were the diesel backup pumps, which were barely adequate for the job.

Meanwhile, the fire started by that single candle began to spread throughout the plant, its toxic electrical smoke forcing workers from many key areas. It was also discovered that some of the firefighting equipment, including dry chemical extinguishers with the wrong nozzles and breathing tanks with only 18 minutes of air in them, didn't work.

As the diesel pumps began to run out of gas and break down, smoke prevented workers from getting to large valves near the reactor cores which could be manually opened to let water flow in naturally from the Tennessee River.

According to the Nuclear Regulatory Commission's official report, the electrical cables in the plant burned for six more hours, even though a team of firemen from the Athens Fire Department had arrived on the scene at 1:30 to offer assistance.

"I was aware that my effort was in support of, and under the direction of Browns Ferry plant personnel, but I did recommend, after I saw the first in the cable room spreading, to put water on it," the unnamed Athens fire chief was quoted by the NRC. "The Plant Superintendent was not receptive to my ideas."

As the chief watched Browns Ferry personnel continue unsuccessfully to fight the fire with chemicals, around 6 p.m. the superintendent finally decided to let the local firemen give it a try.

"The Plant Superintendent finally agreed, and his men put out the fire in about 20 minutes," the NRC report said.

That allowed workers to get back into the plant and turn the valves to flood the reactors with enough water to avoid what could have been a major catastrophe.

In other words, what started with a really dumb idea by highly trained nuclear workers — lighted candles, what could go wrong? — ended with the common sense of a small-town fire chief: "Put water on it."

My interest in the Browns Ferry incident is not just academic.

At the time, I was working for The Decatur Daily, and I lived about 25 miles, as the isotope radiates, from Browns Ferry.

The late Barrett Shelton Jr., the great "Old Man" of the family-run newspaper was very much in favor of all things TVA, just as he had been a champion of the New Deal when he nursed his paper through the Great Depression.

Accordingly, our next day report was about five inches long, basically said "nothing to see here folks, move along," and ran on page two or three, if I remember correctly.

We did, however, give extensive coverage to the various official reports and hearings over the next few years, a period of time in which we slowly became aware just how close we had come to... Well, I don't like to think about that.

A Fossil Fuel Renaissance? (WS)

By Steven F. Hayward

The Weekly Standard, March 20, 2011

The catastrophe at Japan's Fukushima Daiichi nuclear power plant is being regarded as the atomic power equivalent of the Deepwater Horizon oil spill in the Gulf of Mexico, which set back offshore oil drilling just as it appeared on the brink of a substantial expansion. This means we've now come full circle, as critics of offshore drilling compared the Gulf oil spill to Chernobyl. At the very least the events in Japan are going to reinforce the reluctance of Wall Street to invest in new nuclear power in the United States, deter insurance companies from covering nuclear plants, and increase resistance on Capitol Hill to extending the loan guarantees the nuclear industry says are essential to kick-starting more nuclear installations.

The big winner in the short and intermediate term will be fossil fuels—especially coal and natural gas—which will be used to fill the breach in Japan and elsewhere to generate electricity. Which means that the biggest loser is ironically the environmental community, which had been slowly abandoning its longtime opposition to nuclear power because it offered an important component in reducing greenhouse emissions linked to climate change. Although many environmentalists are enjoying an “I-told-you-so” moment, the new cloud over nuclear power means that global carbon dioxide emissions will go up faster. Germany, for example, is shutting down several of its nuclear reactors for several months as a precaution, even though they are not vulnerable to tsunamis. One early estimate is that German carbon dioxide emissions will rise by as much as 4 percent this year because of the nuke shutdown. Japanese CO2 emissions will surely rise by more than this as the country replaces its lost nuclear capacity with coal, gas, and even oil in a few old oil-fired power plants it will be forced to bring online. The Kyoto Protocol emissions targets for 2012, already doubtful, can be tossed on a nuclear waste pile.

But unlikely as it may seem at the moment, the final irony is that if we keep our heads, the aftermath of this disaster may give us a clear view of how a new generation of nuclear power might be possible. As of press time it is still difficult to know exactly what is happening at the reactors, as contradictory and tentative information pours forth on an hourly basis. It will be weeks or months before we have an accurate understanding of what has occurred. The Department of Energy, the Nuclear Regulatory Commission, and the private-sector Nuclear Energy Institute were reluctant to comment all week because of the fast-moving situation.

Two aspects seem certain as of now. First, the reactors themselves appear to have survived intact an earthquake 40 times the size they were designed to withstand. It was the failure of the backup diesel generators necessary to keep the cooling systems operating, swamped by the 33-foot tsunami, that touched off the crisis and subsequent explosions. But for this arguable lack of foresight, the reactors might have come through unscathed. Plainly the first task for operators of ocean-side reactors, such as California's San Onofre and Diablo Canyon plants, is to ensure their backup power systems are not similarly vulnerable, even though the tsunami risk to these plants is much lower than the Japanese plants. Second, the necessary decision to flood the reactors with corrosive seawater means the reactors will be a total loss, costing Japan billions in cleanup costs and lost power capacity. A third aspect is likely to become evident over time: The radiation risks—even in the worst-case scenario of a total breach of the containment structures—will turn out to be more modest than the media hype would have you believe.

This is not to make light of a very serious situation at the reactors or the health risks to the courageous workers on the site who may be exposed to dangerous levels of radiation when new explosions and breaches occur. But the media coverage of the whole episode is a textbook example of the inability to gauge risks, weigh trade-offs, and put a story in its proper perspective. Instead the media have done what they do best: generate panic.

The Real Cost Of Nuclear Power (TIME)

By Michael Grunwald

Time, March 17, 2011

The chaos at the Fukushima Daiichi nuclear plant — explosions, fires, ruptures — has not shaken the bipartisan support in partisan Washington for the US's so-called nuclear renaissance. Republicans have dismissed Japan's crisis as a once-in-a-lifetime fluke. President Obama has defended atomic energy as a carbon-free source of power, resisting calls to halt the renaissance and freeze construction of the US's first new reactors in over three decades.

But there is no renaissance.

Even before the earthquake-tsunami one-two punch, the endlessly hyped US nuclear revival was stumbling, pummeled by skyrocketing costs, stagnant demand and skittish investors, not to mention the defeat of restrictions on carbon that could have mitigated nuclear energy's economic insanity. Obama has offered unprecedented aid to an industry that already enjoyed cradle-to-grave subsidies, and the antispending GOP has clamored for even more largesse. But Wall Street hates nukes as much as K Street loves them, which is why there's no new reactor construction to freeze. Once hailed as “too cheap to meter,” nuclear fission turns out to be an outlandishly expensive method of generating juice for our Xboxes. (See pictures of an aging nuclear plant.)

Since 2008, proposed reactors have been quietly scrapped or suspended in at least nine states — not by safety concerns or hippie sit-ins but by financial realities. Other projects have been delayed as cost estimates have tripled toward \$10 billion a reactor, and ratings agencies have downgraded utilities with atomic ambitions. Nuclear Energy Institute vice president Richard Myers notes that the "unrealistic" renaissance hype has come from the industry's friends, not the industry itself. "Even before this happened, short-term market conditions were bleak," he tells TIME.

Around the world, governments (led by China, with Russia a distant second) are financing 65 new reactors through more explicit nuclear socialism. But private capital still considers atomic energy radioactive, gravitating instead toward natural gas and renewables, whose costs are dropping fast. Nuclear power is expanding only in places where taxpayers and ratepayers can be compelled to foot the bill. (See pictures of the worst nuclear disasters.)

In fact, the economic and safety problems associated with nuclear energy are not unrelated. Trying to avoid flukes like Fukushima Daiichi is remarkably costly. And trying to avoid those costs can lead to flukes.

The False Dawn

In 1972 a federal safety regulator, worried that GE's Mark 1 reactors would fail in an emergency, urged a ban on containment designs that used "pressure suppression." His boss was sympathetic but wrote in a memo that "reversal of this hallowed policy, particularly at this time, could well be the end of nuclear power" and "would generally create more turmoil than I can stand thinking about." Four decades after this bureaucratic pressure suppression, Fukushima Daiichi's Mark 1 reactors seem to have failed as predicted. And while newer reactors don't have those problems, 23 Mark 1 reactors still operate in the US, including a Vermont plant that was relicensed for 20 more years the day before the disaster in Japan. (Comment on this story.)

When Karl Marx, who would have appreciated nuclear economics, wrote that history unfolds first as tragedy, then as farce, he got US nuclear history backward. America's initial experiment was a cartoonish disaster, with construction timelines doubling and costs increasing as much as 1,000% even before the Three Mile Island meltdown. In the 1980s, the industry required bailouts before bailouts were cool. But the US industry has matured and learned from its mistakes. It still runs the world's largest nuclear portfolio, and it hasn't had a serious accident since 1979. Meanwhile, global-warming fears have positioned nuclear power as a proven alternative to fossil fuels that works even when the sun isn't shining and the wind isn't blowing, producing 20% of our electricity and 0% of our emissions. No-nukes outrage has burned out, with a recent poll registering 71% support.

See why Obama's nuclear bet won't pay off.

Read "Nuclear Batteries."

The result has been an extraordinary political coalition. Right-wingers who don't accept climate science and didn't even want the word *french* in their fries now wax lyrical about French reactors that reduce French emissions. Left-wingers who used to bemoan the industry's radioactive waste and corporate welfare now embrace it as an earth saver. So Congress has approved lucrative subsidies for construction, production, waste disposal, liability insurance and just about every other nuclear cost. It also approved "risk insurance" to compensate utilities for regulatory delays, even as the Nuclear Regulatory Commission (NRC) has worked closely with the industry to streamline its licensing process. And nuke-friendly states have required ratepayers to front the costs of any new construction — even if the reactors are never turned on.

Nevertheless, investors refuse to bet on nukes. The steady increases in electricity demand that were supposed to justify new reactors have been wiped out by the global recession, and energy-efficiency advances could keep demand flat. Natural gas prices have plummeted, Congress appears unlikely to put a price on carbon, and the US still lacks a plan for nuclear waste. It also turns out that building safe places to smash atoms is hard, especially after such a long hiatus. The US has lost most of its nuclear manufacturing capacity; it would have to import Japanese steel forgings and other massive components, while training a new generation of nuclear workers. And though industry lobbyists have persuaded the NRC to ease onerous regulations governing everything from fire safety to cooling systems, it's still incredibly tough to get a reactor built. (See top 20 green tech ideas.)

New nukes would still make sense if they were truly needed to save the planet. But as a Brattle Group paper noted last month, additional reactors "cannot be expected to contribute significantly to US carbon emission reduction goals prior to 2030." By contrast, investments in more-efficient buildings and factories can reduce demand now, at a tenth the cost of new nuclear supply. Replacing carbon-belching coal with cleaner gas, emissions-free wind and even utility-scale solar will also be cheaper and faster than new nukes. It's true that major infusions of intermittent wind and solar power would stress the grid, but that's a reason to upgrade the grid, not to waste time and money on reactors.

Anyway, there aren't many utilities that can carry a nuclear project on their balance sheets, which is why Obama's Energy Department, a year after awarding its first \$8 billion loan guarantee in Georgia, is still sitting on an additional \$10 billion. A Maryland project evaporated before closing, and a Texas project fell apart when costs spiraled and a local utility withdrew. The

deal was supposed to be salvaged with financing from a foreign utility, but that now seems unlikely. (See how fundraising helped shape Obama's green agenda.)

The utility was Tokyo Electric.

Another Perfect Storm

Pundits keep saying the mess in Japan will change the debate in the US, but the BP and Massey disasters didn't change the debates over oil drilling and coal mining. And the nuclear debate seems particularly impervious to facts. Obama wants to triple funding for the already undersubscribed loan guarantees, but Republicans still accuse him of insufficient nuclear fervor. So don't expect the US to copy German Chancellor Angela Merkel, who just shut down seven aging plants. GOP Senator James Inhofe of Oklahoma has already rejected the idea of "a nuclear problem," suggesting that "once in 300 years, a disaster occurs." That's true if you don't count Chernobyl and you're sure nothing will happen for the next 250 years.

The industry's defenders may ignore Fukushima Daiichi, but the industry will not. It's serious about public safety, and meltdowns are bad for business; no company wants to lose a \$10 billion reactor overnight. But additional safety measures cost money: in 2003 industry lobbyists beat back an NRC committee's recommendation for new backup-power rules that were designed to prevent the hydrogen explosions that are now all over the news. (Comment on this story.)

It may sound unrealistic to require plants to withstand a vicious earthquake and a 25-ft. tsunami, but nobody's forcing utilities to generate power with uranium. One lesson of the past decade, in finance as well as nature, is that perfect storms do happen. When nukes are involved, the fallout can be literal, not just political.

See TIME's complete Coverage of the Japan quake.

See TIME's cover story on the Three Mile Island nuclear disaster.

Nuclear Plant Vogtle Budget Burden Debated (AJC)

By Margaret Newkirk, The Atlanta Journal-Constitution

Atlanta Journal-Constitution, March 21, 2011

Two years ago, when state regulators approved Georgia Power's plans for two new nuclear reactors, they left a key question hanging.

Who pays if the multibillion project busts its budget?

To critics of the Plant Vogtle nuclear project in east Georgia, the question is more pressing than ever with the nuclear disaster unfolding in Japan. Utilities, including Georgia Power, blamed construction cost overruns at the nation's first generation of reactors on the regulatory climate after Three Mile Island.

Those critics -- and the state Public Service Commission staff -- want Georgia Power parent Southern Co., not just customers, to bear some of the overrun risk. Otherwise, said Stephen Smith, director of the Southern Alliance for Clean Energy, "Southern has no skin in the game."

Since 2009, the PSC has delayed voting on a staff proposal to require Southern and its shareholders to share the pain if the project runs too far over its target \$6.1 billion budget. The reactors will cost more than twice that, but electric co-ops and city power companies are funding the rest.

Georgia Power customers began paying for the project's financing costs as part of a billing increase that took effect in January. That levy will be replaced by another to pay for actual construction after the reactors are finished in 2017.

At issue, essentially, is whether the total cost should be rolled into the future rate hike to pay for construction -- no matter what the final bill -- or if some portion should be borne by Southern if it goes too far over budget.

The staff wants to cut Georgia Power's allowed profit margin on the reactors if cost overruns get too big, and to raise that margin if it spends less than anticipated. The staff says that would encourage the company to meet budget.

Under the plan, a 50 percent, \$3 billion cost overrun would cut the company's profits on the reactors from \$10 billion to \$8.8 billion over 30 years. Customers would pay \$1.2 billion less than they otherwise would have.

Georgia Power is pushing back. It says the proposal could punish Southern shareholders for costs that aren't the company's fault.

The company says its construction partners are responsible for some potential overruns. It also says regulators can bar the company now from charging customers for costs they rule were imprudently or fraudulently incurred.

The five PSC members have so far avoided a decision, repeatedly telling staff and the company to work out a risk-sharing agreement. Commissioner Lauren "Bubba" McDonald, who suggested the latest round of negotiations last month, said he has yet to make up his mind on the issue and hopes the two sides can make a deal by late March.

So far, Georgia Power has spent \$1.3 billion on what could be the first new US nuclear reactors in decades. The site has two, 40-foot-deep, 21-acre-wide holes and some concrete plants. The heaviest work won't begin until after the Nuclear Regulatory Commission approves a construction license, now expected in November.

The project is under budget, but PSC construction monitor Bill Jacobs recently said "several known issues" are on the horizon that "could have a significant cost impact on the project." They include several change orders with "potential high dollar costs."

Jacobs commended Georgia Power for aggressively tackling obstacles, but said the project has already consumed four months of the "float" built into its schedule, giving the team less flexibility when heavy construction begins.

With heavy construction getting closer, the PSC tried to speed up action on a risk-sharing plan last summer. It ordered its staff and the company to each submit a plan by Dec. 31. Georgia Power did not. Critics call it a deliberate strategy of delay, while the company says it misunderstood the directive.

"It's true, we don't have a plan yet," attorney Kevin Greene told the PSC in February. "I don't think that takes away any of the flaws in the staff's plan. ... We have done a very good job of shifting most of the risk of this project to other people, not customers. We're now down into the weeds of 'what more can we do?'"

"The company is willing to sit down with staff," Greene added. "But I'm not going to tell the commission that we're going to come up with something."

Crews Battle Blaze Near LANL (KOB)

KOB-TV Albuquerque, NM, March 18, 2011

Crews are battling a fire burning near Los Alamos National Laboratory Friday afternoon.

Forest officials say the fire started late Thursday evening and by Friday had spanned to cover 355 acres.

The blaze is said to be burning about half a mile from the Pajarito Mountain Ski Area. At this time it is not threatening the lab.

The cause of the fire is under investigation.

Rush Of Events Gives Foreign News A Top Priority (NYT)

By Brian Stelter

New York Times, March 21, 2011

Propelled by revolution in the Middle East and radiation in Japan, television news coverage of foreign events this year is at the highest level since the Sept. 11 terrorist attacks 10 years ago, news executives in the United States say.

The foreign press corps is working in exceptionally dangerous conditions in countries like Japan, where members carry radiation monitors on assignment, and in Libya, where crews of journalists have been detained. "We've had a year's worth of international breaking news, and we're only halfway through March," said Tony Maddox, the executive vice president and managing director at CNN International, where anchors spoke on Saturday of being "live on five continents."

The coverage exposes just how much reporting of foreign news has changed in the past decade, through cuts at news outlets and through the contributions of the Internet and other new technologies. Fewer journalists covering foreign news work full time for American broadcast networks than once did, and those who remain have had to hopscotch from one hot spot to another this year, sometimes creating lags in coverage.

But the networks are aided by a bounty of audio and video clips that would have been nonexistent a few years ago. Much of it comes from cellphone-equipped residents who are acting not just as camera operators, but as reporters, too.

In part because the networks were relatively short-staffed after the magnitude 9.0 earthquake near northern Japan on March 11, American tourists in Tokyo were interviewed live on television from their hotel rooms. Wired with webcams and Skype connections, they resembled reporters.

So did the anonymous man in Misrata, Libya, who called CNN on Friday to report that despite the Libyan government's claim that a cease-fire was in effect, his city was "under fire."

"Right now, as I speak to you, I can take the phone outside and you can hear the bombs," the man said.

"Only if it's safe to do that," the anchor answered.

In Libya, professional journalists have been repeatedly harassed and detained. On Sunday, the Agence France-Presse news agency said two of its reporters and a Getty Images photographer had been missing since Saturday. Also on Sunday, four journalists from The New York Times and four journalists from Al Jazeera remained in the custody of Libyan authorities in Tripoli, the capital. Last week, an Al Jazeera cameraman was killed by gunmen near Benghazi in eastern Libya.

The busy season for foreign news started in January in Tunisia and quickly spread to Egypt, where networks and newspapers deployed hundreds of journalists. According to the Project for Excellence in Journalism, which conducts a weekly accounting of news coverage by national outlets, foreign news added up to 45 percent of all coverage from mid-January through mid-March. In the four years that the accounting has been done, foreign news has averaged about 20 percent of coverage.

The high levels of coverage have put severe strains on journalists covering foreign news, who leap from crisis to crisis. "Lots of people did Tunisia, then did Cairo, had a bit of an excursion to Bahrain, and now they're in Libya," Jon Williams, the foreign editor for the BBC, said from London. "This begins to take a toll on people."

"These are pretty punishing conditions," Mr. Williams added. "There's not a Ritz Carlton in Benghazi. You're sleeping in pretty rough places."

Mr. Maddox of CNN called it "tough going," but said "the level of commitment shown by the people in the field and on the desk is just absolutely extraordinary." Similarly, Kate O'Brian, a senior vice president for ABC News, said, "I would hazard a guess to say that almost every correspondent has offered to go overseas."

The networks have promoted their globe-trotting troupes lately, and they are sensitive to suggestions that they are stretched too thin. NBC News, which is controlled by Comcast, declined interview requests. Just 12 months ago, ABC News, a unit of the Walt Disney Company, and CBS News, a unit of the CBS Corporation, were reeling from the latest round of buyouts and layoffs, but Ms. O'Brian said she did not think that the cuts at ABC, which resulted in a 25 percent smaller news division, had affected coverage of foreign events.

"I think we've done a really good job of covering all the stories," she said.

ABC has benefited from last year's hiring of Christiane Amanpour, the longtime CNN correspondent, who now hosts the Sunday public affairs program "This Week." Ms. Amanpour secured exclusive interviews last month with the Egyptian president, Hosni Mubarak, before he resigned, and with the Libyan leader Col. Muammar el-Qaddafi.

On Saturday, ABC was the only broadcast network to break away from sports programming when President Obama announced United States missile strikes in Libya. NBC telecast a special report minutes later, and CBS had special reports during some commercial breaks in March Madness basketball games.

Amid the missile strikes, all of the networks had at least one crew in Libya over the weekend. CNN and Fox News broadcast live audio of what they said were missile strikes early Sunday.

But despite extensive coverage of Libya and Japan, the television networks have had major blind spots. Last week, none of the broadcast networks had correspondents in Bahrain, where the United States Navy's Fifth Fleet is based, when security forces crushed the protest movement there, nor in Yemen when forces there killed dozens of protesters. The dearth of coverage of Yemen is largely because of its government's refusal to grant visas to journalists. Ms. O'Brian acknowledged that had a crisis not enveloped Japan, Libya and Bahrain "would have gotten a lot more play," but said that was not for budget reasons. "It's a matter of deciding where we're going to put our people," she said.

Similarly, David Rhodes, the new president of CBS News, said coverage of each country was determined on a "case-by-case basis."

"We have multiple teams in Libya," Mr. Rhodes said. "We don't have a team in Yemen." He noted that Toula Vlahou, a CBS radio reporter in Bahrain, came under fire from riot police officers last week when the crackdown occurred there but was not injured. CNN also had a correspondent in Bahrain.

Journalists also have encountered danger in Japan in the wake of the earthquake, tsunami and nuclear crisis there. Last week, news organizations tried to limit reporters' exposure to radiation by moving farther from the Fukushima nuclear plant. Mr. Williams said the BBC had scaled back to about 20 people in Tokyo, from more than 40 previously. NBC said in a statement that it had "downsized the number of folks on the ground, to limit exposure to the danger of the power plant," and that the people who stayed had done so voluntarily.

If there is any media beneficiary, it is CNN, a unit of Time Warner, which has the most robust international staff levels of any network based in the United States. CNN has paired its domestic and international channels for hours on end, and last week it scored several rare — though probably fleeting — ratings victories against Fox News.

"This is the time when the judicious investments we've made in a proper international infrastructure are paying off," Mr. Maddox said.

Security Firm Is Vague On Its Compromised Devices (NYT)

By John Markoff

New York Times, March 19, 2011

SAN FRANCISCO — More than a day after RSA security posted an “urgent” alert warning that a sophisticated intruder might be able to initiate a “broad attack” on a password device used by millions of customers, the announcement and its meaning remain shrouded in mystery.

RSA, a division of the data management company EMC Corporation, will not say how its system was compromised and what specific kinds of threats its customers are facing. But from its extremely limited disclosure on Thursday afternoon about what might have been taken, customers and computer security specialists are scratching their heads about what the risks may actually be.

There was wide bewilderment about the company’s claim that the intruder was “extremely sophisticated,” as it suggested that one of the nation’s premier security firms had no better security than dozens of companies that have fallen victim to a computer break-in that deceives employees and exploits unknown software vulnerabilities.

On Friday, a spokesman for RSA said it was briefing its customers individually but added that its executives were declining to speak publicly about the breach.

The announcement touched off intense speculation about whether RSA’s popular SecurID tokens, which are carried on key chains and in wallets of millions of corporate and government users, have been significantly compromised.

“It’s a weird situation,” said Dan Kaminsky, an independent Internet security specialist. Referring to the Tokyo Electric Power Company, he said, “It’s like the Tepco situation in Japan, but here everyone is freaking out” and “nobody has Geiger counters.”

The system is intended to provide additional security beyond a simple user name and password by requiring users to append a unique number generated by the token each time they connect to their corporate or government network.

A potential weakness that could be exploited involves a factory-installed key called a seed. Typically 16 characters, it is different for each token and is stored on a corresponding computer server program, which authenticates the session each time a user connects to a secure network.

If the database containing customers seeds was taken, the intruder might still not know which user had which seed, but cryptographers said it would be possible to use a reverse-engineered version of the RSA algorithm to determine that information by simply capturing a single log-in session. That would be a potentially serious vulnerability that could be exploited by a sophisticated attacker.

A technical expert in New York whose financial services firm uses the SecurID system said that even after listening to a telephone briefing on Thursday evening, he was uncertain about which potential threats he should be concerned about.

The company offered only extremely general “belt and suspenders” advice, the expert said. A copy of the company’s terse “RSA Securcare Online Note” posted on the Securities and Exchange Commission Web site on Thursday offers such advice as “Focus on security for social media applications” and “We recommend customers re-educate employees on the importance of avoiding suspicious e-mails.”

RSA notified the federal government, whose agencies widely use the tokens to guard access to its networks, some time before the public announcement was made. On Wednesday, the Computer Emergency Readiness Team in the Department of Homeland Security posted a “Technical Information Paper” on its Web site describing a set of security practices meant to limit vulnerability to attacks based on the stolen information, according to a person close to the organization.

“We have notified all of the federal agency chief information officers to take remediation steps,” said a government official who declined to be identified because he had not been authorized to speak about the breach.

What the actual risk is and what precautions a user of the key fobs and wallet-size cards depends on what was taken in the theft.

“I’m speculating, but I’m pretty confident that somebody has the root seed file,” said a former RSA employee, referring to the master file at the company, which is based in Bedford, Mass. He asked not to be identified because he still has a business relationship with the firm.

The worst case, many security consultants say, is that the vulnerability created by the theft might require companies to replace the secure tokens, which, according to analysts, cost \$15 a year or more to maintain. The vulnerability might also force RSA to rethink the design of its SecurID system.

“They may have to change their security model to one where a third party does not hold the keys to your devices,” said Paul Kocher, president of Cryptography Inc., a San Francisco computer security consulting firm.

Google Accuses Chinese Of Blocking Gmail Service (NYT)

By David Barboza And Claire Cain Miller

New York Times, March 21, 2011

SHANGHAI — Google has accused the Chinese government of disrupting Gmail in the country, making it difficult in the last few weeks for users here to gain access to the company's popular e-mail service.

Google said that it was not having any technical problems with Google's main Web site or Gmail service in China.

"There is no issue on our side; we have checked extensively," Google said in a statement released Sunday. "This is a government blockage, carefully designed to look like the problem is with Gmail."

Analysts who track Web developments say that the Chinese government may be intentionally disrupting access to Google and other Web services as part of a campaign to tighten Internet controls and censor material.

Calls to China's Foreign Ministry were not returned Sunday. Beijing has long had some of the world's strictest Internet controls. But after pro-democracy demonstrations broke out in the Middle East in January, the Chinese government seems to have intensified effort to censor Web content and disrupt Web searches related to calls for similar protests in China.

The controls come about a year after Google removed its Chinese language Internet search engine from China and relocated it to Hong Kong, where Beijing has few controls.

Google said its decision had been prompted by a series of major attacks on its Web site by Chinese hackers. Google suggested at the time that the sophisticated hacking attacks had the backing of the Chinese government.

The hackers stole some Google source code and also gained access to the private Gmail accounts of Chinese human rights advocates.

Last March, the government sharply criticized Google's decision to relocate its search engine. In a statement to the official Xinhua News Agency, the government said: "Google has violated its written promise it made when entering the Chinese market by stopping filtering its searching service and blaming in insinuation for alleged hacker attacks."

Google's search engines and Gmail are still accessible in China, but the government has the ability to block them. Many popular social media sites, including YouTube, which is owned by Google, as well as Twitter and Facebook, are blocked here.

David Barboza reported from Shanghai and Claire Cain Miller from San Francisco.

Google Says China Blocking Its Email Services (AP)

By Tini Tran, Associated Press

Associated Press, March 21, 2011

BEIJING — Google said Monday the Chinese government is interfering with its email services in China, making it difficult for users to gain access to its Gmail program, amid an intensified Internet crackdown following widespread unrest in the Middle East.

Google Inc. said its engineers have determined there are no technical problems with the email service or its main website.

"There is no technical issue on our side; we have checked extensively. This is a government blockage carefully designed to look like the problem is with Gmail," the company said in a brief statement.

China has some of the world's strictest Internet controls and blocks many popular social media sites, including YouTube, Facebook and Twitter. The government has intensified those efforts after pro-democracy protest erupted across the Middle East in January.

Around that time, anonymous calls for protesters to gather for a "Jasmine Revolution" in China triggered a crackdown by Chinese authorities, who stepped up Web censorship and deployed huge numbers of police to planned protest sites. No protests happened.

A Google spokesperson said users in China, the world's most populous Internet market, have reported having intermittent problems with the service since the end of January.

Problems include difficulty accessing the home page for Gmail and problems sending emails when logged into the service. The instant messaging function is often not working as well.

Google officials said the blocking appears to be more sophisticated than other problems experienced by users in the past because the disruption is not a complete block.

In addition, a March 11 blog post by Google about security said the company had "noticed some highly targeted and apparently politically motivated attacks against our users. We believe activists may have been a specific target." In the posting, Google declined to elaborate on which activists had been targeted or where the attacks had come from.

A company spokesperson refused to say if Google has raised the issue directly with Chinese government officials.

China's Foreign Ministry had no immediate comments on Google's accusation.

Google has had highly public run-ins with the Chinese government.

In January last year, Google announced that it would no longer cooperate with the government's requirement to censor search results for banned sites. It also complained about major attacks on its website by Chinese hackers, suggesting the government may have been instigated the attacks.

Attacks were also mounted against email accounts by activists working on human rights in China at that time.

Google moved its Chinese-language search engine to Hong Kong, which operates under separate rules from the rest of mainland China.

INTERNATIONAL NUCLEAR NEWS:

Progress At Japan Reactors; New Signs Of Food Radiation (NYT)

By Hiroko Tabuchi And Norimitsu Onishi

New York Times, March 21, 2011

TOKYO — Japan appeared to make moderate progress in stabilizing some of the nuclear reactors at the stricken Fukushima Daiichi power plant on Sunday, but at the same time it disclosed new signs of radioactive contamination in agricultural produce and livestock.

The government said it was barring all shipments of milk from Fukushima Prefecture and shipments of spinach from Ibaraki Prefecture, after finding new cases of above-normal levels of radioactive elements in milk and several vegetables.

Relatively high levels were also found in spinach from Tochigi and Gunma Prefectures to the west, canola from Gunma Prefecture and chrysanthemum greens from Chiba Prefecture, south of Ibaraki.

The emergency efforts to mitigate damage at the Fukushima Daiichi Nuclear Power Station, meanwhile, brought some notes of relief in the face of persistently dire conditions. The authorities said they had restored water pumps to two damaged reactors, Nos. 5 and 6, that were not of central concern, putting them under control in a state known as “cold shutdown.”

But another reactor that has proved more worrisome, No. 3, continued to bedevil engineers.

The Tokyo Electric Power Company, which runs the plant, appeared to have experienced a serious setback as officials said that pressure buildup at the ravaged No. 3 reactor would require the venting of more radioactive gases.

But at a news conference a few hours later, officials from the power company said that the pressure had stabilized and that they had decided they did not need to release the gases immediately, which would have heightened worries about wider contamination among the population. They said they were unsure what had caused the pressure to rise, highlighting the uncertainty engineers must still grapple with at Fukushima.

The power company also said that on Sunday workers injected 40 tons of water into the storage pool containing spent fuel rods at Unit No. 2, and that firefighters began spraying water into the pool at Unit No. 4. On Saturday, firefighters sprayed water at the storage pool of Unit No. 3 for more than 13 hours.

The reactors placed in cold shutdown were already shut down before the earthquake and the tsunami struck on March 11, posing less of a risk than the other reactors at the plant. But their cooling systems were knocked out, and the fuel rods left inside the reactors started to heat up, together with spent fuel rods in a separate storage pool.

“We are getting closer to bringing the situation under control,” Tetsuro Fukuyama, the deputy chief cabinet secretary of the Japanese government, said of the entire plant late Sunday.

After connecting a mile-long electrical transmission line on Saturday, workers made progress in starting to restore power to the plant, which may allow the operator to restart its cooling systems. The government said that power was returned to Reactor No. 2 at 3:46 p.m. Sunday, and that other reactors were also expected to gain power early in the week.

Even with electrical power extended to the reactors, there was no immediate indication from officials that the damaged pumping systems could be quickly restored.

“In general, our utmost efforts are producing definite results in preventing a worsening of the situation,” said Yukio Edano, the government’s chief cabinet secretary, who confirmed for the first time that the nuclear complex — with heavy damage to reactors and buildings and with radioactive contamination throughout — would be closed once the crisis was over.

Steven Chu, the United States secretary of energy, also conveyed optimism in an interview on “Fox News Sunday,” saying that “with each passing hour, each passing day, things are more under control.”

Japanese technicians who are trying to limit the spread of radiation “are making very good progress,” he said.

Despite the positive tone from officials, steep challenges persist. Workers were trying to avoid further damage to fuel rods in the reactor cores of Nos. 1, 2, and 3, and to prevent rods in the storage pools of Nos. 2, 3 and 4 from overheating.

Some experts project that the longer it takes to resolve the crisis fully, the greater the chances that one or more reactors or fuel storage pools will have to be abandoned, increasing the risk of a catastrophic release of radiation.

The plant remains a hazardous place for the emergency crews trying to stave off further damage. At least 25 workers and five members of the Japanese Self-Defense Force have been exposed to unsafe amounts of radiation, according to the power company. At least 20 workers and four self-defense soldiers have been injured, and two workers remain missing.

Radiation contamination, meanwhile, appears to be spreading rapidly. The substances detected in the food products were iodine 131 and cesium 137, two of the more dangerous byproducts of reactor operations that are feared to have been released from the plants in Fukushima. If absorbed through milk and milk products, iodine 131 can accumulate in the thyroid and cause cancer. Cesium 137 can damage cells and lead to an increased risk of cancer.

Mr. Fukuyama, the deputy chief cabinet secretary, stressed that although the readings were above levels deemed normal, they posed no immediate health risks.

"At current levels, I would let my children eat the spinach and drink the water" from Fukushima, he said. His children did not drink much milk, he added.

None of the produce found to be contaminated has been shipped to market, he said, while acknowledging that contaminated produce that had not been tested could have slipped through.

Spinach from a farm in Hitachi, about 45 miles from the plant, contained 27 times the amount of iodine that is generally considered safe, while cesium levels were about four times higher than is deemed safe by Japan. Meanwhile, raw milk from a dairy farm in Iitate, about 18 miles from the plant, contained iodine levels that were 17 times higher than those considered safe, and milk had cesium levels that were slightly above amounts considered safe.

While challenges with the nuclear facility and radiation contamination persist, stories of individual dramas continued to emerge in the wake of the earthquake and the tsunami that slammed into the country's northeastern coast on March 11.

On Sunday, two people were reported to have been found alive, nine days after the disaster. An 80-year-old woman and her 16-year-old grandson were found under the debris of their home in Ishinomaki, about 30 miles northeast of the city of Sendai, according to Miyagi Prefecture police officials and the public broadcaster NHK.

The boy, identified as Jin Abe, crawled out of the debris of the family home and was found by local police officers, who called rescuers to free his grandmother, Sumi Abe, NHK reported. Both were hospitalized, but details of their condition were not immediately available.

Meanwhile, the National Police Agency on Sunday raised the official death toll to more than 8,100 from the 9.0-magnitude earthquake and ensuing tsunami. The final toll is now expected to reach nearly 20,000. At a news conference, police officials in Miyagi, the prefecture hit hardest by the tsunami, said they expected the toll there alone to exceed 15,000.

Kantaro Suzuki contributed reporting from Tokyo.

Radiation Levels May Be Falling At Stricken Nuclear Plant (LAT)

The radiation levels are still high at the Fukushima Daiichi plant but appear to be coming down, says the head of the US Nuclear Regulatory Commission, cautioning that it is still hard to obtain accurate data.

By Karen Kaplan And Thomas H. Maugh II, Los Angeles Times

Los Angeles Times, March 21, 2011

Radiation levels at the stricken Fukushima Daiichi nuclear power plant in Japan are still high but may be tapering off, a senior US nuclear official said Sunday.

Indications from the plant, which houses six nuclear reactors, were levels in the range of hundreds of millisieverts per hour, said Gregory Jaczko, chairman of the US Nuclear Regulatory Commission. The duration of those levels was unclear. The exposure limit for Japanese workers was recently raised to 250 millisieverts per year.

For the sake of comparison, the average American is exposed to 6.2 millisieverts of radiation per year, half of which come from natural sources, according to the commission.

Photos: Unrelenting crisis grips Japan

"We believe right now that the radiation levels at the site are high, but we have some indications that they may be coming down," Jaczko said on the C-Span program "Newsmakers."

The Nuclear Regulatory Commission is using "a variety of sources," including data from the Department of Energy, to assess radiation levels at the plant and in the surrounding area, Jaczko said. But power interruptions at the plant have knocked out some of the instruments that would normally provide reliable readings.

"It's difficult to obtain accurate information," Jaczko said.

On Monday, the five members of the commission will begin developing a plan to glean lessons from events in Fukushima that can be applied to nuclear plants in the United States.

"We want to take a very systematic and methodical look at all the information we're getting from Japan," Jaczko said. The first conclusions based on solid information about how the plant and its operator, Tokyo Electric Power Co., have performed could be made by late summer or early fall, he said.

"If that good information tells us we need to make changes to our licensing process, then we will do that," he said.

The commission has 11 experts stationed in Tokyo, where they are providing technical assistance. There are no plans to send any of them to Fukushima, Jaczko said. "I'm not sure it's really the appropriate role for NRC to send staff actually to the site," he said.

Although the restoration of electricity to two of the reactors at the Fukushima plant appears to have stabilized them, the situation in Japan "is still quite uncertain," said Edwin Lyman of the Union of Concerned Scientists in Washington.

"It's premature to make any assessment about the most severely affected reactors," he said.

Damage already incurred to the nuclear fuel rods in the plant's other four reactors may make it more difficult for workers to cool them to a safe temperature, even after electricity is fully restored, Lyman said.

Progress restoring power to the damaged plant has apparently stalled after a full day of work Sunday, although the situation has not deteriorated any further.

Officials at Tokyo Electric Power Co., which owns the plant 140 miles north of Tokyo, said they had managed to restore power to a switchboard at the No. 2 reactor at the plant, but have not yet been able to restore coolant flow in the reactor.

Meanwhile, Japanese health authorities have banned the sale of milk and vegetables from the prefecture in which the power plant is located because they have been contaminated by radioactive fallout, although officials claim the levels are not yet high enough to present a danger to human health.

After stringing a new power line to the plant from the electric grid, company officials reported on Saturday that they had reconnected coolant pumps in reactor Nos. 5 and 6 and restored the flow of water to the spent fuel cooling pools in those buildings. In the day since, temperatures in those pools have returned to near normal.

But those two pools had not been considered a significant threat. Authorities are much more concerned about reactors No. 2 and No. 3 and the spent fuel pool at No. 4. The reactor containment vessel at No. 2 may be cracked and venting some radioactive gases into the environment. Reactor No. 3 is the only reactor at the site that contains plutonium in the fuel rods and its escape would be extremely dangerous because it is carcinogenic in even minute doses.

And the spent fuel pool at reactor building No. 4 is thought to have boiled dry, allowing the fuel rods to heat up and become damaged, also releasing radioactivity into the environment.

The nuclear cores inside the reactors are usually covered in water, but the top halves of the cores in reactors 1, 2 and 3 were exposed to air for at least several days, according to reports from the International Atomic Energy Agency and other sources. Even if those cores are resubmerged, they may have experienced permanent damage that would make them more difficult to keep cool, Lyman said.

For instance, he said, if the exposed portions of the fuel rods have swelled due to heat, the gaps between them may now be too small to pass enough water to cool them.

In addition, when the zirconium cladding surrounding the cores was exposed to air, it may have oxidized and become so brittle that radioactive fuel particles could have escaped through cracks. If enough of the escaped fuel has collected at the bottom of the reactor vessel, it could become hot enough to melt through the steel container and escape into the environment, Lyman said. Even if the steel was not breached, the collection of fuel at the bottom of the container would also make it more difficult to cool.

"These cores may not be as easily cooled as if they were undamaged," Lyman said.

Workmen have been spraying all three with seawater for several days in an attempt to keep temperatures down, but the water has combined with the steam and radioactivity to make it difficult for workmen who are attempting to reconnect power.

Had there been no intervention at the stricken power plant, the nuclear fuel would have completely melted within six hours, Lyman said. That would have formed a "hot pool" of fuel that would have melted through the bottom of its stainless steel shell within two hours, he said. But neither of those scenarios has come to pass.

"If the seawater pumping had not been effective, this would have ended days ago," Lyman said. But as long as workers can continue to feed water into the plant, the situation could be stabilized indefinitely, he said.

"I actually think it's an amazing thing that they have been able to maintain the cores," he added. "It is truly heroic."

However, Lyman criticized the Japanese government for failing to expand its evacuation order to all people within 50 miles of the Fukushima plant, as recommended last week by the US Nuclear Regulatory Commission. Japanese officials have maintained that only those within about 12 miles of the reactor should evacuate, and that people within 18 miles should stay put but remain indoors.

"The Japanese are squandering the opportunity to be able to initiate an orderly evacuation," Lyman said. "Our concern is they are wasting valuable and precious moments."

Contamination of foodstuffs in the area surrounding the Fukushima plant is a growing concern, particularly in light of the shortages of food that are occurring in the wake of the magnitude 9 Tohoku quake that rocked the area 10 days ago. The government had already said that it had detected contaminated milk at 37 farms in the area.

Photos: Unrelenting crisis grips Japan

Now, authorities said they have also found contaminated spinach, canola and chrysanthemum greens. Monitors detected low levels of iodine-131 and cesium-137 on the leaves of the plants.

The biggest concern is not with food that is clearly too unsafe to eat, but rather with items that contain a small amount of radioactivity but still meet government safety guidelines, Lyman said.

"It certainly is going to pose a dilemma for people, to be able to trust the food they're eating," he said.

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US Officials See Progress In Japan, Questions Linger About Domestic Plans (HILL)

By Ben Geman

The Hill, March 21, 2011

Energy secretary and NRC chief say the US is monitoring Japan's struggle and reexamining nuclear facilities here.

Two senior US officials said Sunday that they see signs of improvement at the stricken Fukushima Daiichi nuclear plant in Japan while signaling that the Japanese catastrophe could affect domestic nuclear decisions in the future.

"I think with each passing hour, each passing day, things are more under control. And so, step by step, they are making very good progress," Energy Secretary Steven Chu said in the morning on "Fox News Sunday."

Asked on CNN if the worst is over, Chu said, "we believe so" but added: "I don't want to make a blanket statement."

Nuclear Regulatory Commission Chairman Gregory Jaczko said on C-SPAN Sunday morning that radiation levels appear to be dropping while acknowledging the challenge of receiving accurate information about conditions in Japan, where workers are trying to bring overheating reactors and spent fuel under control.

The Department of Energy has deployed equipment to the region, and Jaczko said his agency – which has also dispatched staff to Japan – is doing its best to stay informed.

"We are getting information from a variety of different sources, including from some of these Department of Energy assets, but those are not necessarily giving us the direct information at the site," Jaczko said.

"We believe that right now the radiation levels at the site are high, but we have some indications that they may be coming down," he later added.

US officials are reviewing the safety of the domestic reactor fleet, and Chu said that decisions about where future nuclear plants would be located may be affected by the Japanese crisis.

"Certainly where you site reactors and where we site reactors going forward will be different than where we might have sited them in the past, I would say," he said on Fox News Sunday.

Chu predicted there will be a fresh look at evacuation plans for the Indian Point nuclear plant about 35 miles from New York City. "I think . . . the evacuation plans of the Indian Point reactor will be looked at and studied in great detail. The Indian Point reactor is not in the situation like in Japan, but I think, again, we will be looking at whether those evacuation plans are adequate," he said.

"We're going to have to look at whether this reactor should remain," he added later.

But he cautioned that decisions about the plant are the NRC's jurisdiction. The license for one of the plant's units expires in 2013 and Entergy Corp. is seeking renewal, but New York Gov. Andrew Cuomo (D) has called for shutting the plant down.

"It's an NRC decision, but the NRC will be looking at that, I'm sure, based on events. But again, this is not to say that we believe that reactor is unsafe. We believe that reactor is safe," Chu said.

President Obama and Chu have emphasized that U.S. plants are safe and their support for a nuclear role in the country's future energy mix, while vowing to incorporate lessons from the Japanese crisis.

The NRC is undertaking a safety review and Jaczko said Sunday that he would not rule out changes to the licensing process as power companies seek renewals and permission to build the first fleet of new US reactors in decades.

"We certainly want to get good information and if that good information tells us that we need to make changes to our licensing process, then we will do that," Jaczko said, but also noted lauded the strength of existing US requirements prevent loss of cooling at plants if they lose electric power.

"We think we have a program in place that would deal with the kinds of situations that we are seeing in Japan, but I want to stress that what they are dealing with in Japan 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," he said.

Jaczko also said the NRC is not backing off its decision announced March 10 – the day before the devastating earthquake and tsunami struck Japan – to extend the license for the Vermont Yankee nuclear plant for another 20 years. The reactor has the same GE design as the stricken Japanese plant.

But Sunday brought fresh signs that the Obama administration's posture – committing to new safety reviews while supporting nuclear energy going forward – is going to draw continued attacks from some liberal lawmakers.

Rep. Ed Markey (D-Mass.), a longtime critic of the industry, said on CBS's "Face the Nation" Sunday that the Japanese crisis "is calling into question of the viability of nuclear power in this country."

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

Sanders wants a moratorium on any NRC relicensing or approval of new plants until the commission can conduct its own review and Congress can consider any legislative changes.

But Sen. Carl Levin (D-Mich.), speaking on NBC's "Meet the Press," cautioned against turning away from nuclear power.

"I think there ought to be a period here where all of our nuclear plants are tested very, very carefully to make sure that they are safe and to make sure that this cannot happen here. But I don't think that we can say that we're not going to continue to use nuclear power," he said, noting that unlike fossil fuels it does not contribute to global warming.

Japan Makes Gains In Nuclear Fight (WSJ)

By Norihiko Shirouzu, Yuka Hayashi And Peter Landers

Wall Street Journal, March 21, 2011

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

Japan Dead, Missing Tops 21,000 Amid Atomic Crisis (AFP)

By Olivia Hampton

AFP, March 21, 2011

KAMAISHI, Japan (AFP) – Workers were close to restoring power to a nuclear plant's overheating reactors as the toll of dead or missing from Japan's worst natural disaster in nearly a century passed 21,000.

Amid the devastation on the northeast coast left by a massive quake and tsunami, there was an astonishing tale Sunday of survival with the discovery of an 80-year-old woman and her 16-year-old grandson alive under the rubble.

"Their temperatures were quite low but they were conscious. Details of their condition are not immediately known. They have already been rescued and sent to hospital," a spokesman for the Ishinomaki police department said.

They were in the kitchen when their house collapsed but the teenager was able to reach food from the refrigerator, helping them survive for nine days, broadcaster NHK quoted rescuers as saying.

But with half a million tsunami survivors huddled in threadbare, chilly shelters and the threat of disaster at the Fukushima No. 1 nuclear plant stretching frayed nerves, the mood in the world's third-biggest economy remained grim.

Food contaminated with radiation was found for the first time outside Japan – where milk and spinach have already been tainted by a plume from Fukushima – as Taiwan detected radioactivity in a batch of imported Japanese fava beans.

The discovery of traces of radioactive iodine in Tokyo tap water, well to the southwest of the crippled atomic power plant on the Pacific coast, compounded public anxiety but authorities said there was no danger to health.

The Fukushima plant was struck on March 11 by the 9.0-magnitude earthquake and tsunami which, with 8,450 people confirmed killed, is Japan's deadliest natural disaster since the Great Kanto quake levelled much of Tokyo in 1923.

Another 12,931 are missing, feared swept out to sea by the 10-metre (33-foot) tsunami or buried in the wreckage of buildings.

In Miyagi prefecture on the northeast coast, where the tsunami reduced entire towns to splintered matchwood, the official death toll stood at 5,053, but the police chief warned that the number could eventually rise to 15,000.

Cooling systems that are meant to protect the Fukushima plant's six reactors from a potentially disastrous meltdown were knocked out by the massive waves, and engineers have since been battling to control rising temperatures.

Radiation-suited crews were striving to restore electricity to the ageing facility 250 kilometres (155 miles) northeast of Tokyo, after extending a high-voltage cable into the site from the national grid.

Engineers were checking the cooling and other systems at reactor No. 2 late Sunday, aiming to restore the power soon, operator Tokyo Electric Power Co (TEPCO) said.

An external electricity supply has been restored to the distributor but power at the reactor unit was not yet back, spokesman Naohiro Omura said.

"It will take more time. It's not clear when we can try to restore the systems," he said.

Fire engines earlier aimed their water jets at the reactors and fuel rod pools, where overheating is an equal concern, dumping thousands of tonnes of seawater from the Pacific.

"Our desperate efforts to prevent the situation worsening are making certain progress," said chief government spokesman Yukio Edano.

"But we must not underestimate this situation, and we are not being optimistic that things will suddenly improve," he told a news conference.

Defence Minister Toshimi Kitazawa said the temperature in all spent fuel-rod pools at the facility had dropped below 100 degrees Celsius (212 degrees Fahrenheit) – suggesting water cooling operations were having some effect.

Authorities said reactors five and six at the Fukushima complex meanwhile were in "stable condition", Kyodo News reported.

Six workers at the plant have been exposed to high levels of radiation but are continuing to work and have suffered no health problems, TEPCO said.

The UN's atomic watchdog Sunday noted "some positive developments" at the plant over the past 24 hours, but warned that the crisis there remained serious.

Prime Minister Naoto Kan was supposed to visit a staging ground for the Fukushima relief efforts on Monday, as well as the city of Ishinomaki, where the two survivors were found.

But he had to cancel his trip because of rain which threatened to pile more misery on thousands of homeless survivors – including many elderly and children – who have had to battle through biting cold in makeshift shelters.

According to the charity Save the Children, around 100,000 children were displaced by the quake and tsunami, and signs of trauma are evident among young survivors as the nuclear crisis and countless aftershocks fuel their terror.

"We found children in desperate conditions, huddling around kerosene lamps and wrapped in blankets," Save the Children spokesman Ian Woolverton said after visiting a number of evacuation centres in Japan's northeast.

"They told me about their anxieties, especially their fears about radiation," Woolverton said, adding that several youngsters had mentioned the US atom bomb attacks on Hiroshima and Nagasaki, which they know from school.

The government has insisted that there is no widespread threat of radiation. But the discovery of the tainted fava beans by Taiwanese customs officers will do nothing to calm public anxiety that has already spread far beyond Japan.

Several governments in Asia have begun systematic radiation checks on made-in-Japan goods, as well as of passengers arriving on flights from the country.

But Tsai Shu-chen of Taiwan's Food and Drug Administration stressed that the radioactive iodine and caesium-137 found on the fava beans were well below legal safety levels.

In the disaster epicentre, authorities have been battling to get more fuel and food to survivors enduring freezing temperatures.

At shelters, some grandparents are telling children stories of how they overcame hardships in their own childhood during and after World War II, which left Japan in ruins.

"We have to live at whatever cost," said Shigenori Kikuta, 72.

"We have to tell our young people to remember this and pass on our story to future generations, for when they become parents themselves."

Japan Atomic Crisis Eases As US Says Worst May Be Over (BLOOM)

By Yoshiaki Nohara And Tsuyoshi Inajima

Bloomberg News, March 21, 2011

Japan had some success cooling reactors at the crippled Fukushima Dai-ichi plant, bringing two of the six reactors under control and connecting a second electric cable to the station, according to reports.

Tokyo Electric Power Co., the operator, declared Units 5 and 6 safe after cooling water pumped into them reduced temperatures, the Associated Press reported. An electric cable was hooked up to the No. 5 reactor, Kyodo News said, also citing Tepco.

US Energy Secretary Steven Chu said the Obama administration believes the worst of the crisis is over. Unit 2, where Tepco connected a 1.5-kilometer (1 mile) power cable March 18 as it tried to revive cooling systems knocked out by the magnitude-9 temblor and tsunami, is the main source of concern, Chu said on CNN's "State of the Union" program.

"Because of the higher levels of radiation there, we take that as evidence that there might be a breach in that containment vessel," he said. "But they're not extraordinarily high, so it appears if there is a breach, it would be a limited breach. But, again, we don't really know."

The International Atomic Energy Agency's 35-member board of governors will convene an extraordinary meeting today for the first time since Dec. 2009 when Director General Yukiya Amano was voted into his post. Amano will report on his March 19 meeting with Japanese Prime Minister Naoto Kan and senior nuclear officials.

Radiation measured in Tokyo, 220 kilometers (140 miles) south of Fukushima, declined marginally yesterday, to 0.0480 microgray per hour between 3 p.m. and 4 p.m. local time yesterday. In Kitaibaraki City, located between Tokyo and the damaged plant, radiation was at 0.783 at 3 p.m., down from readings above 1 microgray on March 18. An x-ray typically has 50 micrograys of radiation.

Shifting winds and rain will carry radiation released from the Fukushima complex inland and deposit radionuclides on the ground, Austria's Meteorological and Geophysics Center reported yesterday, citing United Nations data.

"From the point of view of the worst-case scenario, the largest emissions are behind us and they went out to the Pacific Ocean," Sergei Kiriyyenko, head of Russia's state nuclear power company, Rosatom Corp., said on Russian state TV Vesti. He said there may continue to be periodic emissions.

Japan's military sprayed water from fire engines to cool the Fukushima Dai-ichi No. 4 reactor, the site of two blazes last week. Pressure in No. 3, which spiked earlier, has stabilized, Chief Cabinet Secretary Yukio Edano said in Tokyo yesterday.

Tepco considered venting radioactive steam from the reactor yesterday before it stabilized, said Naoyuki Matsumoto, a company spokesman.

Tepco is still working on getting power fully restored after connecting the cable to Unit 2, Matsumoto said by phone late yesterday. Water pumps and controls may still fail to function once power is back if they've been damaged. A successful hook-up would advance efforts to prevent a meltdown.

If fuel rods in the plant have been damaged, the reactor cores may be more difficult to cool after power is restored, Edwin Lyman, a physicist with the Union of Concerned Scientists, said on a conference call.

Efforts to contain the crisis have been hampered by radiation that made it hazardous for workers to spend prolonged periods in the immediate vicinity of damaged buildings. Soldiers from Japan's Self Defense Force and firefighters from Tokyo have used water cannons, specialized fire equipment and helicopters to douse damaged reactor No. 3 for the past five days.

Temperatures at spent-fuel cooling pools at all six reactors measured below 100 degrees Celsius (212 degrees Fahrenheit), Kyodo News said.

"These readings are something that Japanese people can be relieved to hear," Kyodo quoted Defense Minister Toshimi Kitazawa as saying at a press conference yesterday.

The longer Tepco can prevent overheating of the reactor cores and water-filled pools used to store spent fuel, the smaller the supply becomes of the most dangerous, volatile elements, said Roger N. Blomquist, principal nuclear engineer at the Argonne National Laboratory, near Chicago.

The radioactive nature of the fuel means that it's in a constant state of decay, he said. Even if some of the nuclear material has started melting, restoring electrical systems will enable Tepco to bring temperatures down to a manageable level so corrective measures and a cleanup can begin, said Blomquist, who oversees the nuclear section at Argonne, an Energy Department research center managed by the University of Chicago, birthplace of the nuclear industry.

Edano, the chief cabinet secretary, said radiation above government limits was found in milk and spinach produced near the plant struck by the earthquake, Japan's strongest on record. Japan's Health Ministry asked residents of the town of Iitate in Fukushima prefecture to refrain from drinking tap water because of radioactive iodine, Kyodo News reported.

People living within 30 kilometers of the plant should wear masks and long sleeves and stay out of the rain, Japan's nuclear safety agency said.

Residents in an adjacent region that covers an area equivalent in size to Los Angeles were evacuated in the first few days after the disaster.

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Betting On Japan's Ability To Rebound (WP)

By E.J. Dionne Jr.

Washington Post, March 21, 2011

Your initial impression of a country is often hard to shake.

Late on my first night in Japan in the 1990s, I stared out the window of my room on a high floor of a downtown Tokyo hotel. What I saw was a vast, sprawling, modern city of twinkling lights that brimmed with human and technological energy.

And then I imagined the same scene in 1945. In his magnificent book "Embracing Defeat," about Japan in the wake of World War II, John W. Dower quotes the first foreign journalist to enter Tokyo after the armistice.

"Everything had been flattened," Russell Brines wrote. "Only thumbs stood up from the flatlands — the chimneys of bathhouses, heavy house safes and an occasional stout building with heavy iron shutters."

Dower picks it up from there: "The first photographs and newsreel footage from the conquered land captured these endless vistas of urban rubble for American audiences thousands of miles away who had never really grasped what it meant to incinerate great cities." Dower notes that nationwide, close to 9 million people were homeless.

What has stayed with me since that night is a sense of the extraordinary achievement of the Japanese people in the years since the war's end. Yes, Japan has been in the doldrums for quite a while. But if the country has hit stasis, it is stasis at a remarkably high level. Every time I read about Japanese decline, my reaction is, "Maybe, but . . ."

The next morning, I met up with a Japanese friend, an ardent advocate of reform in the country's politics and habits. I could not resist telling him that looking out that window, I had been struck by what the Japanese postwar system had made possible and that if I were a Japanese citizen, I'd probably be skeptical of the reformers. How could you not question whether the promises of reform would live up to the accomplishments of the previous half-century? In ribbing my reformer friend, I had stumbled upon one of Japan's core problems: It has, simultaneously, been clamoring for change and worried it would backfire.

It's thus not surprising that ever since Japan was hit by an earthquake, tsunami and nuclear disaster, I have identified completely with all the commentary about Japan's "resiliency." If ever there was a comeback-kid sort of country, this is surely it.

But there has been an undercurrent of doubt. Would this catastrophe really unleash the transformation Japan has sought for so long? Or would it instead symbolize the inevitable waning of a once powerful nation that finds itself the victim of a declining population and a political and economic system allergic to reform and transparency?

My bet is on a rebound, partly because I have always had trouble buying into a view popular among Japan's critics of a society made up of a mass of regimented conformists defined by an unease with outsiders and a smoldering nationalism.

This overlooks strong dissenting strains that have long animated Japanese life. They have produced cultural experimentation alongside political paralysis and a remarkable capacity for openness and adaptation in a society so often described as closed. A Foreign Policy magazine writer could speak in 2002 of Japan's "Gross National Cool" because of the country's gift for absorbing the influences of a globalized culture and influencing it in turn.

Without this capacity, Japan could not have reinvented itself so brilliantly after total defeat in war. It would not have been so hospitable to foreign influences, starting with baseball, jazz, rock and liberal democracy.

Of course this paradoxical society has always confounded outsiders. Seen in the early 1980s as potentially dominating the world, Japan, not long after, was widely thought of as broken. With Japan, it seems, there is always a whiplash in perceptions. It poses a special problem for prognosticators, optimistic and pessimistic alike.

And so far, Japan's political and corporate leaders have not risen to this crisis — witness the impatience of its own people and the rest of the world over the flaws in the official information about conditions at the Fukushima Daiichi reactors.

But political and social change come from below and not just from above. The spontaneous forms of solidarity and inventiveness that Japan's triple tragedy has called forth suggest a society that has lost neither its resourcefulness nor its organizational gifts. Looking out that window more than a decade ago, I found it hard to bet against Japan. I still do.

Radiation Found In Japan's Food, Water (WT)

By Christopher Johnson, The Washington Times

Washington Times, March 21, 2011

NARA, Japan | Fears of nuclear fallout grew during a wet Sunday after officials reported traces of radioactive elements in milk, spinach, water and rain across northern and central Japan and technicians continued to battle overheated reactors at the Fukushima power plant.

Crews from the Tokyo fire and police departments, using an unmanned vehicle, sprayed seawater for 13 hours onto the decimated reactor Unit 3, which contains plutonium and uranium, only to see pressure rise and then stabilize on Sunday, government officials said.

They also tried to top up pools holding potentially exposed spent fuel rods thought to be emitting radiation into the cold, rainy atmosphere around Fukushima prefecture.

Crews connected electrical cables to Unit 2 but continued to delay plans to restart vital cooling systems, possibly damaged by the March 11 earthquake and tsunami in northern Japan.

More than eight days after the quake, police rescued a teenage boy and an 80-year-old woman who survived on yogurt inside their collapsed home.

The efforts cheered some of the estimated 500,000 survivors in shelters who are still looking for loved ones in obliterated communities across northeastern Japan, where increasing numbers of volunteers are hoping to bring supplies to remote areas lacking electricity on freezing nights.

Consumers across Japan and neighboring countries grew increasingly wary of agricultural products from the crisis area. Taiwan found small, unharmed traces of iodine in Japanese fava beans, and Japanese officials reported small traces of iodine and cesium in Spinach in Ibaraki province, far beyond the government's 18-mile danger zone and an 50-mile radius designated by the United States and other countries.

Japan's chief Cabinet secretary, Yukio Edano, said the low levels of radiation posed no public health risks.

"If you eat it once, or twice, or even for several days, it's not just that it's not an immediate threat to health. It's that even in the future, it is not a risk," he said. "Experts say there is no threat to human health."

No contamination has been reported in Japan's main food export, seafood, worth about \$1.6 billion a year and less than 0.3 percent of its total exports.

About 435 miles southwest of the smoldering nuclear power plant, people who fled Tokyo and the northeast filled hotels in Osaka, Kobe and the ancient capitals of Kyoto and Nara.

Etsuko Okamoto, a retiree from Tokyo staying at the Nikko hotel in Nara, said she was still afraid to go back to Tokyo, beset with a record number of aftershocks and fears of contamination.

"I am too old to escape from my old house by myself," she said. "I don't know how long I will have to stay here, and it is rather expensive. But at least I am safe."

Keith Paddington, an English teacher from Britain, said he has been camping in a park near Nara's ancient palace because he distrusts the government's assurances that radioactive elements found in the Tokyo water supply are safe.

"I've been to Nara four times now, and it's beautiful, but I really don't want to be here," he says, sitting near a mountain bike and a few small bags of clothing he brought on the train from Tokyo last week.

"I want to go home to Tokyo, but I just don't believe it's safe enough yet."

He said only three of his 33 Japanese students have fled Tokyo, where many are trying to live normal lives despite shortages.

"They're afraid of losing their jobs if they go when others are staying. It makes them look bad," he said.

"It's not right for Japanese companies to make their staff come to work. They should let them leave Tokyo if they want, for their own safety."

Fukushima residents are wondering whether they will ever be able to live again in areas around radiation leakages.

"I still have no idea what the numbers they are giving about radiation levels mean. It's all so confusing," said Tsugumi Hasegawa, who was sheltering with 1,400 people in a gym in Fukushima city, about 50 miles from his home in Futaba, the site of the plant. "And I wonder if they aren't playing down the dangers to keep us from panicking. I don't know whom to trust."

Kazuma Yokota, a nuclear safety official, said the government gave Fukushima residents anti-radiation pills three days too late.

"It is true that we had not foreseen a disaster of these proportions. We had not practiced or trained for something this bad," he said. "We must admit that we were not fully prepared."

Growing concerns about radiation add to the overwhelming chain of disasters Japan has endured since the magnitude 9.0 quake. It spawned a tsunami that ravaged the northeastern coast, killing 8,450 people, leaving more than 12,900 people missing, and displacing another 452,000, who are living in shelters.

Bodies are piling up in some of the devastated communities and badly decomposing even in the chilly rain and snow.

"The recent bodies — we can't show them to the families. The faces have been purple, which means they are starting to decompose," said Shuji Horaguchi, a disaster relief official setting up a center to process the dead in Natori, on the outskirts of the tsunami-flattened city of Sendai.

"Some we're finding now have been in the water for a long time; they're not in good shape."

• This article is based in part on wire service reports.

Officials: Pressure Rises Again In Japan Reactor (AP)

By Eric Talmadge, Mari Yamaguchi, Associated Press

Associated Press, March 20, 2011

FUKUSHIMA, Japan – Technicians prepared to vent radioactive gas into the air Sunday because of a new spike in pressure at Japan's crippled, leaking nuclear complex, while a safety official said protective iodine pills should have been distributed near the plant days earlier.

Radiation, a danger for days in areas around the plant, already has seeped into the food supply, with the government warning that tests of spinach and milk from areas as far as 75 miles (120 kilometers) away exceeded safety limits. Tap water farther away turned up tiny amounts of radioactive iodine in Tokyo and other areas.

Amid concerns of wider contamination, a nuclear safety official said the government was caught off-guard by the accident's severity and only belatedly realized the need to give potassium iodide to those living within 12 miles (20 kilometers) of the Fukushima Dai-ichi nuclear complex.

The pills help reduce the chances of thyroid cancer, one of the diseases that may develop from radiation exposure. The official, Kazuma Yokota, said an explosion at the plant's Unit 3 reactor last Sunday should have triggered the distribution. But the order only came three days later.

"We should have made this decision and announced it sooner," Yokota told reporters at the emergency command center in the city of Fukushima. "It is true that we had not foreseen a disaster of these proportions. We had not practiced or trained for something this bad. We must admit that we were not fully prepared."

While four of Fukushima's six nuclear reactors have been dangerously overheating since the March 11 earthquake and tsunami disrupted cooling systems, Unit 3 has proved particularly troublesome.

After the government said Saturday that the unit appeared to be stabilizing after being doused with water, nuclear safety officials said the efforts may not have worked. Pressure was rising again inside the reactor's containment vessel, requiring a release of radioactive gas to prevent a more dangerous buildup, said safety agency official Hidehiko Nishiyama.

The venting is an "unavoidable measure to protect the containment vessel," Nishiyama said. He warned that a larger amount of radiation would have to be released than when similar venting was done a week ago because more nuclear fuel have degraded since then.

While battling Unit 3, emergency teams used an unmanned vehicle to spray water at another at-risk reactor — Unit 4 — while preparing to switch power back on for the first time since a March 11 earthquake and tsunami knocked out the plant's crucial cooling systems.

However, there was no guarantee the cooling systems would still work, even once power was restored.

Japan has been struggling with an overwhelming chain of disasters prompted by the 9.0-magnitude quake. The quake spawned a tsunami that ravaged Japan's northeastern coast, killing more than 8,100 people and knocking out cooling systems at the plant, prompting overheated reactors and fuel to leak radiation.

More than 12,000 people are still missing, and more than 452,000 are living in shelters.

Japan Struggles To Restore Power To Nuclear Plant (AFP)

By Hiroshi Hiyama

AFP, March 20, 2011

KITAKAMI, Japan (AFP) – Crews fighting to cool reactors at Japan's stricken nuclear plant struggled Sunday to switch partial power back on after a natural disaster that has left nearly 20,000 people dead or missing.

The discovery of radiation in foodstuffs in regions around the plant, and of traces of radioactive iodine in Tokyo tap water well to the southwest, compounded public anxiety but authorities said there was no danger to health.

The Fukushima No. 1 plant was crippled on March 11 by a massive earthquake and tsunami which, with at least 7,653 people confirmed killed, is Japan's worst natural disaster since 1923.

Another 11,746 are missing, feared lost to the tsunami or buried in the wreckage of buildings. For half a million survivors, many huddled in poorly supplied and spartan shelters, conditions in the icy north are miserable.

According to the charity Save the Children, around 100,000 children were displaced by the disaster and signs of trauma are evident among survivors as the nuclear emergency and countless aftershocks heighten their terror.

"We found children in desperate conditions, huddling around kerosene lamps and wrapped in blankets," Save the Children spokesman Ian Woolverton said after visiting a number of evacuation centres in Japan's tsunami-hit northeast.

"They told me about their anxieties, especially their fears about radiation," Woolverton said, adding that several youngsters had mentioned the US atom bomb attacks on Hiroshima and Nagasaki, which they know from school.

Cooling systems that are meant to protect the Fukushima plant's six reactors from a potentially disastrous meltdown were knocked out by the tsunami, and engineers have been battling ever since to put a lid on rising temperatures.

The radiation-suited crews were battling to partially restore electricity to the ageing facility 250 kilometres (155 miles) northeast of Tokyo, after extending a high-voltage cable into the site from the national grid.

But plant operator TEPCO said it would be difficult by the end of Sunday to restart power to the cooling systems on two reactors that were badly damaged when a series of explosions tore away their outer buildings.

Spraying of water from high-pressure hoses – an operation meant to cool the reactors from afar – was complicating the reconnection of electricity, it said, according to Jiji Press.

However, a spokesman for Japan's Nuclear and Industrial Safety Agency said that workers were still striving to restore power on Sunday if possible.

Japanese and UN atomic officials cautioned there was no guarantee that cooling pumps would operate even with power back up, given the extent of damage from the towering tsunami, and TEPCO planned a series of tests first.

Fire engines again aimed their water jets at the reactors and fuel rod pools, where overheating is an equal concern, dumping in thousands of tonnes of seawater from the adjoining Pacific.

They focused much of their effort on a reactor pool storing plutonium-uranium mixed oxide (MOX) fuel, which is more volatile than normal uranium fuel rods.

Six workers at the Fukushima plant have been exposed to high levels of radiation but are continuing to work and have suffered no health problems, TEPCO said.

Japan's government has been insisting that there is no widespread threat of radiation but confirmed Saturday that tainted milk had been found in Fukushima prefecture, and contaminated spinach in neighbouring Ibaraki.

Abnormal levels of radioactive iodine were also found in the water supply in areas including Tokyo and Fukushima, officials said. But as with the milk and spinach, they stressed the levels were still far too lower to endanger health.

A plume heading eastwards from Fukushima has now reached the western Atlantic but its radioactivity is likely to be "extremely low" and have no impact on health or the environment, France's nuclear safety watchdog said.

In the disaster epicentre of northeast Japan, authorities have been battling to get more fuel and food to areas where the 10-metre (33-foot) tsunami reduced entire towns to splintered matchwood.

At shelters, some grandparents are telling children stories of how they overcame hardships in their own childhood during and after World War II, which left Japan in ruins.

"We have to live at whatever cost," said Shigenori Kikuta, 72.

"We have to tell our young people to remember this and pass on our story to future generations, for when they become parents themselves," he said.

Japan Finds Tainted Food Up To 90 Miles From Nuclear Sites (NYT)

By Ken Belson, Hiroko Tabuchi

New York Times, March 20, 2011

As Japan edged forward in its battle to contain the damage at its ravaged nuclear power plants on Saturday, the government said it had found higher than normal levels of radioactivity in spinach and milk at farms up to 90 miles away from the plants, the first confirmation that the unfolding nuclear crisis has affected the nation's food supply.

While officials played down the immediate risks to consumers, the findings further unsettled a nation worried about the long-term effects of the hobbled reactors.

The Tokyo Electric Power Company, with help from the Japan Self-Defense Forces, police officers and firefighters, continued efforts to cool the damaged reactors on Saturday to try to stave off a full-scale fuel meltdown and contain the fallout. The latest plan involved running a mile-long electrical transmission line to Reactor No. 2 at the Fukushima Daiichi Nuclear Power Station to try to restore power to its cooling system.

About 500 workers from the utility connected the power line on Saturday. They were checking the cooling system, which has been disabled since the earthquake and tsunami hit more than a week ago, and hoped to restart it on Sunday.

Rescue workers using fire hoses doused Reactor No. 3 for almost 14 hours, stretching into early Sunday morning, spraying about 2,400 tons of water. Radiation levels appeared to fall at the reactors, where a pool of spent fuel rods was feared to be overheating, a Tokyo Fire Department official said Sunday.

The spraying there resumed later Sunday, and 11 fire trucks began spraying Reactor No. 4 as well.

The apparent progress offered a glimmer of hope after days of increasingly dire news that now includes contaminated food.

Yukio Edano, the chief cabinet secretary, said that spinach and milk were the only products found to have abnormally high radiation levels. The level of radioactivity found in the spinach would, if consumed for a year, equal the radiation received in a single CAT scan, he said, while that detected in milk would amount to just a fraction of a CAT scan.

"These levels do not pose an immediate threat to your health," Mr. Edano said. "Please stay calm."

Still, Fukushima Prefecture asked all dairy farms within 18 miles of the nuclear plant on Saturday to halt all milk shipments. Officials also halted shipments of spinach from the entire prefecture.

The milk with the elevated radiation levels was found in Fukushima Prefecture on farms about 19 miles from the nuclear plants. The contaminated spinach was found one prefecture to the south, in Ibaraki Prefecture, on farms 60 to 90 miles from the plants.

Food safety inspectors said the iodine 131 in the tested milk was up to five times the level the government deems safe, and the spinach had levels more than seven times the safe level. The spinach also contained slightly higher than allowable amounts of cesium 137.

Minuscule amounts of radioactive iodine were also detected in the water supply in Tokyo and its five surrounding prefectures. In Tokyo, about 170 miles from the Fukushima Daiichi plant, the level was less than 1 percent of that considered dangerous by the government. In Fukushima city, about 50 miles from the power plant, the levels were still below half of the legal limit.

Iodine 131 and cesium 137 are two of the more dangerous elements that are feared to have been released from the plants in Fukushima. Iodine 131 can be dangerous to human health, especially if absorbed through milk and milk products, because it can accumulate in the thyroid and cause cancer. Cesium 137 can damage cells and lead to an increased risk of cancer.

The iodine levels are well beyond what the Food and Drug Administration in the United States considers a cause for concern. But experts say Japan's reassurances about food safety were probably accurate.

Dr. Harold M. Swartz, a professor of medicine at Dartmouth who studies radiation exposure in people, said that the contamination levels were low and that the government's advice was "probably reasonable." But, he added, because people are so afraid of radiation, they are likely to avoid these foods altogether.

Another expert, David J. Brenner, director of the Center for Radiological Research at Columbia University, said it "seems unnecessary to eat these" foods.

"I wouldn't," Dr. Brenner said.

That judgment was shared by Katsuko Sato, 76, who was shopping at a supermarket in central Tokyo on Saturday evening. She said she would stop buying spinach and, after watching Mr. Edano's news conference, she called her family and friends to urge them not to, either.

"I'm not going to believe the government because I don't think only spinach from Ibaraki will be affected," she said.

A handful of vegetable-shop owners in Tokyo said they were concerned about the report, but continued to sell vegetables from Fukushima and Ibaraki because they had not been told to stop.

Dr. Swartz said people consuming milk and produce, particularly children and pregnant women, should be taking potassium iodide, which saturates the thyroid gland with nonradioactive iodine, and prevents it from taking in the radioactive form. Children and fetuses have the highest risk of thyroid cancer from exposure to radioactive iodine.

The Japanese authorities recommended Wednesday that people fleeing the 12-mile-radius evacuation zone start taking iodine pills.

Dr. Swartz said the radiation levels detected so far were still much lower than those at Chernobyl, the nuclear plant that exploded in Ukraine in 1986 and is still the world's worst nuclear accident. He said that in the United States food with similar levels of radiation would probably be taken off the market, but more for political and public relations reasons than for scientific or medical ones.

The Japanese government is considering conducting more comprehensive tests of agricultural products from areas farther from the damaged reactors to address public anxiety about the food supply, Mr. Edano said.

Health inspectors are still trying to determine whether any spinach had been shipped from the six farms in Ibaraki Prefecture, where the contaminated produce was found, said Taku Ohara, an official in the food safety division of the Health, Labor and Welfare Ministry. The tests were conducted Saturday. No contaminated milk had been shipped from the farm where higher than normal radioactive levels were detected.

Mr. Ohara said Japan was particularly strict in determining what constituted safe radioactive levels. Leafy spinach is especially susceptible to absorbing radioactive material, he said.

Asparagus, cucumbers, radishes, tomatoes and other vegetables are also grown in Fukushima, but have not been found to be contaminated. But only a small number of farms have been tested because officials have been overwhelmed in the wake of the earthquake, the tsunami and the nuclear crisis that followed, Mr. Ohara said.

Though land-poor Japan imports much of its fruit, grain and soybeans, 79 percent of the vegetables eaten here are grown domestically. Japan is the largest net importer of food in the world.

There have been no reports of contaminated fish or meat.

Many of the ports, fleets and processing facilities in Tohoku, the area most affected by the tsunami and nuclear crisis, are so badly damaged that no fish or seafood from there has reached Tsukiji market in central Tokyo, according to the market's general manager, Tsutomu Kosaka. The market handles 90 percent of the seafood for about 40 million consumers in the greater Tokyo area.

Japan's leading producers of premium beef, including the world-famous Kobe brand, said Saturday that they had not yet tested their cattle or feed. But they were nervous about the possible spread of radiation from Fukushima, and just as concerned that fear of radiation, even if it is unfounded, could damage the market for high-quality beef.

While only spinach and milk were found to have elevated radiation levels, some countries have been testing food imports from Japan since the day after the quake and tsunami. In Hong Kong, for instance, 216 Japanese products passed food quality screenings, including meat, fish, fruits and vegetables.

In Japan, consumers were also grappling with rolling blackouts ordered after damage to the reactors reduced the electricity supply in the greater Tokyo region.

At the Fukushima plant, temperatures outside the four damaged reactors were lower than expected, Defense Minister Toshimi Kitazawa said Saturday, raising hopes that the nuclear fuel could be kept cool by spraying the reactors with water, while technicians worked on restoring power to the cooling systems.

But Mr. Kitazawa was unable to confirm how hot it was inside the buildings, leaving open the possibility that nuclear fuel may still be overheating.

Mr. Edano, the cabinet secretary, said, "Currently, we have a level of stabilization, but the situation remains volatile."

The National Police Agency said Sunday that there were 7,700 confirmed deaths so far because of the earthquake and tsunami on March 11, and more than 11,600 people remained missing. The authorities have said they expect the death toll to exceed 10,000.

Executives May Have Lost Valuable Time At Damaged Nuclear Plant (NYT)

By Ken Belson, Keith Bradsher, Matthew L. Wald

New York Times, March 20, 2011

New questions are arising about whether Tokyo Electric Power Company executives wasted precious time in the early hours of the nuclear crisis, either because of complacency or because they did not want to resort to emergency measures that could destroy the valuable plant.

The question of timing is critical. Because the earthquake and the tsunami knocked out the Fukushima Daiichi plant's ability to pump fresh water into either the reactors or the spent fuel pools — potent sources of radioactive material as they heated up — plant operators eventually had to improvise. And mounting radiation levels hampered workers' ability to enter the plant, gauge the damage and contain the crisis.

Nuclear experts said that executives thought they had enough time because the reactors had shut down automatically after the earthquake, and that they did not realize the risk posed by the spent fuel rods, which are highly radioactive and still emitting heat.

The question is whether they waited too long before pumping seawater into the plant, a measure that would ruin a valuable investment.

Kuni Yogo, a former atomic energy policy planner in Japan's Science and Technology Agency, said he believed that the executives at Tokyo Electric Power, or Tepco, did not recognize the risks soon enough. They failed to cool the reactors on the day of the earthquake, March 11, and even after a hydrogen explosion the following day, they waited more than four hours to start dousing the reactors with seawater. They did not even try to put water into the spent fuel pools for several days.

"On Friday afternoon, they weren't in a panic," Mr. Yogo said. "Their main concern was the reactors, and they had shut down automatically. They could have prepared earlier to deal with the spent fuel."

Michael Friedlander, a former senior operator at a Pennsylvania power plant with General Electric reactors similar to the troubled ones in Japan, said the crucial question is whether Japanese officials followed G.E.'s emergency operating procedures.

Those procedures are “crystal clear” on how to determine when reactors should be flooded, Mr. Friedlander said, and operators at the plant should have practiced many times over the years how to flood them with seawater.

The procedures prescribe specific actions based on variables like reactor temperature and pressure, data Tepco has not yet released.

A former Tepco executive told The Wall Street Journal on Saturday that the company had hesitated to ruin the plant with seawater. A Tepco spokesman told The Journal that the company, “taking the safety of the whole plant into consideration, was trying to judge the appropriate timing to use seawater.”

While Mr. Yogo said he did not know Tepco’s internal calculations, he said it would have been natural for the company not to want to ruin its plant, given the expense and the public opposition to new nuclear plants. “They could have reacted earlier, but this is a relative thing,” he said, pointing out that they were focused on the reactors rather than the spent fuel pools. “Economically, it is tough to decide to use seawater.”

Reactor operators calculate how long it would take, once cooling is lost, for the spent fuel to boil the water it sits in. The fuel assemblies usually lie under 20 to 30 feet of water, which would take days to boil away. Given the core damage in the reactors, the plant operators may have decided that the reactors were a higher priority than the pools.

Another possibility, though, is that fuel in the pools was being uncovered not through boiling, but because the earthquake had caused leaks. Among the questions that can probably be answered only through an independent investigation is what instrumentation the operators had available to find out the temperature and depth of the water, and whether that problem was overlooked.

Mr. Friedlander said that delays had costs. It would have been much easier to have used seawater earlier because the temperature and pressure of the reactors were lower then, making it easier to push water into them. And not enough time had passed for hydrogen to build up, so there would have been less risk of the explosions that occurred after the company began flooding reactors on the second night and third day of the crisis.

The power plant’s batteries were still working in the first hours after the quake as well, so more electricity would have been available for illumination and other power needs.

Experts continue to debate whether time is working for or against the workers and soldiers struggling to re-establish cooling at the crippled plant.

In the case of the reactors, the passage of time has helped. Fuel rods that were producing fission have cooled substantially since the reactors shut down. They now require much less water to keep them cool and under control, and produce less steam. If they are uncovered again, they will resume production of explosive hydrogen gas, but more slowly. Though partial fuel melting has already occurred in each reactor, the amount of water that needs to be added to prevent further damage and to avoid a full meltdown decreases by the day, and is now just one-twentieth what it was on the first day of the crisis.

Each passing day also brings engineers at the site closer to restoring electrical power, and executives said Saturday that they had extended a hastily built high-power line from the national grid, although they were still testing whether it would work. Electricity may make it possible to turn on the power plant’s extensive cooling systems.

On the other hand, the radioactive fallout at the plant keeps mounting.

Each day that passes without a resolution increases the risk that one or more reactors or fuel storage pools may have to be abandoned, leaving fuel to burn unattended, some experts argue.

“I don’t think time is on their side,” said Brian DeBruin, a former Navy nuclear engineer who is now the Asia director for power and infrastructure at Aon Risk Solutions, a large insurance and risk consultancy.

Other engineers are becoming more optimistic about the progress that Japanese engineers are making.

Mr. Friedlander said emergency cooling pumps in the Fukushima reactors were safely located a floor below where hydrogen gas had been vented from reactor cores, setting off explosions. The pumps are designed to withstand quakes, and the reactor buildings have watertight doors that should have protected the pumps from tsunami waves, he said.

Hidehiko Nishiyama, a Japanese nuclear regulator, said Saturday that faulty planning had played a role in the power plant’s vulnerability, with switchboards and motors outside the protection of the reactor buildings destroyed by the tsunami.

Richard T. Lahey Jr., G.E.’s former head of safety research for the type of boiling-water reactors installed at Daiichi, said restoring the emergency cooling pumps was crucial. Spraying water on storage pools full of overheating spent uranium fuel rods is not very effective because rising steam dissipates much of the incoming water.

But much repair work to the emergency cooling systems must be done near the reactor buildings, where contamination is highest. So the most promising long-term solution may require the highest short-term risk to workers. The authorities must decide whether to evacuate workers each time there is a surge in radiation, protecting them from immediate harm but delaying the restoration of emergency cooling.

The fuel rods that were in active use and the spent fuel stored at the facility will take years to completely cool and will require watering for years to stay under control. The entire plant could be contaminated if a meltdown were to occur at any one of 12 sites with fuel rods: three reactors that were operating at the time of the earthquake, two reactors that were shut down for maintenance at the time but still had fuel rods in them, and seven storage pools. A major contamination would make it hard to keep the remaining sites under control, nuclear experts said.

The initial Japanese response to overheating fuel was cautious. The crew of a helicopter was told Wednesday to stop dumping water and chemicals on a boiling pool of high-level radioactive waste because of elevated levels of radiation. Technicians and firefighters, many of them drawn from the military, have been evacuated or told to take refuge when the escape of radioactive vapor from the power plant makes it more hazardous to be outside.

Helicopter crews are taking more risks since the United States warned Wednesday about the gravity of the plant's problems, and the defense minister, Toshimi Kitazawa, said Saturday that military firefighters would spray water around the clock on an overheated storage pool at Reactor No. 3.

Though plant operators have been struggling to reduce workers' risk, a senior nuclear executive who insisted on anonymity but has many contacts in Japan said such caution had increased the risk of a serious accident. He suggested that Japan's military assume primary responsibility.

"It's the same trade-off you have to make in war, and that is the sacrifice of a few for the safety of many," he said. "But a corporation just cannot do that."

New Progress, Worries In Japan Nuclear Crisis (LAT)

As electricity is partially restored at the Fukushima nuclear plant, a new pressure buildup is seen in one reactor. Meanwhile, above-normal levels of radiation are found in food and water. The number of dead or missing in Japan's disaster now exceeds 20,0

By Don Lee, Kenji Hall, Mark Magnier
Los Angeles Times, March 20, 2011

Japan took a step toward possibly getting its nuclear disaster under control Sunday as electricity to power some reactor cooling systems was restored and previous efforts to lower reactor temperatures with seawater at the battered Fukushima atomic energy plant appeared to have had an effect.

But the increased optimism by Japanese officials and Western scientists alike was tempered by a pressure buildup at one of the plant's six reactors and a newly emerging crisis — radiation contamination was found in some food and water supplies in a nation already suffering from a cascade of troubles.

Although Japan's Health Ministry said the contamination levels were not immediately harmful to humans, the discovery of higher-than-normal radioactivity in batches of milk and spinach — and of traces of radioactive iodine in tap water in Tokyo and elsewhere — stirred new angst in a public already weary from earthquake aftershocks, blackouts and the threat of a full-fledged nuclear meltdown.

Early Sunday, consumers at some central Tokyo markets were lining up to buy milk, which already had been in short supply after milk-carton factories were knocked out by the quake and tsunami.

"The government keeps urging people to stay calm, but there's a sense of growing anxiety," said Hiroaki Nakajima, an employee at the Kimuraya supermarket.

Even before news of the tainted foods, he said, people were hoarding things that they wouldn't normally buy, like instant noodles, water and rice. Now, he said, customers ask where the milk and spinach come from.

A series of disasters have been battering Japan since a record-setting earthquake struck March 11 and a tsunami slammed into the northeastern coast. At least 8,130 people were killed, and 12,272 are unaccounted for, according to police.

The tsunami also knocked out cooling systems at the Fukushima Daiichi nuclear power plant about 150 miles north of Tokyo, causing the complex to leak radiation.

The concerns about contaminated food over the weekend arose even as more supplies reached some tsunami-stricken areas on the northeast coast and as officials of the Tokyo Electric Power Co., the operator of the Fukushima plant, indicated that connecting electrical cables had helped cool reactor Nos. 5 and 6.

The company said it was hopeful of restoring electricity to the No. 1 and 2 units as early as Sunday, but it remained to be seen whether that would restart the cooling system for those reactors, given the extent of their damage.

"I don't think it is a sure thing at all. All the reactors were exposed to shock, so who knows if the piping is still intact?" said Edwin Lyman of the Union of Concerned Scientists in Washington.

Lyman and other experts nonetheless took the restoration of power as an optimistic sign. It "is absolutely a turning point" in the battle to cool the reactors, USC nuclear physicist Najmedin Meshkati said.

But later Sunday, Hidehiko Nishiyama, an official with Japan's Nuclear and Industrial Safety Agency, said pressure inside the No. 3 reactor was rising despite tons of water sprayed over the weekend. He said that pressure had to be released to prevent the vessel containment chamber from cracking. Nishiyama didn't offer a reason for the pressure buildup.

It's not the first time that Tokyo Electric has had to release pressure from reactors at the site, said nuclear safety agency spokesman Ryohei Shiomi, but he didn't know how many times it had been done.

"We're trying to get things under control, but we're still in an unpredictable situation," Chief Cabinet Secretary Yukio Edano said.

In one potentially hopeful development, officials said they planned to test high voltage power lines as early as Sunday afternoon that would restore operations to cooling equipment at damaged reactors Nos. 1 and 2.

Experts were not surprised that inspectors found contaminated food. After the Chernobyl nuclear power plant disaster in 1986, a major cause of the thyroid disease suffered by children came from consumption of tainted foods, said Dr. Glenn D. Braunstein, chairman of the department of medicine at Cedars-Sinai Medical Center in Los Angeles.

Japanese health officials have dismissed such fears, saying that the amount of radiation detected away from the Fukushima plant is minor. Even so, traces of radiation in the food supply are a matter of concern.

The amount of radiation found in the milk, if consumed for a year, is equivalent to levels found in one CT scan. The spinach contamination is equal to one-fifth the radioactivity in a CT scan. And those levels could be harmful to children, Braunstein said.

"Children are growing and their organs are growing, so they're very susceptible to radiation effects," he said. "They really need to discard the milk from around the reactor disaster."

Dr. Daniel Zurosky, director of radiation safety at the University of South Carolina School of Medicine, said contamination could also turn up in fish — a staple of the Japanese diet — from radioactive material that has entered the water, become part of the food chain and is consumed by fish.

He said it would be vital for Japanese health authorities to monitor food. After Chernobyl, "they weren't very forthcoming about radiation. They had a lot of farmland around there."

Yet there is widespread public perception that Japan hasn't issued timely and complete information since the outbreak of the nuclear disaster. And the news of food contamination brought a flood of new complaints and worries.

"The biggest problem is that we're not getting the whole picture from the government, from the media," said Takamasa Edogawa, 76, standing with his hands thrust into his jacket pockets, the first in a line of about 40 people waiting to get into Tokyo supermarket Yoshiya on Sunday. "We generally know where the spinach and milk were from. But we don't know exactly where. And if the wind changes, other areas could be affected by radiation."

Similar feelings of helplessness were echoed in Japan's northeast coast.

In Miyako, Souichiro Tachibana, a teacher who watched his house burn down after the tsunami hit his town, said officials haven't offered a lot of options. "Nowhere is safe," he said. "Teach me what I can do. I'm listening. Where can we run away to?"

Yet at the gymnasium of the Miyako Elementary School, the last day or two has seen things go from famine to feast as more supplies have arrived. "Please take some food," volunteer Kiyohiko Sasaki said to visitors.

"We've been here eight days," said Rikuko Tachibana, 61, sitting on blankets provided by the city, amid neat piles of clothing and belongings on the floor and evacuees sitting about, bored.

"At the beginning, there wasn't enough food, and it was always rice balls," Tachibana said. "Now there's too much food. And it's got more variety. We had cream soup today, boiled eggs, soba noodles, strawberry jam. And I have some fruit bread here."

A local company has donated thick tatami mats for the evacuees to sit and sleep on, lending a little civility to the basketball courts. Evacuees carefully remove their slippers before stepping on the woven grass mats.

Shoichi Nakamura, 58, an evacuee sleeping in the Miyako Elementary School, said she stayed in the shelter because there's no heat or power at home, and she feels more secure with other people nearby during aftershocks, such as the magnitude 5.7 temblor that struck off the coast of Fukushima prefecture just after 10 a.m. Sunday.

Rikuko Tachibana said she knew about the problems at the Fukushima nuclear complex but often preferred to talk and gossip rather than watch the news. "All I can say is, we're cheering the nuclear workers on," she said. "I want them to please do their best. And foreign governments and experts, please, please help us."

Amid Challenges At Plant, Nuclear Official Urges Japan To Be More Forthcoming (WP)

By Chico Harlan, Joel Achenbach

Washington Post, March 19, 2011

One week after the historic earthquake and tsunami, Japanese authorities struggled Saturday to deal with a humanitarian crisis, a still-untamed nuclear power plant and emerging doubts about the government's credibility and competency.

Across the Pacific, trace amounts of the radioactive isotope xenon-133 lit up a sensitive detector in Sacramento, and scientists said it was likely from the crippled Fukushima Daiichi nuclear plant, but the amount was not nearly enough to affect human health. US officials said the dose rate was about one-millionth of what a person "normally receives from rocks, bricks, the sun and other natural background sources."

Japan, however, continues to suffer from the lethal combination of natural and technological disasters. The death toll from the March 11 quake and tsunami reached 7,197, with 10,905 missing, according to the National Police Agency. On Saturday, eight days after the temblor, a survivor was pulled from the rubble in Miyagi prefecture, NHK television reported.

Prime Minister Naoto Kan sought to assure his countrymen that Japan will rebuild. But his words came amid doubt that the nation's leaders have a firm grip on the nuclear crisis. The government and the Tokyo Electric Power Co. have issued a thin and fitful stream of information about the radiation-spewing plant.

In recent days, officials in Tokyo and Washington have sent different signals about the level of hazard posed by the damaged nuclear reactors. US officials have advised Americans to evacuate from a much broader region of Japan. Japanese authorities implicitly acknowledged Friday that they had underestimated the severity of the nuclear crisis, as they re-categorized the emergency as a level-5 event, up from level 4, on the International Nuclear Event Scale. That is still shy of a level 7 catastrophe, which would be akin to the 1986 Chernobyl event in Ukraine.

After so many days of dire bulletins from the nuclear plant, Saturday arrived in Japan with what passed for good news: There were no new explosions, no new fires. Radiation levels within the Fukushima Daiichi plant remain dangerously high, limiting the amount of time workers can be exposed before they run the risk of radiation poisoning. Still, intrepid workers braved the invisible atomic storm in relay teams and managed to attach a new electrical line to the blacked-out facility.

That doesn't mean power is restored. It is an incremental step, and a statement released by TEPCO early Saturday indicated that many more steps are necessary before the plant has electricity. Even once it does, the company does not know whether the cooling system that circulates water can be made operable.

US officials want their own eyes on the situation. The Nuclear Regulatory Commission has dispatched 11 of its own technical experts to Japan in order to "shorten the information chain," said NRC spokesman Scott Burnell.

Relying on the data the NRC's experts collected, Commission Chair Gregory Jaczko stunned lawmakers on Capitol Hill this week when he said a pool at unit 4 of the Fukushima Daiichi plant no longer contained water to cool spent fuel, making it more likely that it would emit radiation. His comments contradicted those of Japanese and TEPCO officials, who continue to maintain that there is water left in the pool.

Other nuclear experts expressed frustration with the amount of information the Japanese government and TEPCO officials have released. "I think the Japanese government is sometimes not as forthright as they should be," said Mark Pierson, a nuclear engineering professor at Virginia Tech. Pierson speculated that US officials have access to information via military satellites that enable them to collect information the Japanese don't have.

"The international community's view is that they want more volume of accurate information more quickly," Yukiya Amano, chief of the International Atomic Energy Agency (IAEA), said after meeting Kan and other Cabinet ministers.

Asked about public doubts that the government is telling the whole truth about the nuclear crisis, Kan said later: "We have been disclosing all facts that I and the cabinet secretary are able to get hold of regarding the power plant accident."

Japanese officials acknowledged that they had failed to anticipate so great an earthquake and so destructive a tsunami. They also faulted themselves for a slow and disorganized response to the natural disaster.

"The unprecedented scale of the earthquake and tsunami that struck Japan, frankly speaking, were among many things that happened that had not been anticipated under our disaster management contingency plans," Chief Cabinet Secretary Yukio Edano said. "In hindsight, we could have moved a little quicker in assessing the situation and coordinating all that information and provided it faster."

The fight to cool the overheated reactors and spent fuel rods remained a primitive one, with firetrucks shooting streams of water from a distance. The trucks, including one lent to Japan by the US military, took aim at the unit 3 reactor building, which is emitting the most radiation and is the only unit that contains the deadly element plutonium. Each truck, equipped with a high-powered hose, stayed close to the plant for only a few minutes to limit radiation exposure.

Nuclear experts point out the Fukushima plant — damaged by the earthquake, the tsunami, and then a series of still-mysterious explosions — could have structural damage that makes the power reconnection difficult. The lack of electricity has limited the options for the electric company. "They can only take symptomatic measures," said Hiroshi Kimura, a nuclear expert at

the University of Tokyo. "For now, we have to depend on the spent fuel to cool itself from vapor evaporation by showering water into the pool."

Water plays two key roles here. It cools the fuel rods, which, despite no longer undergoing nuclear fission, still throw off heat due to the natural decay of radioactive elements. It also provides shielding from radiation that has made the site an extraordinarily dangerous place to operate.

The nuclear industry has a limit for radiation doses during normal operations and a higher limit that can be imposed in an emergency, said Kim Kearfott, a professor of nuclear engineering at the University of Michigan. She said 46 workers died from radiation poisoning within weeks after the Chernobyl accident. So far, she said, Japanese authorities appear to be carefully managing the exposure of workers to radiation.

"If they have good radiation safety practices, they could avoid the deaths of workers from acute radiation syndrome," Kearfott said.

With many Americans, especially those living on the West Coast, rushing to stock up on potassium iodide pills that protect, the US Environmental Protection Agency on Friday announced that it has created a new Web site to keep the public updated on data collected by its RadNet system, which has been bolstered to better monitor air samples, especially from Western states, for any signs of radiation arriving from Japan.

In Japan, radiation-related fears have prompted foreigners to flee, and broadcaster NHK reported that about 10,000 Japanese people have already abandoned their homes to get farther away from Fukushima.

For millions more — especially those who do not live in the areas hit hardest by the earthquake and tsunami — watching grainy television footage of dangerous efforts at Fukushima Daiichi has become a daily routine.

At 2:46 p.m. Friday, the country observed a moment of silence to mark the tragedy of seven days earlier.

There were scattered reports of survivors being rescued, including a young man pulled Saturday morning from the rubble of a collapsed house in Kesennuma.

NHK reported that Japan's Self Defense Forces freed Katsuharu Moriya from the second floor of the house after he was found wrapped in a blanket on the second floor.

Moriya, who is in his 20s, was taken to a local hospital, reportedly weak and in shock, but with no major outward injuries.

Almost 11,000 buildings have partially collapsed, and roughly 500,000 people are displaced. Tokyo's busiest streets are quiet, and its supermarkets are out of milk. Thousands of people in the hardest-hit areas are still without heat and basic supplies, and concerns about Fukushima's radiation have left at least some survivors in a zone where aid workers are fearful of going.

Some disaster modeling companies have estimated the total insured loss at between \$15 billion and \$35 billion, with reconstruction costs in the range of \$180 billion. That is about 3 percent of the country's economic output, making this a costlier disaster than the 1995 earthquake in Kobe.

The crisis at the six-reactor nuclear plant most damaged by the disasters has added a terrifying volatility to Japan's grief, Prime Minister Kan said in a nationally televised address Friday. The Japanese people "are being tested . . . We must not be discouraged by this earthquake and tsunami," Kan said. "Let us confront this crisis together, with determination that we will once again rebuild Japan."

He vowed: "We will rebuild Japan from scratch."

Japan Still Struggling To Restore Power To Cool Down Reactors (LAT)

In Fukushima, earthquake survivors and rescue workers observe a moment of silence to mark the week since the temblor and tsunami. The death toll tops 7,000, surpassing that of the 1995 Kobe quake.

By Laura King, Kenji Hall, Mark Magnier

Los Angeles Times, March 19, 2011

Fighting exhaustion and radiation fears, engineers struggled anew Saturday to complete the crucial task of hooking a crippled nuclear plant to the electricity grid to help cool down damaged reactors. The official count of dead and missing in the quake and tsunami soared above 18,000, making this Japan's worst disaster since World War II.

In the earthquake zone, tears trickled down the cheeks of some survivors and rescue workers who observed a solemn moment of silence at 2:46 p.m. Friday, marking a week since the magnitude 9 temblor slammed Japan's northeastern coast.

The quake set off a chain of events culminating in the nuclear accident now ranked at 5 on a 7-point international scale. Still unknown is whether restoring power to the damaged reactors will significantly aid cooling efforts. The full extent of damage to cooling pumps from hydrogen explosions and corrosion from seawater that has been pumped in has not been assessed.

In what many considered an inevitable, and perhaps tardy, move, Japan's nuclear regulatory agency Friday upgraded the severity of the still-unfolding disaster at Fukushima, 150 miles north of Tokyo, from 4 to 5 on the international nuclear and

radiological event scale, meaning it is "an accident with wider consequences." The 1979 Three Mile Island incident, previously considered the second-worst accident in recent decades, was rated a 5 — and it did not cause injuries or a significant release of radiation. The Chernobyl nuclear accident was a 7 — "a major accident" as defined by the scale.

In the earthquake and tsunami zone, hundreds of thousands of people remained displaced. Although the government pledged to accelerate relief efforts, hardship from hunger and cold remained rife. In the quake-shattered city of Miyako, City Hall official Tatsuyuki Kumagai said many of the sheltering survivors were suffering from deep anxiety that frayed customary Japanese fortitude.

"Some cry, others say they're sick of the food. Or they really want to take a bath," he said. The stress, he said, "comes out in different ways."

Establishing a final toll will probably take weeks, but the National Police Agency said the official death count had reached 7,197, surpassing that of the 1995 Kobe earthquake, and the number of those unaccounted for stood at 10,905. Recovery crews have yet to comb through enormous piles of tsunami-deposited debris in some remote areas.

As of Saturday, about 300 workers were operating inside the 12-mile evacuation zone surrounding the battered nuclear plant. A few dozen were in the complex itself, government and utility officials said. A nuclear safety official said their main objective was to attach power lines to two of the worst-hit reactors.

Other last-ditch measures were under discussion, however, including the drastic option of entombing the complex in cement to stave off a large-scale leak of radiation.

Emergency workers sprayed water toward the reactors for about an hour after midnight, said Kenji Kawasaki, an official from Japan's Nuclear and Industrial Safety Agency, and more dousing could occur later Saturday. Workers also managed to restart a diesel-powered backup pump that would be used for cooling reactors No. 5 and 6, the public broadcaster NHK said.

Both the government and the plant's operator, the Tokyo Electric Power Co., are on the defensive amid rising public anger over what many regard as an incomplete picture of events at the nuclear complex, coupled with what has been seen as a feeble relief effort.

In a possible sign of growing sensitivity to public criticism, the Health Ministry announced that it would ask the army for help in moving hospital patients who were trapped inside the 12-mile evacuation zone surrounding the Fukushima Daiichi plant. That word came shortly after NHK aired a segment portraying harrowing conditions at a hospital in the city of Minamisoma, part of which falls within the evacuation zone.

Seeking to deflect accusations of secrecy, Prime Minister Naoto Kan said Friday that the government has told the public everything it knows about the accident at the plant. "[Chief Cabinet Secretary Yukio] Edano and I have been disclosing all of the information that we had," he said.

Earlier, Kan pledged in a meeting with the head of the International Atomic Energy Agency, Yukiya Amano, to disclose as much information as possible about the unfolding nuclear crisis.

"The situation at the nuclear plant remains unpredictable," Kan said in the nationally broadcast news conference. "We will definitely overcome this crisis. I want people of this country to feel safe again."

Amano has described the situation as "very grave and serious" but pointed out that, until now, an uncontrolled release of large amounts of radiation had been avoided and that there was little danger to public health outside the evacuation zone.

Reassurances were not enough to halt an exodus of foreigners from the country, who continued to pack international airports and flights out. Many Japanese also are leaving the country or seeking shelter with friends and relatives in southern cities considered safe.

Adding to Japan's growing sense of isolation, the Food and Drug Administration in Washington said it would monitor foods imported from Japan for radiation exposure.

Nearly 1 million homes remained without electricity in the quake zone, and rolling blackouts have been taking place elsewhere. As the threat of blackouts has intensified, one activist called on Japan to unplug millions of vending machines that dispense everything from hot corn soup to bouquets of flowers.

Japan has 5.5 million vending machines, each using as much power as an average household, said Canadian speechwriter and publicist John Harris, who is based in Japan's Chiba prefecture. Add that up, and it requires as much power as the entire capacity of the troubled Fukushima nuclear plant at a time when Japanese are being asked to conserve electricity, he said.

The nearly 1 million machines operated by Coca-Cola, which because they use both refrigeration and heating are the "biggest power hogs," are still running even as train service is curtailed, he said.

Japan Raises Danger Level At Power Plant (NYT)

By Henry Fountain

New York Times, March 19, 2011

By raising the level of the crisis at the Fukushima nuclear power station to 5 on a scale of 1 to 7, Japan's nuclear safety agency on Friday gave it a ranking equal to that of the Three Mile Island accident of 1979. Only two events rank higher, including the 1986 Chernobyl disaster, the only accident to be rated a 7.

Yet the consensus among nuclear safety experts outside Japan is that the situation there is already worse than Three Mile Island, where a partial fuel meltdown at one reactor was contained with a relatively small release of radioactivity.

The International Atomic Energy Agency, which developed the ratings, says it is not meant to be used to compare events in different countries and at different times. Still, the Fukushima event has involved a significant release of radiation, along with damage in several reactors and spent-fuel storage pools. How could it be given the same rating as Three Mile Island?

The answer lies in the nature of the ranking system and in who is doing the ranking.

Unlike scales for events like hurricanes, which are based on measurements of a single factor like wind speed, the nuclear event scale is based on many criteria — some having to do with exposure of the public to radiation, some with the condition of the reactor fuel and still others with whether safety provisions fail. The formula is so complex that the agency publishes a 218-page "user's manual."

Nor are the criteria as precise as those used with some other scales. One measure of a nuclear event rated Level 5, for example, is the melting of more than the equivalent of "a few percent" of reactor fuel, the manual says. With spent-fuel storage pools, a Level 3 event involves "substantial" uncovering of the fuel rods. Those criteria are a far cry from ranking a hurricane as a Category 3 because it has sustained winds of 111 to 130 miles an hour.

Moreover, the rating is calculated by the agency where the event is occurring. This means that a government can use the number to play down a crisis if it wishes. The French nuclear agency, for instance, has said that the events in Fukushima are at Level 6. But Japan's rating is the only one that counts.

The scale is meant to be logarithmic, meaning each level is considered 10 times as severe as the one below it. So it could be that the Japanese also believe the situation at their power plant is worse than Three Mile Island — just not 10 times worse, not yet.

Disaster-Hit Japan Hopes To Cool Reactors Soon (AFP)

By Hiroshi Hiyama

AFP, March 19, 2011

KITAKAMI, Japan (AFP) — Japanese engineers fighting to cool overheating reactors laid a power line into a stricken nuclear power plant on Saturday as hundreds of thousands of quake-tsunami survivors endured desperate conditions in the frozen north.

In an updated toll, national police said at least 18,000 were dead or missing in Japan's worst natural disaster in 88 years. Just under 7,200 were confirmed killed, lost to the tsunami or interred in the wreckage of buildings.

Amid the sea of carnage on Japan's northeast coast, one tiny drop of good news seemed to have emerged with the military announcing the rescue of a young man who it said had survived after eight days trapped in his mangled house.

But a spokesman for the Self-Defense Forces later clarified that the man in his 20s was in fact a disaster evacuee who had returned to his house.

Half a million homeless people are struggling to stay warm in freezing temperatures and with scant supplies of food and fuel, after the tsunami reduced whole towns and villages to splintered matchwood.

Further south at the crippled Fukushima No. 1 nuclear plant, crews were locked in what the UN's atomic watchdog said was a "race against time" to cool overheating reactors and prevent radiation spewing into the atmosphere.

After an epic week-long tussle to tame the ageing facility, where the tsunami knocked out all-important backup generators, the crews were expecting Saturday to restore electricity to four of its six reactors, officials said.

The nuclear safety agency said workers had got a power line into the plant after the 9.0-magnitude earthquake — felled electricity pylons in the area.

With power back up, the radiation-suited Fukushima engineers hope they can get vital cooling systems online. In the meantime, they have been dumping water by hose and by air on the reactors to avert a feared meltdown.

But given the extent of damage at the plant, it was not yet clear whether the cooling system would work properly even if power is restored.

The lack of power has sent the temperatures of fuel rods — both in the reactors and in separate containment pools — soaring as fast-evaporating coolant water leaves them exposed to the air.

The natural disaster on March 11 led to a series of hydrogen explosions and fires at buildings housing the reactor units, stoking anxiety among governments and the public worldwide and contributing to turmoil on financial markets.

But in a televised address Friday evening, Prime Minister Naoto Kan promised the traumatised nation: "We will overcome this tragedy and recover... We will once more rebuild Japan."

Recalling Japan's recovery from the ashes of World War II, Kan promised "firm control" of the disaster and said: "We are in a situation in which this crisis is truly testing us as a people."

Japan and its G7 economic allies on Friday intervened jointly in world currency markets for the first time in a decade to calm the turmoil, pushing down the yen as intended and helping to lift battered Tokyo shares.

Japan's nuclear agency has hiked the Fukushima accident level to five from four on an international scale measuring up to seven, an admission the crisis now at least equals the 1979 Three Mile Island accident in Pennsylvania.

Japanese and foreign experts are stressing that there is only a very low risk of radiation contamination beyond a 20-kilometre exclusion zone, and say the accident does not compare to the Chernobyl disaster in 1986.

However, fears of radiation hold a terrifying grip in the only country to have suffered a nuclear attack, when US atom bombs in 1945 finally brought Japan to surrender in World War II.

The threat of a nuclear disaster carries a particular resonance for Ayako Ito, who at 84 is old enough to recall the dropping of the US bombs on the cities of Hiroshima and Nagasaki.

"The most difficult part is that you can't see it but people can just disappear like that," she told AFP at her hillside home in Kamaishi, one of the towns that bore the full force of the towering 10-metre (33-foot) tsunami.

"We're already not eating or drinking, and now this is happening to us? It's very difficult," she said.

A major international relief operation is under way for the homeless and millions left without water, electricity, fuel or enough food in Japan's northeast.

But thick snow has covered the wreckage littering obliterated towns and villages, all but extinguishing hopes of finding anyone else alive in the debris and deepening danger and misery for survivors.

The absence of electricity in the affected areas means little access to television news and newspapers are very hard to come by. So news about the nuclear crisis is often turning into exaggerated and alarming rumour.

Many nations have shifted embassies out of Tokyo, and the mood grew jittery far afield from Japan, with panic-buying of iodine pills in the United States and Asian airports scanning passengers from Japan for radiation contamination.

The vast capital's usually teeming streets have been quiet, although some residents headed to work as usual. The city's neon glare is dimmed at night, in line with a power-saving drive forced by shutdowns at other atomic plants.

A moment of silence was observed at 2:46 pm on Friday, exactly one week after the earthquake struck.

At one emergency shelter in the town of Yamada, in ravaged Iwate prefecture, hundreds of elderly survivors quietly stood and bowed their heads. Many of them wore face masks and overcoats. Some wiped away tears.

The confirmed dead from the disaster makes it Japan's worst natural catastrophe since the 1923 Great Kanto Earthquake, which killed over 142,000 people in the Tokyo region.

Workers Miss Deadline To Reconnect Power At Japan's Stricken Nuclear Plant (BLOOM)

By Yuji Okada, Sachiko Sakamaki

Bloomberg News, March 19, 2011

Engineers missed a deadline to restore power to the crippled Fukushima Dai-Ichi atomic plant, prolonging efforts to prevent more radiation leaks as Japan's government told people nearby to cover up and avoid the rain.

Tokyo Electric Power Co. pushed back its target to reconnect a power cable to the No. 2 reactor to later today after working through the night. Power may be restored to all six reactors by tomorrow, Hikaru Kuroda, chief of the utility's nuclear facility management department, told a briefing in Tokyo.

Troops and firefighters again started pumping seawater on the plant today in an attempt to prevent fuel rods from overheating, as Tepco cautioned the tsunami-damaged cooling systems may not work even after electricity is restored. Weather forecasts indicated changing winds could start moving radiation closer to Tokyo this weekend.

"The power-line connection to the No. 2 unit didn't go smoothly," Kuroda said. "The work was done at night, and it took longer than we expected. We are trying to complete the connection by the end of today."

People living within 30 kilometers (19 miles) of the Fukushima plant along the northeastern coast should wear masks and long sleeves and stay out of the rain, Japan's nuclear safety agency said.

Reconnecting the No. 2 unit also will restore power to reactor No. 1, while reactor Nos. 3, 4, 5 and 6 may be connected by tomorrow, Kuroda said.

There's a "possibility" that the water pumps, damaged in the March 11 earthquake and tsunami, may not work once power is restored and the situation "does not allow optimism," Kuroda said yesterday. The magnitude-9 earthquake was Japan's strongest on record.

Engineers worked overnight at the Fukushima plant in a bid to get the cooling systems running again. By tomorrow, the weather may take emissions toward the capital, 135 miles (220 kilometers) south of the station, Austria's meteorological center said, using data from the Comprehensive Test-Ban Treaty Organization. At current levels, the radiation isn't dangerous beyond the immediate vicinity of the plant, the center said.

"The situation at the power plant is still unpredictable," Prime Minister Naoto Kan, who described the crisis as "very grave," said in Tokyo yesterday. "But we're making our utmost effort to control it, and we'll surely overcome this crisis."

Japan faces a "battle with time," International Atomic Energy Agency Director General Yukiya Amano said after meeting ministers in Tokyo. The earthquake and tsunami knocked out Fukushima's backup generators, pitching workers into a battle to keep the plant cool and stem radiation from the worst nuclear accident since Chernobyl 25 years ago.

A backup generator at the No. 6 reactor was fixed, Tepco said in a press release today. The unit was idle for maintenance before the earthquake.

"We must avoid being overly optimistic," Philippe Jamet, a commissioner at the Autorite de Surete Nucleaire, France's nuclear regulator, said at a briefing in Paris yesterday. "This will likely take human intervention like going into control rooms to reconnect valves."

Japanese soldiers used fire engines yesterday to dump seawater on reactor No. 3, site of an explosion earlier this week. The dousing was stopped in the afternoon as the effort replenished some water to the spent-fuel pools at the reactor, Air Self Defense Force Chief of Staff Shigeru Iwasaki said.

"On Sunday, a frontal system is crossing the region with heavy rain," Austria's Meteorological and Geophysics Center said in a statement. "Behind the front, northerly winds are predicted, increasing the risk for the region around Tokyo."

Radiation has been detected in eastern Russia at levels that pose no risk to human health, said the center, set up in 1996 to detect nuclear-test explosions. A "minuscule" amount of radiation that probably came from the damaged Japanese reactors was picked up at a California monitoring station yesterday, the US government said.

Images posted on the Austrian center's website show intense radionuclide concentrations around the reactors. Wind currents take the plume in a winding pattern over the Pacific Ocean, setting the particles adrift in north- and south-easterly patterns.

"I can't see members of the general public exposed to dangerous levels of radiation," Don Higson, a fellow at the Australasian Radiation Protection Society and former adviser to the International Atomic Energy Agency, said by phone today.

The failure of backup generators used to pump cooling water forced the venting of gas that caused explosions in at least three of the buildings surrounding Fukushima's six reactors. A fire also started in a pond containing spent fuel rods from reactor No. 4.

Kan said the government is being as transparent as possible about the crisis, rebutting criticism that it held back information.

"Everything has been disclosed to the Japanese public," Kan said. "We have shared what we know with the international community."

Japan upgraded its warning for some parts of the plant from a four to a five on an international scale of seven, the IAEA said yesterday. The five rating is for accidents with wider consequences. The Chernobyl disaster in 1986 rated seven.

Tepco, Asia's biggest utility, acknowledged its No. 1, 2 and 3 reactors at the site had been changed to a level five rating, according to a statement on the company's website.

If the power cable can be linked successfully, power may be restored to reactor Nos. 3 and 4 tomorrow, Kaoru Yoshida, a utility spokesman, said in a briefing to reporters. Still, there is a potential risk of an explosion if the power is reconnected to the reactor, Japan's Nuclear and Industrial Safety Agency said. The agency didn't provide details.

The greatest risks at Fukushima may still come from the spent fuel pools sitting atop the six reactors.

The nuclear agency said March 17 there is a possibility of no water at the No. 4 reactor's spent-fuel cooling pool. If exposed to air, the fuel rods could decay, catch fire and spew radioactive materials into the air.

In Japan's Danger Zone, The Stranded Await The Merciful (NYT)

By Martin Fackler

New York Times, March 19, 2011

YAMAGATA, Japan — Some are stuck in their homes, fearful of radiation, heeding government warnings to stay indoors, cut off without electricity or phone service. Others want to leave but have no gasoline. Still more, those whose homes were ruined, wait helplessly for evacuation at crowded shelters. All face dwindling supplies of heating fuel, food and water.

A week after an earthquake and tsunami devastated their communities and set off the worst nuclear accident since Chernobyl, the plight of the thousands still stranded in areas near the stricken reactors — many too old or infirm to move — has underscored what residents say is a striking lack of help from the national government to assist with the evacuation of danger zones or the ferrying of supplies to those it has urged to stay inside.

“Those who can leave have already left,” Nanae Takeshima, 40, a resident of Minamisoma, a city of 70,000 about 16 miles from the nuclear plant that lies within the area covered by the advisory to stay indoors, said by phone from her home. “Those here are the ones who cannot escape.”

Instead, the task has fallen to some local governments and even private companies and organizations that have made limited but heroic efforts to help those left behind, adding to the burden of coastal communities already overwhelmed by tens of thousands of people left homeless and the search for bodies, which the nuclear evacuations have now made impossible.

Residents reached by telephone said the order by the government to evacuate a 12-mile radius around the Fukushima Daiichi Nuclear Power Station, as well as the request for those who live 12 to 18 miles away to stay indoors, has turned communities like Minamisoma into virtual ghost towns, populated mostly by the unwilling and the unlucky.

One is Masahiro Sakashita, who had prepared for the worst from the very beginning, but knew he could not leave. The director of the Fukujuen elderly care center, just 15 miles from one reactor, he sent his younger employees home as Japan’s battle to prevent nuclear catastrophe started, telling them to flee.

He and 19 other senior staff members stayed behind to keep caring for the center’s 100 or so mostly bedridden residents, the oldest of whom is 102. He said they were cut off from the outside world, with electricity and delivery of food and other supplies disrupted. “I figured that at most we had enough food and water to last five, maybe six days,” said Mr. Sakashita, who spoke by phone from Minamisoma. “We were going to stay with them to the end.”

The end came Friday, when a similar care center in distant Yokohama, near Tokyo, volunteered to take in Fukujuen’s residents after seeing their plight reported on television and sent six buses to rescue them.

Minamisoma has been using buses to begin evacuating the tsunami survivors and other residents to areas farther away from the nuclear plant. Other cities have helped by sending buses, as have some local companies.

One is the Shima Company, an auto-scraping business in Minamisoma, which hired buses to take more than 170 of its employees and their families to the city of Yamagata, 55 miles away, the company’s vice president, Kazuki Shima, said on Twitter.

With the help of other cities and the Fukushima prefectural government, Minamisoma has also moved all the tsunami survivors in 8 of its 29 shelters to other areas. At Haramachi No. 1 Elementary School, buses came Thursday to take about 300 survivors and other nearby residents to Gunma Prefecture, outside Tokyo.

The principal, Atsuo Takano, who runs the school’s shelter, said that the school had begun to fill again with new refugees, those driven from their homes because they ran out of food and fuel. While he has sent his own family to an inland city for safety, he said he would keep working until the last person in the school’s shelter was safely evacuated.

“Of course I’m worried, but I am responsible for this school,” he said. “They told us that nuclear power was 100 percent safe, but we see now that nothing can ever be 100 percent safe.”

Many of those left behind are elderly people whose houses survived the earthquake, but who feel abandoned as other residents flee the nuclear crisis. They say city officials and the police are nowhere to be seen, while stores and offices are closed and streets are empty.

Hatsuko Arakawa, 78, said that despite the fact that her city, Iwaki, was outside the area covered by the government order to stay indoors, delivery trucks refused to enter. As a result, she said, she felt marooned in her home, with no more propane for her heater and dwindling supplies of rice and water. She endures the winter cold by spending the entire day wrapped in a futon.

“Unlike those in the refugee centers, I have no contact with the outside,” she said. “My supplies are reaching their limits.”

Misao Saito, 59, said he stayed in Soma, a small port city 27 miles north of the nuclear plant, because of his parents, who are too old and infirm to flee. He said his 80-year-old father had a bad leg, while his mother, 85, suffered from mild dementia. They now live together in an elementary school that was turned into a shelter after the tsunami damaged their home.

Mr. Saito, a fisherman, said he had no way to make a living because the waves destroyed Soma’s fishing harbor.

“It’s scary, but when it comes to the nuclear accident, I have no choice but to die here,” he said. “I think this is the government’s fault. The prime minister should have had a better grip on what was happening at that nuclear plant.”

Some of those who remained said they did so by choice. One, who asked that she be only partly identified as Misako W., seemed proudly defiant in her desire to remain in Minamisoma with her husband, a banker. She was also angry about her community's fate. "Minamisoma is defunct," she said.

She asked that her full name not be used because she feared discrimination in the future because of the nuclear crisis, just as survivors of the 1945 atomic bombings were ostracized out of a misplaced fear that they could spread radiation sickness.

"Many here have lost their homes, and now they have to fight the fear of the nuclear plant," she said. "An earthquake, tsunami and now nuclear fears — there is no other place in the world as unfortunate as here."

Makiko Inoue contributed reporting.

This article has been revised to reflect the following correction:

Correction: March 18, 2011

An earlier version of this article misspelled the name of a small port city in Japan in one reference. It is Soma, not Souma.

Try-Anything Strategy In Nuclear Crisis Draws Criticism, And Sympathy (NYT)

By Ken Belson

New York Times, March 19, 2011

For a country that is known for its industrial robots, advanced cellphones and hybrid vehicles, Japan's efforts to cool the hobbled nuclear reactors in Fukushima Prefecture have seemed, at least to a world watching on television, to be decidedly low-tech.

In the days after the earthquake and tsunami damaged the power plants, employees from Tokyo Electric Power Company, which owns them, struggled largely out of the cameras' view. But after high levels of radiation made it too dangerous for workers to get near some of the reactors, the power company, which is known as Tepco, and the government resorted to a series of increasingly desperate and dramatic steps.

The company tried flooding the stricken reactors with seawater. The police sprayed them with hoses. Then military helicopters used big buckets to drop water on them. On Friday, fire trucks with high-powered water cannon arrived. There are efforts to run a giant extension cord to the plant to power a cooling system.

With all of Japan's technological prowess, was this the best it could do? Were these Rube Goldberg remedies, cobbled together because everything else failed? Or were they canny solutions to an increasingly dire problem? Just as important, can the measures cool not only the reactors but also the anxiety of Japanese who suspect that they are in harm's way?

The answers depend on where you sit.

A number of nuclear power and crisis management experts say that Tepco and the government were woefully unprepared to deal with the explosions at the plants. They were caught off guard by the impact of the earthquake and tsunami, the experts say, and the ad hoc nature of the response is a result.

"They are attacking the problem in a piecemeal fashion," said Atsuyuki Sassa, the former director general of the Cabinet Security Affairs Office in Japan. "This isn't crisis management, but a management crisis."

More sympathetic observers, including some Japanese, take the government at its word: no one could have adequately planned for the twin blows of one of the biggest earthquakes on record and the tsunami it created. The response may seem scattershot, they say, but that is a function of the unpredictable nature of nuclear reactors when disaster strikes.

Appearances count, too, they say. The Japanese government has tried to reassure its jittery citizens that though the problems are severe, every resource possible is being thrown at them. In that light, the helicopters and water cannon do not appear to be ham-handed actions in the face of a runaway disaster, but signs that no effort is being spared.

Politicians have tried to underscore their determination to tackle the crisis by discarding their blue suits and neckties and donning the jackets favored by police officers and engineers. Even the governor of the Bank of Japan, Masaaki Shirakawa, whose role in the crisis has largely been limited to pumping money into the economy, has worn one at a news conference.

"The government would like to show it is doing whatever it can do," said Masahiro Horie, the dean of international affairs at Japan's National Graduate Institute for Policy Studies, who worked for 35 years in the government. "It's natural that they try to keep people calm, do everything possible and not give any information that might cause a panic."

The Japanese are not alone, of course, in having to improvise on the run. Last summer, Americans could only watch as BP and a host of oil industry experts tried — and repeatedly failed — to get control of a gushing well on the floor of the Gulf of Mexico. BP officials initially thought they could seal the well in a way that would let them save it. When that proved impossible, they resorted to more drastic steps, including pumping in cement to seal the well — nearly five months after the rig explosion that created the spill.

A solution to the Fukushima catastrophe remains elusive. After failing on their own, Tepco officials have been forced to seek help outside the company. Having the police, firefighters and the Self-Defense Force join the effort has reassured some people, but others consider those moves as signs that the emergency is spiraling out of control.

On Friday, the Japanese nuclear safety agency raised its assessment of the problem's severity — ranked on a 7-level international scale — to 5 from 4. Level 4 denotes incidents with local consequences; Level 5 indicates broader consequences. For comparison, the partial meltdown of the reactor at Three Mile Island near Harrisburg, Pa., in 1979 was rated a 5.

"Some people might think the arrival of the Self-Defense Forces and helicopters mean that strong measures are being applied, but I think it's the opposite," said Tadae Takubo, who taught international politics and national security at Kyorin University in Tokyo. "They seem like desperate measures to me. It's all too late."

Some of the Tepco workers, police officers and others who have fought to cool the reactors may have been exposed to high levels of radiation. In a nation that values selflessness and determination, it is not surprising that they have been praised in Japanese news reports as heroes for their willingness to sacrifice their health for the sake of the nation.

Though their efforts have yet to succeed, the fact that someone is doing something — anything — is reassuring to some.

"I don't know — I'm a little skeptical about dropping water out of a helicopter," said Akiko Sato, 28, an office worker who was shopping in Tokyo's Ginza district. "But I like to think what they're doing with the water cannons might be useful. I think they're really trying."

State Department Expands Voluntary Evacuation Area (AP)

Associated Press, March 19, 2011

WASHINGTON — The State Department is expanding the area for voluntary evacuations for family members of US personnel in Japan.

The department issued a travel warning late Wednesday warning Americans to avoid travel to Japan and authorizing evacuations for family members of its personnel out of Tokyo, Nagoya and Yokohama.

The department issued an updated warning Friday night that expanded the evacuation area to 13 other prefectures. The warning also authorized departure for family members at Misawa Air Base in northern Japan because of damage from the earthquake and the resulting tsunami a week ago.

The warning gave no details on why the evacuation area was expanded.

More Foreigners Are Seeking To Flee Japan (NYT)

By Mark McDonald, Sharon LaFraniere

New York Times, March 19, 2011

The exodus from Japan grew Friday as foreigners sought to flee the threat of radiation from the stricken Fukushima Daiichi nuclear power plant.

About 20,000 resident foreigners have indicated their intent to leave the country by requesting re-entry permits from the Tokyo Immigration Bureau, according to Kyodo news agency. Tokyo is about 140 miles south of the plant.

Ticket agents said flights out of Tokyo to South Korea and China were booking up quickly. A representative of China Southern Airlines, which flies from Tokyo to the Chinese coastal city of Dalian, said its flights were sold out until April. A representative of China Eastern Airlines, which flies from Tokyo to Beijing and Shanghai, also said seats "are in short supply." An Air China agent said that the airline added two flights from Tokyo to China on Thursday and that some seats remained on its flights from Tokyo to Beijing.

Xiao Er, a Chinese businessman temporarily working in Inner Mongolia, said he had tried for three days to secure airline tickets to China for his Japanese wife and daughter, who live less than 170 miles from the crippled nuclear plant.

"Right now, my family is extremely panicked," he said in a telephone interview on Friday. "Nobody is going outside. Everyone is hiding in their rooms, afraid of coming into contact with the radiation."

He said that neither he nor his wife had been able to buy tickets to China for her and their daughter. Finally, a relative of his wife secured two tickets for about \$1,500 each. An air ticket out of Japan at the moment is almost "something that money can't buy," he said.

The South Korean government said that Korean Airlines and Asiana Airlines had added 4 to 11 flights a day from Tokyo to South Korea and had switched to bigger aircraft. Should an emergency evacuation become necessary, a Foreign Ministry official in Seoul said, South Korea is prepared to send military planes and warships to rescue its citizens.

"The government will mobilize all means, such as charter planes, vessels, military transport planes, Coast Guard patrol ships and warships to help evacuate our people," the second vice foreign minister, Min Dong-seok told reporters.

Foreign governments have taken varying approaches toward the evacuation of their citizens. Some countries recommended evacuation for those anywhere near the danger zone around the crippled reactors at the Fukushima nuclear plant. Other countries made arrangements to get their citizens out of Japan altogether.

France, Germany and Hong Kong, among many others, arranged charter flights for people wishing to pull back from Tokyo to Osaka — or to leave the country. Britain said that it was chartering jets to fly between Tokyo and Hong Kong, and that Britons directly affected by the tsunami would not be charged for the flight.

The United States approved plans for voluntary evacuations of families and dependents of its military personnel and embassy employees in Japan, including those at air and naval bases 200 miles or more from the plant.

The American military presence in Japan includes about 38,000 troops plus nearly 50,000 dependents, civilian employees and American contractors.

But not all foreigners were fleeing. One Briton said he was not about to leave.

Michael Tonge, a schoolteacher in Sendai, the closest major city to the quake's epicenter, said that many of the expatriates in his area were "forming groups using things like Facebook to try to get aid and help to the people who need it."

"Sendai has been my home for over five years," Mr. Tonge said, "and the people of this area have taken me in and made me feel very welcome. I can't leave them now, after this. I think that's how a lot of the foreigners here feel, too."

Mr. Min, the South Korean Foreign Ministry official, also said that South Korea had moved its team of rescue workers in Japan farther from the reactors out of concern for their safety. The team moved from the city of Sendai, in the tsunami-hit region, to the western coastal town of Niigata, he said. South Korea and Taiwan both continued to expand radiation checks of passengers arriving on airplanes from Japan.

Since Tuesday, more than 11,000 people have voluntarily submitted to checks at airports in Taiwan, said a spokeswoman for the Department of Radiation Prevention of Taiwan's Atomic Energy Council. Radiation residue has been detected on just 37 of them, said the spokeswoman, who identified herself only as Ms. Xu. She said the highest level was about three times above normal, not enough to cause any health concern. Those with higher levels were given plastic coveralls and shoe covers. All were advised to wash their clothing and shoes when they reached their destination.

Seoul's Incheon international airport has established two voluntary checkpoints for radiation. Anyone who does not pass the first one is checked again to see if the levels of radioactive residue are high enough to be considered contamination. So far, according to the Nuclear Emergency Response Team at the Ministry of Education, Science and Technology, three people have been checked at the second gate. Two were cleared and sent home. A third person was checked again without shoes and coat after a small amount of residue was found on them, and was then cleared as well and sent home. The contaminated clothing was kept by the inspectors.

Japan Cites Radiation In Milk, Spinach Near Plant (AP)

Associated Press, March 19, 2011

TOKYO – Spinach and milk taken from farms near Japan's crippled nuclear plant exceeded government-set safety limits for radiation, the government said Saturday, in the first report of food contamination from the accident.

The tainted milk was found 20 miles (30 kilometers) from the plant while the spinach came from a neighboring prefecture, Chief Cabinet Secretary Yukio Edano told reporters.

While the radiation levels exceeded the limits allowed by the government, Edano said that the products "pose no immediate health risk" and that further monitoring was being conducted on other foods. If tests show further contamination, Edano said food shipments would be halted from the area.

"It's not like if you ate it right away you would be harmed," Edano said. "It would not be good to continue to eat it for some time."

The spinach radiation level is about one-fifth of one CT scan, he said.

"We are doing our utmost efforts to ensure the health of our people," Edano said.

Nuclear reactors at the Fukushima Dai-ichi plant began overheating and leaking radiation into the atmosphere in the days after the March 11 earthquake and tsunami overwhelmed its cooling systems. The government admitted it was slow to respond to the nuclear troubles, which added another crisis on top of natural disasters which left an estimated more than 10,000 dead and displaced more than 400,000 others.

Emergency crews worked Saturday to cool the reactors and fuel storage pools by spraying water and to restore electricity. Edano said the situation while bad was not growing worse.

"The situation at the nuclear complex still remains unpredictable. But at least we are preventing things from deteriorating," Edano said.

A Tale Of Two Cultures (NSWK)

The earthquake in Japan reveals a divide of culture, philosophy and geology between East and West.

By Michio Kaku

Newsweek, March 21, 2011

Rudyard Kipling famously said, "East is East, West is West, and never the twain shall meet."

Yet since Japan's devastating earthquake, the entire world has been riveted by heart-breaking images in the East revealing the horror of a nation whose northern coastline was reduced to rubble. Several nations have rallied behind Japan, sending in badly needed aid and other offers of help. The resounding support and generosity offered by the world community reveals the common bond, the humanity, that East and West share, contradicting Kipling.

But a closer look at the human dimensions of this historic crisis reveals subtle differences of culture, similarities of geography and lessons for both sides of the world.

The sharpest link connecting East and West is simple geography. Like two Siamese twins joined at the hip, the Pacific Ring of Fire forges a common destiny between East and West. Ninety percent of all earthquakes take place along this deadly ring, which extends from the Philippines, Japan, Alaska, and South America. Tsunamis, tidal waves caused by earthquakes under the oceans, span the Pacific as if it were a pond, traveling like a jetliner at 500-700 miles per hour. For example, the Cascadia fault off the coast of Washington once erupted with a 9.0 earthquake; however, scientists had difficulty dating it. But realizing that a giant tsunami must have slammed into Japan, they were able to give the precise date and time of the earthquake by examining Japanese accounts of the tsunami of January 26, 1700.

But there are also subtle, revealing cultural differences between East and West in their reaction to tragedy.

In spite of monumental collapse and ruin, the Japanese politely wait in long lines for hours, without once complaining. Law and order are respected at every step. The Shinto-Buddhist tradition, which stresses social harmony and cohesiveness and looking out for your neighbor, is deeply ingrained in the culture.

This stands in sharp contrast to some of the spontaneous reactions that have flared in the West. In the US, for example, a simple blackout back in 1977 unleashed an embarrassing wave of looting and mayhem, with marauding bands of thieves making off with anything they could carry.

When Hurricane Katrina hit New Orleans in 2005, there was a rapid collapse of civil authority as society disintegrated into an orgy of chaos. Louisiana Governor Kathleen Blanco's comments summarized the city's descent into lawlessness: "These troops know how to shoot and kill and I expect they will."

The origin for this difference probably has deep historical roots. Japan is ethically and socially quite homogeneous, in part because of its 300 years of isolation during the Tokugawa Era, before opening to the West in the 1860s. This extraordinary long period of peace and stability created a strong sense of community and consensus. The US, by contrast, is quite diverse, a country of immigrants patched together from all corners of the world, seeking a new life based on individual initiative and drive."

The strong cohesiveness of Japanese society is also a mixed blessing. It helps Japan to recover from extreme hardship, but it also tends to slow down the development of new off-beat ideas and technology, where the key is to be nimble and creative. The Japanese economy is like a huge ocean liner; it performs miracles when headed in the right direction, but can stagnate for over a decade if it is not.

The difference between the East and West is also illuminated in comparing the reactions to twin earthquakes on each side of the globe, which provoked two very different responses and helped to shape national character.

In the US, it was the San Francisco earthquake of 1906, which set off raging fires that incinerated much of the city and did more damage than the quake itself. (My grandfather was actually in this earthquake and participated in the clean-up operation.) In Japan, it was the Great Kanto Earthquake of 1923, which leveled Tokyo and caused 140,000 in casualties.

These twin earthquakes sparked two different responses. In Japan, there has been an almost obsessive attention paid to earthquakes. Earthquake drills are part of life in Japan, instilled in the memory of every child. The thousands of tiny earthquakes one experiences in Japan is a gentle reminder of the big one to come. And building codes are among the toughest in the world.

In the US, outside of California, there is relatively little focus placed on earthquake preparedness. The memory of the 1906 earthquake has faded over time. It is especially hard for politicians to get worked up over an event that didn't happen in their voter's lifetime. For example, the New Madrid fault (near Memphis) erupted in 1811-12 with a series of near 8.0 earthquakes with a force so great it seemed to reverse the Mississippi river for a short time. But since much of the US was farmland back then, most Americans have never heard of this earthquake, and it is only an obscure footnote in dusty history books (or on Wikipedia pages).

But there are also important geopolitical forces which have separated East and West. Although Japan has a “nuclear allergy” (stemming from the horrific bombing of Hiroshima and Nagasaki), she also suffers from a curse: the world’s third largest economy has almost no energy resources of its own. The bottom line is that almost all of its energy is imported. So Japan is perhaps the most energy conscious nation on earth, where recycling and energy conservation are almost a religious duty. The US, blessed with resources of its own and cheap oil, has the luxury of canceling all orders for nuclear power plants even before the Three Mile Island accident of 1979.

So Japan has embraced the “Faustian Bargain”: Faust was mythical figure who sold his soul to the devil for unlimited power.

And what also binds the East and the West is the grim shadow of The Big One, the mother of all earthquakes which might reduce Tokyo or LA to rubble. Ironically, in spite of the historic damage done by this earthquake, it is not The Big One. This earthquake mercifully struck mainly farmland in northern Japan. Some geologists fear that we might be overdue for another earthquake which shakes Tokyo to its foundations. The Big One which levels a city with 13 million people has yet to hit Tokyo.

In the US, according to some simulations done by the US Geologic survey, a hypothetical 9.0 earthquake off Alaska or Washington might unleash a tidal wave which would plow into LA with a 15 foot tall wave, flooding everything inland for 2 to 3 miles. Malibu and Orange Country would be especially hit hard.

And if a 8.0 earthquake on the San Andreas fault hit LA, it could topple about 15 percent of buildings in downtown LA, and spark 6,000 to 7,000 raging fires across the city. And our nuclear power plants might be in harms way: the San Onofre reactor near San Diego, and the Diablo Canyon between San Francisco and LA.

What is unsettling is that professor Yuri Fialko of University of California San Diego did an exhaustive study of the stresses along the San Andreas Fault, and found that it has already been stressed to a level sufficient to set off The Big One. In 2005, he concluded, “It could be tomorrow or it could be in the next 10 years or more from now.”

And lastly, the final link between East and West is that this tragedy is sparking an international debate about the future of nuclear energy, precisely at a time when the great powers are looking at the energy problem. Germany put all nuclear extensions on hold. Decisions now made in the shadow of this crisis could determine energy policy for a generation.

Maybe it is time to revisit the Faustian Bargain.

Michio Kaku is a Professor of Physics at CUNY, author of *Physics of the Future*, and Science Channel Host

Aftermath: How Japan Will Recover From The Quake (TIME)

By Hannah Beech / Akaushi

Time, March 17, 2011

Koji Haga wasn't just near the tsunami that devastated northern Japan on March 11. He was on top of it. Somehow the fishing-boat captain kept his pitching vessel upright as the churning force of the wave attacked the shore, turning his coastal community of Akaushi into a graveyard of rubble and probably killing upwards of 10,000 people in the country's north. I met him barely 24 hours after he'd returned to the spot where his house once stood. Aside from the roof, which landed not far from his building's foundations, there was nothing recognizable that remained of his home. A few mementos were scattered in the kaleidoscopic wreckage: his waterlogged family albums were lodged in the axle of an upturned car, while his daughter's pink stuffed animal lay facedown in the mud.

Haga ignored most of these keepsakes. His first priority was scooping up sodden rice to take back to his hungry family and neighbors, who had escaped the wave by scrambling to higher ground. Yet even as the fisherman packed the ruined grain into a sack, he displayed the fortitude and generosity that have so defined this devastated region of Japan. Haga was embarrassed that the rice was spoiled, but he invited me to take some. A neighbor had found a bottle of grain alcohol bobbing in a fetid pool. Would I like a fortifying gulp? The next day, Haga would join Akaushi's other survivors to begin the slow clearing and reconstruction of a village virtually wiped off the map. "We'll all try our best to do this together," he said, not a note of pity in his voice. "That's the Japanese way, isn't it?" (See exclusive photos of the devastation in Japan.)

Natural disasters lay bare the best and worst in people, stripping away hubris and artifice. The tragedy in Japan — a 9.0-magnitude earthquake followed by a killer tsunami and compounded by a nuclear accident at a tremor-and-tidal-wave-damaged power plant — brought into relief the remarkable resilience of the Japanese people. Defining a national psyche can be a tricky undertaking. But the dignified stoicism with which the Japanese have faced this tragedy is extraordinary to see.

Japan's resilience, however, is not solely to be explained in terms of some innate psychological trait that its people possess. It is also manifested in the nation's preparedness. As high as the official death toll will climb in the coming days, there is little doubt that the complex tsunami and earthquake early-warning systems that Japan has in place saved tens of thousands of lives. Now as Japan struggles to overcome one of the worst natural disasters in its history — though the earthquake on March 11 was

the most severe in modern times, far fewer died than in the Great Kanto Earthquake of 1923 — it will need even more reserves of fortitude to remake a nation that is all too familiar with losing everything and starting anew.

Marooned on the edge of a continent and perched on one of the most seismically active spots on earth, Japan, for all its modern comforts and luxuries, is a country that lives on the brink of disaster. Even its language is a testament to how this sense of precariousness has shaped the national consciousness. I say this as someone who is half Japanese and should know how to articulate a nation's mind-set. But even I find it hard to define *gaman*, a unique mix of endurance and self-abnegation that practically all people I spoke to in the disaster zone used to describe their situations. Or what about *shoganai*, which is often translated too simply as "There's nothing you can do"? (See how Japan became a leader in disaster preparation.)

That's not quite right. The fatalism implied in the phrase denotes not just a helplessness at life's vagaries but also a calm determination to overcome what cannot be controlled. Even those who never lived through Japan's last days of privation during World War II know what is required of them as Japanese citizens. "We, the young generation, will unite and work hard to get over this tragedy," says Mamiko Shimizu, a 24-year-old graduate student. "It's now our time to rebuild Japan."

This earthquake and tsunami may turn out to be the costliest natural disaster in history, outpacing even Hurricane Katrina in 2005. The gravity of the situation was underscored when Emperor Akihito appeared on March 16 for his first-ever televised address to say he was "praying for the safety of as many people as possible," a sentiment repeated by a grim-faced Prime Minister Naoto Kan in daily public appearances. Nevertheless, despite the cost and loss of life, Japan's ultra-sophisticated earthquake-and-tsunami-alert system increased the odds for everyone. Survivors I met told versions of the same story. The earthquake unleashed its fury. Then because of radio broadcasts, text messages, sirens, firemen's door-to-door calls and just plain instinct honed by years of disaster drills at school, people from towns and villages along the coast — Japan's population is concentrated in an often narrow coastal plain — immediately fled to higher ground. (Comment on this story.)

Japan is the only country on the planet with an earthquake early-warning system in place. It is also the only one with a truly successful tsunami-alert scheme — 300 earthquake sensors scattered in territorial waters that can predict the likelihood of a tsunami in minutes. Tsunami evacuation routes are posted up and down the coast. When the government says to evacuate, the Japanese people listen.

See TIME's complete coverage of the crises in Japan.

See how to help earthquake, tsunami victims.

A sense of order, moreover, is not confined just to government manuals. In the wake of the disaster, there has been no looting, no rioting. Even as people hoping for food, water and fuel wait in kilometer-long lines in freezing weather — sometimes without success — tempers have not flared. Rationing of basic supplies has been accepted with few complaints. The assumption is that everybody has to share the pain equally. At Masuda Middle School, one of hundreds of emergency centers housing some 450,000 homeless people, the loudspeaker emitted a crescendo of friendly announcements. "Please come enjoy your piping hot rice now," went one. "Please be alert to the fact that the fish roe is a bit spicy, so it may not be suitable for small children," went another. In the emergency shelter at Koizumi Middle School, people not used to wearing shoes indoors constructed origami boxes made of newspaper in which to nestle their footwear.

Even the expressions of grief in Japan's worst affected zone have been restrained. For foreigners used to the keening anguish of natural disasters, the hushed sorrow must be mystifying. In Japan, tears do fall, but less noisily. When Masahira Kasamatsu, 76, found out after three harrowing days that his missing daughter was safe, he merely nodded and repeated slowly, "She's O.K., she's O.K." That might sound overly subdued, but I understand it. When I would see my Japanese grandmother after a long absence, we would never hug, merely exchange a quick squeeze of the hand. My affection for her was no less for the lack of an embrace. (See "After Disaster: What Defines a Country's Resilience?")

I thought of my grandmother as I walked the apocalyptic wastelands that had been tidy seaports just days before. Wheelchairs were some of the few recognizable jumbles of metal in the miles upon miles of detritus. Japan is the most rapidly aging society on earth. Because of a low fertility rate, the country's population is expected to shrink one-quarter by 2050. Many of those who perished in the quake and tsunami were simply too old to escape. Nursing homes are among the places that most urgently require aid. Elderly Japanese who evacuated to emergency shelters relied on the younger generation for help. This is a nation where Confucian respect for the aged holds. "If it wasn't for the young people in our family, we wouldn't have known anything," says 84-year-old Kimi Sakawaki, whose son surfed the Internet at home to find the evacuation center at Yonezawa gymnasium.

Still, the elderly who survived the March 11 catastrophe know better than any other Japanese how quickly their homeland can revive itself. My grandmother used to recall the US firebombing of Tokyo during World War II, which reduced half the capital to rubble. The pictures of that era bear a haunting resemblance to the images coming out of northeastern Japan today. Yet within

two generations, Japan had transformed itself from a defeated land into the world's second largest economy. Incomes were spread relatively equally, with little poverty to speak of. Japan took on a contented, comfortable air.

Perhaps too much so. For while there are lessons to be learned by other nations from both Japan's postwar success and its resilience in the face of disaster, rigid hewing to the rules and the suppression of individual creativity for the common good can go too far. They may, indeed, have undermined Japan's economic miracle. (Just try to order a salad with the dressing on the side in Japan and watch the consternation of the waiter at such an unorthodox request.) After the bubble economy of the 1980s collapsed in 1991, Japan entered a long economic slumber, from which it has yet to fully wake. Last year, China surpassed Japan to take the spot as the world's No. 2 economy. (See pictures of Japan's six days of chaos.)

Similarly, in the earthquake and tsunami zone, adherence to reams of regulations unquestionably saved lives. But it also hampered rescue efforts, as each tsunami warning or earthquake alert — as of March 16, about 50 major aftershocks and several small tsunamis had been recorded — forced some official crews and convoys to halt work for far longer than needed. More fundamentally, an inability to respond spontaneously and creatively to uncharted events has prevented aid from getting to survivors quickly enough. Radio stations broadcast urgent calls for emergency supplies of infant formula, adult diapers — even seaweed, which is rich in radiation-fighting iodine. But four days after the quake, highways were mostly devoid of the kind of aid convoys that usually converge on a disaster zone, in part because of the colossal scale of the catastrophe and central-government weakness. It's hard to avoid the awkward question, What does Japan do when the sheer magnitude of tragedy overwhelms its plans?

Of equal importance is the cone of silence around the damaged Fukushima Daiichi nuclear power plant. Even as overheated fuel rods caused radiation to leak in what scientists called the worst nuclear accident since Chernobyl, information from the government and power-plant officials was piecemeal and tardy. The head of the International Atomic Energy Agency, himself Japanese, complained publicly about the authorities' slow response. "I would like to receive both more timely and more detailed information from our Japanese counterparts," said the official, Yukiya Amano. Locals agree. "The nuclear-power-plant disaster reminds me of World War II, when we didn't get enough information about what was really going on," says 79-year-old Noriko Wada. "The government only gave the information it wanted to, and people needed more details." (Comment on this story.)

But even as a country waited anxiously to see what would happen at the crippled reactor site, ordinary Japanese quietly came to one another's rescue. Just hours after a fire at the Daiichi complex, Kichi Ishikawa drove deserted roads not far from the plant to deliver noodles to the needy. "I'm just doing what needs to be done," he said. "It's nothing special." For Kenichi Numata, there was little time to even explain his actions, much less process his own sorrow. After the earthquake, he and 1,600 others dashed to the airport in Sendai, the region's largest city, and watched as dozens perished in the surrounding tide of mud and debris. Numata knew that his house had been swept away by the tidal wave. But he had a self-imposed task: organizing dazed locals trying to figure out whether their missing family members might be alive. Just in the past few hours, he had told several people their kin had died. It was not an easy job. "I'm sorry," he said, bowing deeply in apology. "But I had better go back to work." — With reporting by Lucy Birmingham / Tokyo, Tai Dirkse / Sendai and Krista Mahr / Yonezawa

See "Is Japan's Nuclear Disaster Out of Control?"

Read about Japan's psychological scars.

Policy In Ashes (NSWK)

Capitals around the world are taking pause on nuclear power. Except Washington.

By Henry Sokolski

Newsweek, March 21, 2011

Suddenly, watching Japans' desperate water-cannon attempts to stave off successive nuclear meltdowns at the Fukushima Daiichi nuclear-power plant, we are all supposed to be tech-savvy atomic engineers. Out of nowhere, our job as John Q. Public now involves sorting through a blizzard of contradictory headlines about what is—and just as much, what is not—happening inside a hugely complex nuclear-power plant halfway around the world.

At once, news reports and public officials told us the reactor smoke, fire, and explosions were in no way comparable to the 1986 nuclear disaster at Chernobyl, the worst in history. Yet, in seeming contradiction, we also have been told that these same flare-ups may well end up salting large swaths of Japan with long-lasting radiation producing—as experts put it—potential "Chernobyl-like" results.

If you have been listening at all—and really, it's been nearly impossible not to—the nuclear world we had before Fukushima is radically different from the one we have now. Clearly the disaster response has not gone well. The many experts who initially insisted that Japan's nuclear-safety systems were working because the reactors' containment vessels had not yet been breached

now have gone silent. Why? A week into the crisis, two reactors' containment vessels sprang serious leaks. There is more than a chance that radioactivity might also spew from one or more improperly cooled spent-fuel-reactor ponds. That's bad news.

So bad that the focus has turned to casualties. The safety systems, at least as NEWSWEEK went to press, had kept the worst of the radiation from spreading far. Some have seized the fact, and the news that no one has yet died, to argue that nuclear power is safe. Stay tuned.

Most world leaders didn't wait to act. Germany announced it would shut down (temporarily, at least) seven of its oldest reactors. Major safety reviews and licensing breathers have also been announced by France, the European Union, Thailand, Switzerland, the Philippines, India, and even China.

The collective pause is striking given that countries like India and China serve as the poster children for the nuclear industry's much-heralded global renaissance. According to the International Atomic Energy Agency, of the 65 reactors currently under construction around the world, just about half of them (32, to be exact) are found in these rapidly emerging countries.

In the US, however, President Obama and Secretary of Energy Steven Chu repeatedly tried to reassure the American public. But at best they have been playing catch-up to the rest of the world.

When asked early on if the US should put on the brakes, both the president and Chu insisted no. Instead, they proceeded to promote US nuclear power as if the catastrophe at Fukushima hadn't even happened. Regarding the president's imminent trip to Latin America, the White House announced that it would sign a memorandum of understanding on nuclear-power cooperation with earthquake-prone Chile. Meanwhile, the administration is still pushing Congress to approve \$36 billion more in federal loan guarantees for the construction of new reactors. Obama and his nuclear team finally did announce a formal safety review on March 17, but that came a full week after congressional pleas from both pro- and anti-nuke lawmakers making noise on Capitol Hill.

They were adamant and far more sensitive to something the president and his nuclear advisers seemed reluctant to discuss: the fretful fact that nearly a third of the reactors operating in the US are of a similar design as those that have gone so wrong in Japan. More than 20 are nearly identical and are roughly as old. Some are located near earthquake faults; others are on the coast. Where the Japanese are retiring their machines after 40 years of service, though, the US government has decided to extend operating licenses to allow some of these reactors to run for 60 years.

So what, exactly, is going to happen? In announcing the review, Obama said that American nuclear-power plants "have been declared safe for any number of extreme contingencies," which leads one to ask, if you think the hard work has already been done, what's really going to change? Assuming, then, that any real change is going to come from Congress, what questions should be asked?

First, if the US's Nuclear Regulatory Commission has been extending operating licenses on reactors similar to those in Japan for an additional 20 years, what should the US government and the reactor operators be doing differently to assure they run safely over their projected 60-year lifetime?

Second, the Japanese assumed that the multiple emergency safety-backup systems would all work independently of one another. Instead, they were swamped with water and failed in block. What other fallacious assumptions are underlying nuclear safety?

Tokyo's bungled response has sparked the question of which US agency should be responsible for dealing with a nuclear incident? Currently, it's the Department of Homeland Security. But after Hurricane Katrina, that should be a cause for pause.

Finally, Congress has plans to revise the export control and nonproliferation provisions of the US Atomic Energy Act. They are sure to ask how much sense it makes for the US to offer nuclear cooperation to states that have little or no reactor-operating experience and lack liability insurance that can protect US vendors in the case of an accident. Also, after Iran's peaceful nuclear program (which was based originally on US nuclear cooperation), shouldn't the US be insisting on the toughest nonproliferation conditions not just of prospective customers, but of other nuclear suppliers?

In the wake of Japan's disaster, much of the world has paused to make sure their nuclear house is in order. If Obama and his nuclear team can't see the need to get answers before pushing more nuclear subsidies domestically and orchestrating more deals abroad, we can only hope that the US Congress, with a closer ear to a public that now is trying to make sense of the news from Japan, will.

Sokolski is the executive director of the Nonproliferation Policy Education Center and the editor of Nuclear Power's Global Expansion: Weighing Its Costs and Risks.

The Day The Earth Moved (TIME)

By Nancy Gibbs

Time, March 20, 2011

The 9.0 quake that hit Japan on March 11 was powerful enough to shift the earth on its axis and make it spin a little faster, shortening the day by 1.8 millionths of a second. It shoved the island nation one parking space to the east. But what felt like the end was just the beginning.

The sturdy buildings that survived the quake were ravaged by the wave that followed. The three-story wall of water dissolved coastal towns, dry-docked boats on the roofs of buildings and shuffled houses like playing cards. There were so many aftershocks that people stopped diving under tables. Those who made it safely to higher ground waited in the dark, in the cold, in lines that stretched for hours for water and food. In a society seen as the most stoic on earth, the closest thing to chaos was a man cutting in line. (See James Nachtwey's pictures of Japan's devastation.)

But still it was not over; only the earth and sea had spoken. The next danger came from the sky. Officials warned people to stay inside and seal whatever was left of their homes because the new threat was silent, invisible — and airborne. A rich country perched on four fault lines and with no oil reserves embraces nuclear power with the caution born of long memory and scars. But no one calculated what would happen if the fail-safes failed.

When the quake hit, the reactors at the Fukushima Daiichi complex did exactly what they were supposed to do: they shut down. But then the wave came, breached the seawall, drowned the backup generators needed to cool the reactors and took out the spare batteries. It was left to a skeleton crew of 50 to jury-rig fire hoses to keep the temperatures down.

One by one, the outer buildings exploded. This is also what they were designed to do, to release pressure and protect the core. The best nuclear scientists on the planet raced to avert a total meltdown even as radioactivity levels as far south as Tokyo spiked to 23 times as high as normal. With the menace growing by the hour, the most fateful calculation came down to the most fickle: Which way is the wind blowing? (See exclusive photos of the devastation in Japan.)

It only started as a natural disaster; the next waves were all man-made, as money fled to higher ground. Fear and uncertainty sheared \$700 billion off the Toyko Stock Exchange in three days. Japan makes nearly a quarter of the world's semiconductors and most of its gadgets. Sony suspended production at seven plants; carmakers slowed output, fearful of gaps in the supply chain; power companies scheduled rolling blackouts. How can a global recovery take hold if the world's third largest economy is out of business, even temporarily? Meanwhile, Switzerland announced a freeze on new nuclear plants, Germany shut down all its facilities built before 1980, and the US Congress called for hearings on nuclear safety. The flooded Japanese plants will never reopen. But demand for power only grows.

We sleep easy in the soft arms of clichés: hope for the best, prepare for the worst; risk varies inversely with knowledge; it's a waste of time to think about the unthinkable. But Japan shook those soothing assumptions. No amount of planning, no skills or specs or spreadsheets, can stop a force that moves the planet.

See TIME's complete coverage of the Japan earthquake.

See how to help earthquake and tsunami victims in Japan.

Chile Protests Seek Obama Apology For CIA Meddling (AP)

Associated Press, March 21, 2011

SANTIAGO, Chile – Several hundred people have protested in the Chilean capital ahead of Monday's visit by President Barack Obama.

Communist Party leader Guillermo Teillier says political, cultural and social representatives have signed a letter to Obama. It asks him to apologize for US intervention that destabilized Salvador Allende's socialist government in Chile before the 1973 coup that began Gen. Augusto Pinochet's dictatorship.

Protesters are also criticizing a new nuclear energy accord between the US and Chile that focuses on US training of Chilean nuclear engineers.

Senate opposition leader Carolina Toha said Sunday that the deal makes no sense in light of Japan's ongoing nuclear crisis.

Obama Voices Stronger Support For Iranian Opposition (WSJ)

By Jay Solomon

Wall Street Journal, March 21, 2011

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

Obama: Iran's Government Leading Campaign Of Abuse (AP)

Associated Press, March 21, 2011

WASHINGTON – President Barack Obama says the Iranian government cares more about preserving its own power than respecting the rights of its people.

Obama delivered that message in taped remarks to the Iranian people on Nowruz, the Persian new year. Obama says Iran has engaged in a two-year campaign of intimidation and abuse that shows fear on the part of the government, not strength.

Obama singled out the young people in Iran, saying they are the ones who can break that cycle and determine their country's future. Young people have been the driving force in many of the political uprisings that have sprung up across the Arab world this year, including Tunisia and Egypt.

Obama says those uprisings represent a season of promise in the Middle East.

Obama Denounces Iran's "Campaign Of Intimidation" (AFP)

AFP, March 21, 2011

RIO DE JANEIRO (AFP) – US President Barack Obama on Sunday denounced the Iranian government's "campaign of intimidation and abuse" of regime opponents as he told the country's young people, "I am with you."

In a message marking Nowruz, the Persian new year, Obama said in a statement, "I believe that there are certain values that are universal – the freedom of peaceful assembly and association; the ability to speak your mind and choose your leaders."

Obama's statement, issued by the White House with the president traveling in Brazil, said that the Iranian government has responded to protests "by demonstrating that it cares far more about preserving its own power than respecting the rights of the Iranian people."

"For nearly two years, there has been a campaign of intimidation and abuse. Young and old; men and women; rich and poor – the Iranian people have been persecuted... The world has watched these unjust actions with alarm."

Obama's comments came amid a wave of uprisings in the Arab world and Middle East seeking to oust authoritarian regimes, and he equated the Azadi Square protests in Iran in 2009 to the Tahrir Square events this year in Egypt.

He said that "this is a season of hope and renewal," and added that "we know that this is also a season of promise across the Middle East and North Africa, even as there are also enormous challenges."

The US leader said that Iran's harsh response to dissidents and protests "do not demonstrate strength, they show fear."

"For it is telling when a government is so afraid of its own citizens that it won't even allow them the freedom to access information or to communicate with each other," he added.

"But the future of Iran will not be shaped by fear. The future of Iran belongs to the young people – the youth who will determine their own destiny... And though times may seem dark, I want you to know that I am with you."



NUCLEAR REGULATORY COMMISSION NEWS CLIPS

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NRC NEWS:

Rare White House Request For Nuclear Regulatory Commission To Review Safety Of US Nuke Plants (AP)

By Associated Press

Associated Press, March 21, 2011

WASHINGTON – The Nuclear Regulatory Commission will conduct a “comprehensive review” of the safety of all US nuclear plants following what US officials are calling the dangerous and complicated situation at Japan’s damaged Fukushima Dai-ichi reactors.

President Barack Obama took the rare step and called upon the independent commission to conduct the review.

“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 Thursday.

Obama’s statement came as he tried to reassure a worried nation that “harmful levels” of radiation from the Japanese nuclear disaster are not expected to reach the US, even as other officials conceded it could take weeks to bring the crippled nuclear complex under control.

Meanwhile, the first evacuation flight of US citizens left Japan, the State Department said.

“We’ve seen an earthquake and tsunami render an unimaginable toll of death and destruction on one of our closest friends and allies in the world,” Obama said in brief remarks at the White House after a visit to the Japanese Embassy to offer his condolences.

There are 104 nuclear reactors in the United States, providing roughly 20 percent of the nation’s electricity. “Nuclear energy is an important part of our own energy future,” Obama said.

A leading industry group agreed with the review.

“A review of our nuclear plants is an appropriate step after an event of this scale, and we expect that the Nuclear Regulatory Commission will conduct its own assessment,” said Marvin Fertel, president of the Nuclear Energy Institute. “The industry’s highest priority is the safe operation of 104 reactors in 31 states and we will incorporate lessons learned from this accident...”

In the US, Customs and Border Protection said there had been reports of radiation being detected from some cargo arriving from Japan at several airports, including ones in Chicago, Dallas and Seattle.

Radiation had not been detected in passengers or luggage. And none of the reported incidents involved harmful amounts.

Homeland Security Secretary Janet Napolitano said the agency was screening passengers and cargo for “even a blip of radiation.”

Obama said he knows that Americans are worried about potential risks from airborne radiation that could drift across the Pacific. “So I want to be very clear,” he said. “We do not expect harmful levels of radiation to reach the United States, whether it’s the West Coast, Hawaii, Alaska or US territories.”

Gregory Jaczko, chairman of the Nuclear Regulatory Commission, told reporters at a White House briefing it could be some time before the crisis is brought under control as crews work to cool spent-fuel rods and get the damaged Japanese reactors under control. The activity could continue for days and “possibly weeks,” Jaczko said.

He said the US recommendation that American troops and citizens stay 50 miles away from the nuclear complex was “a prudent and precautionary measure to take.” But he also said “basic physics” suggested there was little risk to anyone in the United States or its Pacific territories.

Daniel B. Poneman, deputy secretary of energy, told the briefing that a “very dangerous situation” remains in Japan. Information at the nuclear plant is “genuinely complex and genuinely confusing,” he said.

As the officials spoke, Japanese emergency workers sought to regain control of the dangerously overheated nuclear complex, dousing it with water from police cannons, fire trucks and helicopters to cool nuclear fuel rods that were threatening to spray out more radiation.

The US Energy Department said it had conducted two separate aerial tests to measure how much radioactive material had been deposited in Japan. Those data, Poneman said, were consistent with the recommendation for Americans to evacuate a 50-mile radius around the plant.

The US officials declined to criticize the Japanese call for a smaller evacuation zone.

"We're analyzing the information, and we're sharing it with the Japanese," said Poneman. "The preliminary look has indicated that the measures that have been taken (by the Japanese) have been prudent ones. And we have no reason to question the assessment that has been made or the recommendation that has been made by the Japanese authorities."

At his visit to the Japanese Embassy Thursday, Obama signed a condolence book and said: "We feel a great urgency to provide assistance to those ... who are suffering."

In the book he wrote, "My heart goes out to the people of Japan during this enormous tragedy. Please know that America will always stand by one of its greatest allies during this time of need."

White House spokesman Jay Carney said the fact that Obama had taken the rare step of asking the NRC – an independent regulatory agency that is not under the president's control – to undertake a review of US reactor safety in light of the Japanese disaster "only adds to the urgency of that mission."

Representatives of the nuclear energy industry said Thursday that operators of US reactors already had begun taking steps to better prepare for an emergency in this country.

While it will take some time to understand the true dimensions of the nuclear disaster in Japan, "we will learn from them, we will get that operating experience, we will apply it and try to make our units even safer than they are today," said Anthony Pietrangolo, senior vice president of the Nuclear Energy Institute, a Washington-based industry lobbying group.

US Nuclear Plants To Get New Safety Reviews In Wake Of Fukushima 1 (CWIRE)

By Peter Behr

ClimateWire, March 18, 2011

President Obama responded to Japan's nuclear reactor crisis yesterday by asking the Nuclear Regulatory Commission to make a comprehensive safety review of US nuclear plants to assess their ability to withstand natural calamities.

Speaking at the White House, NRC Chairman Gregory Jaczko said yesterday the study would be made. He repeated his statements this week that the commission considered the 104 US nuclear plants to be secure, but the evidence from Japan's devastating reactor damage would be the basis for a new review.

"We're going to take a look at what happened, we're going to do a systematic and a methodical review of the information, and if we need to make changes to our program, we'll make changes to our program," Jaczko said. "But I want to emphasize and stress that we have a very robust program where we look at the safety and the security of our nuclear facilities on a minute-by-minute basis."

Today, Japan's Self-Defense Force units shot water from fire trucks at the Unit 3 reactor at the Fukushima Daiichi nuclear plant, hoping to raise water levels in the unit's spent fuel cooling pool and prevent more radiation leaks from overheated fuel rods. More dousing operations would occur today, authorities said.

The chief of staff of the Air Self-Defense Force, Shigeru Iwasaki, said the SDF crews were exposed to no more than several millisieverts of radiation during the operation, levels that he said would not prevent continued attempts to cool the reactor, NHK reported. However radiation levels were registered elsewhere in the complex, up to 20 millisieverts per hour at some points, the news service said. Japan's science ministry said today that relatively high radiation levels were detected about 30 kilometers northwest of the plant.

The Los Angeles Times reported that the spent fuel pool in Unit 4 appears to have been damaged, possibly by the force of the earthquake, which could have led to leaks of the protective water cover that keeps spent fuel from overheating. The newspaper quoted an unnamed US utility official as saying that water sprayed into the pool was disappearing faster than could be explained by evaporation.

A critical step in the weeklong battle is scheduled tomorrow, when Tokyo Electric Power Co. said it hoped to restore outside electric power to two of the crippled reactor units to see whether normal cooling of reactor cores and spent fuel pools could be restored at Units 1 and 2.

US experts have said the resumption of cooling operations offers the best hope for containing radioactive releases of steam and gas at the complex, but it is not yet known whether hydrogen explosions and damage to reactor cores will permit this to happen.

Tokyo Electric Power, owner of the Fukushima Daiichi plant, said today it had shelved plans to build a new nuclear reactor in Aomori Prefecture. At 1,380 megawatts, it would have been Japan's largest.

Separately, owners of the 104 US commercial nuclear power plants announced yesterday they will inspect their units to verify each company's ability to maintain safe reactor operations if confronted with natural disasters, fires, aircraft impact and explosions that go beyond the threats that plants are designed to withstand.

"We can do the best planning and analysis, and we can never guarantee zero risk, and we need to be prepared," Anthony Pietrangelo, chief nuclear officer of the Nuclear Energy Institute, told reporters. He said lessons from the Japanese reactor crisis will be studied. "We will learn from them. We will get that operating experience. We will apply it and try to make our units even safer than they are today."

The question of the safety of US nuclear plants was also the subject of a report issued yesterday by the Union of Concerned Scientists, authored by David Lochbaum, a nuclear engineer who heads UCS's nuclear safety program. The report reviewed 14 significant safety-related events that triggered special oversight by NRC in 2010.

Some demands for a temporary shutdown

Lochbaum's report highlighted three cases in which NRC inspectors pursued problems to secure fixes and three cases with problems NRC overlooked or dismissed, it said.

"The chances of a disaster at a nuclear plant are low," the UCS report said. But it added the severe accidents at Three Mile Island in 1979 and Chernobyl in 1986 "occurred when a handful of known problems – aggravated by a few worker miscues – transformed fairly routine events into catastrophes."

The new inspection program by the nuclear operators follows demands from some members of Congress for a temporary shutdown and inspection of older US plants, particularly the 23 reactors with the same reactor models present in the crippled Fukushima Daiichi complex.

General Electric Co. has defended its Mark 1 reactor – the design at the crippled Japanese complex – as a reliable industry workhorse. Tom Cochran, a nuclear physicist and senior scientist with the Natural Resources Defense Council calls the design "demonstrably deficient." He says "the diesel generators are in the basement and spent fuel is in the attic. It should have been the other way around."

Pietrangelo said the inspections would go beyond the scope of regular safety checks at the plant. The companies will verify that plant operators could safely shut down reactors if there were a total loss of electric power; that crucial emergency equipment and systems could survive earthquakes, fires or floods, and that emergency personnel were properly qualified and trained, said Pietrangelo, speaking on behalf the industry's chief nuclear officers.

NRC requires nuclear plant operators to show that if hit with a single, or series of "worst case" scenarios, such as an earthquake and simultaneous rupture of the pipe delivering cooling water to the reactor, that the plant can be shut down safely without core damage. That is the standard, day-to-day requirement, he said. "We're going beyond that in this initial look," Pietrangelo said.

He said he did not think companies will report results of the inspections separately to NRC but, like all operational information, the findings will be available to NRC inspectors.

A power loss at a US reactor

The UCS report focuses on the effectiveness of the resident NRC inspectors stationed at the US plants. The cases included in the report show both diligent attention by NRC, and complacency that allowed operators to sweep problems under the rug.

One of the incidents covered in the UCS report was an electrical fire at Progress Energy's H.B. Robinson nuclear plant near Hartsville, S.C., on March 28 last year.

The incident began with a short-circuit on a major electrical cable, which caused a drop in power supplied to a large pump circulating water through the reactor. The reactor shut down automatically, but the incident damaged the main power transformer connecting the plant to the outside electrical grid, and other events left about half of the plant's equipment without power.

That power loss caused a sequence of problems with valves affecting the control of the reactor's temperature, but operators failed to notice the problems for nearly an hour, the report said.

After four hours, operators tried to restore power to the circuit where the short had occurred but did not check first to see that that problem had been solved. It had not been, and when the line was re-energized, another fire resulted. The failed cable, installed in 1986, did not meet design parameters, the report said.

Six months later, another series of equipment failures and operator errors caused another reactor shutdown at the plant. One of the equipment issues had been known to the operators since 2003 but had not been fixed, the report said. In this case, the operators relied on an auxiliary water supply system to provide cooling to the reactor by first disabling safety controls. The goal was to avoid a critical NRC review, the report said.

NRC issued a notice yesterday saying that while it concluded the plant had operated safely last year, commission staff will be stepping up inspections and oversight based on problems surrounding the reactor shutdowns.

Physics And Politics For The NRC Chairman (MRKWTWCH)

Capitol Report

By Maggie McNeil

MarketWatch, March 21, 2011

WASHINGTON (MarketWatch) – When Gregory Jaczko was working on his doctorate in physics at the University of Wisconsin, he began to formulate how he could mix policy and science in his career.

Now as the chairman of the US Nuclear Regulatory Commission and suddenly America's most visible nuclear expert as the world grapples with the implications of the unprecedented nuclear crisis in Japan, Jaczko's unique background of science and politics is fortuitous.

"Dr. Jaczko seeks to build consensus positions," said David Lochbaum of the Union of Concerned Scientists and head of the group's Nuclear Safety Project. "Along the way, Dr. Jaczko sometimes will make a concession to gain some broader goal."

The 40-year-old physicist became head of the powerful agency overseeing the US nuclear industry in 2009, after being picked by President Barack Obama for the top slot and serving as one of the agency's five commissioners for the 4 ½ years leading up to his promotion.

Jaczko has been generating worldwide headlines this week as he's taken the lead in briefing US lawmakers and the public about the situation in Japan, first presenting a more dire scenario than had been reported by Japanese officials and advising Americans in Japan to get at least 50 miles away from the power plant, and finally assuring the US public that any radioactive emissions reaching this nation would not pose any health risks.

Jaczko came to his current job not only with solid academic credentials, but with strong political connections.

A native of Albany, N.Y, he graduated from Cornell University with an undergraduate degree in physics and philosophy, and earned his doctorate in physics from the University of Wisconsin in Madison.

While he was in graduate school, Jaczko got his first up-close look at Washington politics while he was a Congressional Science Fellow on Capitol Hill. He worked in the office of Rep. Edward Markey, Democrat from Massachusetts, who has often been an outspoken critic of the nuclear power industry. Jaczko has said in earlier interviews that his first experience on the Hill opened his eyes to a "different part of our society, the political process...I very much enjoyed it."

After completing his doctorate, Jaczko decided against a career in research and opted to stay in public policy, taking a job with the Senate Environment and Public Works Committee as scientific and nuclear adviser. A solid Democrat, Jaczko then moved to Senate Majority Leader Harry Reid's staff, first as appropriations director and then as Reid's science policy adviser.

It was during this period that Reid was leading the fight against a proposal to store nuclear waste at a facility to be built at Yucca Mountain in Nevada, and Jaczko was reported to be Reid's point man on the issue.

That experience, say critics of Jaczko, colored the regulator's objectivity over the Yucca Mountain issue and later influenced Jaczko's decision last year to direct agency scientists to halt a formal review of the nuclear waste site. Republicans charged that Jaczko was improperly blocking progress on the license application, and that it was a partisan move by the agency. The NRC and its scope

The Nuclear Regulatory Agency was created in 1974 and is responsible for regulating the commercial nuclear power industry and other commercial uses of nuclear material in the US

With a budget of around \$1 billion a year, the NRC has significant control over the industry – before a nuclear reactor can begin operating, the NRC must first grant an operating license, and the NRC conducts regular inspections at existing plants to make sure they are meeting federal safety standards.

The NRC is headquartered in a huge six-building complex in a DC suburb in Maryland where almost 3,000 employees work – largely scientists, engineers and lawyers.

Another thousand-or-so NRC employees are scattered across the country in four regional regulatory offices in Pennsylvania, Georgia, Illinois, and Texas, or at its technical training center in Tennessee, or the NRC's on-site High Waste Management office in Las Vegas. In addition, on-site inspectors are permanently stationed at each of the 104 nuclear reactors in the country.

The nuclear industry stays in close touch with the NRC, providing technical support on generic industry issues, and often participating in the regulatory and technical meetings that occur throughout the day at agency headquarters.

The agency has gotten mixed reviews over the years for its performance.

Advocates of nuclear power charge that the agency has dragged its heels in granting new licences, and has hindered industry growth. On the other side, critics of nuclear power contend the NRC is too closely aligned with the industry and is not tough enough on the operators.

A recent study by the Union of Concerned Scientists said that while the NRC has a track record of catching and correcting safety problems at nuclear plants, it has also "overlooked or dismissed" some "serious safety problems."

"The NRC is capable of functioning as a highly effective watchdog," says the UCS, but it says its report shows that "much work remains to be done."

Maggie McNeil is Washington editor for MarketWatch.

White House: In Jaczko We Trust (POLITCO)

By Darren Samuelsohn

Politico, March 19, 2011

The White House has been dancing an awkward two-step with the nation's top nuclear regulatory authority, declaring it a trusted, independent arbiter of what's happening during the crisis in Japan despite harboring deep historical reservations about the quality of its work.

The word "independent" was uttered at least eight times from the White House podium during press briefings last week to describe the Nuclear Regulatory Commission, whose leader, Gregory Jaczko, has personally briefed President Barack Obama, spent a late night in the Situation Room monitoring the nuclear disaster and also been the public face of the US government in many media interviews.

Relying so heavily on the NRC makes perfect sense at the moment of such a major crisis. But it's helped that the Obama team is leaning on Jaczko, a former Senate Democratic aide to Harry Reid who first won confirmation in 2005 over vocal industry objections, to avoid the game of musical chairs that plagued the PR response to the Gulf of Mexico oil spill.

Obama nominated Jaczko to chair the NRC in 2009, and he has taken the rough edges off a sometimes rocky relationship that existed between the commission and then-Sens. Obama and Joe Biden. During the Democratic presidential primaries when they were still running against each other, both Obama and Biden trashed the NRC's five-person panel for being an industry lapdog.

"The NRC is a moribund ... it's a moribund agency that needs to be revamped and has become captive of the industries that it regulates," Obama told *The Keene (N.H.) Sentinel* in a Nov. 27, 2007, interview. "I think that is a problem."

While serving in the Senate, Biden said he was the NRC's "biggest nemesis" and had no faith in the commission's ability to get permitting decisions right when it comes to the nation's fleet of 104 existing reactors.

"It's like getting homed coming into a small town and playing a basketball championship with the local refs," Biden told the New Hampshire paper. The quotes were recently unearthed by Salon.

With the Japan disaster, the White House has relied on the NRC to generate critical data on the conditions at the Fukushima Daiichi nuclear plant.

Jaczko's candid testimony Wednesday before a House Energy and Commerce panel made international headlines when he said there appeared to no longer be any cooling water at one of the stricken reactors despite statements to the contrary from Japanese government officials.

The State Department ultimately used NRC's information to recommend a 50-mile evacuation radius around the plant for American citizens; at the time, Japan had a 12-mile evacuation radius.

While Obama wasn't so keen on NRC's abilities while running for president, he's now relying on it to do the right thing with information gleaned from Japan, especially with about two dozen reactors in the US that have similar design features to Fukushima Daiichi.

"People say things in campaigns, and they learn better later," said Richard Meserve, a former NRC chairman appointed by President Bill Clinton who also served into the George W. Bush administration, including during the Sept. 11, 2001, terrorist attacks.

Obama officials seem ready to let the past statements go, too, inviting Jaczko to speak from the White House briefing room twice last week alongside Deputy Energy Secretary Dan Poneman.

"We, the United States of America, have an independent regulatory agency whose sole mission is to constantly review and evaluate the safety and security of the reactors in the United States, which provide 20 percent of the electricity that Americans consume," White House spokesman Jay Carney told reporters Thursday.

Other top Obama officials are also right in the middle of the administration's response too, starting with Homeland Security adviser John Brennan as the lead White House coordinator for the interagency process. Energy Secretary Steven Chu is scheduled to go on all five major Sunday shows — on ABC, NBC, CBS, FOX and CNN — to talk about the Japan crisis.

In addition, the Environmental Protection Agency is monitoring radiation levels, and USAID, the Department of Health and Human Services and the National Oceanic and Atmospheric Administration have been on daily White House-led calls with Capitol Hill leaders.

The NRC, which Congress carved out of the Atomic Energy Commission in 1974, is regularly pummeled for how it handles permitting issues and being too cozy with the industry it regulates. But it has a unique role to play during a crisis.

Bush brought Meserve into his inner sanctum after Sept. 11. President Jimmy Carter sent Harold Denton, a non-political NRC specialist, to Pennsylvania to serve as his point man for the Three Mile Island accident.

"It takes on functions that are a lot more like an executive branch agency," said Peter Bradford, a former NRC commissioner and frequent nuclear industry critic.

NRC exists alongside other independent agencies like the Federal Energy Regulatory Commission, Securities and Exchange Commission and the Federal Communications Commission.

"They operate with a very significant degree of independence," said Jim Connaughton, the former chairman of George W. Bush's Council on Environmental Quality. "It's very common for there to be substantial interaction. That's perfectly appropriate, because, notwithstanding their independence, they are arms of the executive branch, the branch that implements congressional statute."

The White House communication campaign underway now is simply a byproduct of what normally happens behind the scenes, added Connaughton, now an executive vice president at Baltimore-based Constellation Energy, which operates five nuclear power reactors.

"There's been lot of education occurring in the last 10 days about processes that are very well established and institutions that are very well developed that carry on their mission out of public view," he said. "What's happening is now you're seeing that in a public way. The reason no one sees it is it's been working very well over the last 30 years."

White House spokesman Clark Stevens said Obama's reliance on the NRC makes sense.

"The president has maintained his focus on improving the safety and oversight at agencies across the federal government, which is why once he took office he appointed a new chairman to the NRC and worked with the Senate to install three new commissioners — out of a panel of five," he said. "These decisions, including the choice of Chairman Jaczko who had shown a commitment to a culture of safety during his time as a commissioner, were made with the express purpose of continuously improving safety and transparency at the independent agency that formulates policies and develops regulations governing nuclear reactors and nuclear material safety."

Top Nuke Regulator Eyes Two-part Safety Review, Won't Rule Out Licensing Changes (HILL)

By Ben Geman

The Hill, March 21, 2011

Nuclear Regulatory Commission Chairman Gregory Jaczko said Sunday that the upcoming study of US reactor safety will unfold in two phases to allow a near-term review while awaiting detailed information that will emerge from the crisis in Japan.

The five-member commission is meeting Monday to receive updates on the status of the stricken Fukushima Daiichi complex and begin mapping out the US safety review, which President Obama ordered last week.

"We will probably do some kind of short look in the near-term just to reexamine the existing fleet of reactors, and then probably a much longer look based on the accurate information we get eventually from Japan about what really happened and what is most important going forward," Jaczko said in an interview on C-SPAN.

He said that once the crisis is resolved, it will likely be months before vital information about what unfolded is available, and that it's important for US regulators to examine the catastrophe in a systematic and methodical way.

"We want to get this right — we don't want to take early information and use that and go off in completely wrong direction," he said, but later added: "We intend to do a short-term look that will be done in a much shorter time-frame, just to take the available information we have and really look at our regulatory system and our plants and make sure there aren't any immediate actions we need to take."

Jaczko, echoing comments by other top US officials, again sought to provide reassurances about the safety systems of the 104 US power reactors, noting for instance requirements to have redundant system to ensure that a loss of power will not cripple the ability ensure cooling in spent fuel pools.

"We think we have a program in place that would deal with the kinds of situations that we are seeing in Japan, but I want to stress that what they are dealing with in Japan 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," he said.

The Japanese crisis comes as several power companies are seeking NRC approval to build the first new US reactors in decades.

Jaczko would not rule out the possibility that the lessons learned from the crisis could affect the NRC's reviews of those applications, or the reactor designs they intend to use.

"We certainly want to get good information and if that good information tells us that we need to make changes to our licensing process, then we will do that," he said.

The NRC is expected to make decisions as early as late summer or early fall on the designs. "I think we will have some information if not all the information out of the Japanese event by then to inform any decisions we need to make about those designs," Jaczko.

The NRC is reviewing applications for design certifications, including an amendment to the design of the Westinghouse AP1000. It's the reactor model that several power companies seeking to build new nuclear plants intend to use, including Southern Company, which is planning to add two new reactors to its Plant Vogtle in Georgia.

Jaczko declined to say whether the catastrophe could affect the pace of new plant construction license approvals, but noted new strains in the NRC stemming from the need to respond to the Japanese crisis and review its implications.

"I anticipate this is going to be a very significant workload for the agency, and as we begin to lay out our plan we are going to take a look at how we are going to deal with that workload," Jaczko said.

"If we need additional resources to do it, then we will have to ask Congress for that additional support," he added.

Regulator Says Fuel Pools At US Reactors Are Ready For Emergencies (NYT)

By Matthew L. Wald and Joseph Berger

New York Times, March 21, 2011

WASHINGTON – The chairman of the Nuclear Regulatory Commission said Sunday morning that the spent fuel pools at American nuclear reactors are less vulnerable than the ones in Japan because of steps ordered by his agency after the attacks of Sept. 11, 2001, including having utilities prepare to use fire hoses to pump in extra water in the event ordinary cooling systems are knocked out.

Nuclear utilities were ordered to "identify and pre-stage equipment" that would be useful in such an emergency, according to commission officials. They have been reluctant to disclose details, because some preparations against terrorist attack are classified, but indicate that the preparation includes locating emergency generators, diesel-driven pumps, hoses and diesel fuel, as well as setting up procedures.

The chairman, Gregory Jaczko, said on the C-Span program "Newsmakers" that these preparations give an "extra sense of certainty" about the ability to withstand events beyond what the plant was designed for.

Also on Sunday morning, Energy Secretary Steven Chu, appearing on Fox News, indicated he remained confident in the safety of American plants. But he said the Nuclear Regulatory Commission, an independent agency, would revisit the issues after the problems in Japan.

He said Americans were "in no danger" and "it's unlikely they will be exposed to danger." He said the 23 American reactors that use the same Mark 1 design as was used in the Fukushima Daiichi Nuclear Power Station "are constantly being upgraded" to improve their safety.

Nevertheless, he said, officials will have to study whether a reactor like Indian Point, in Buchanan, N.Y., "should remain" and whether its evacuation plans are adequate given that millions of people live near the plant, which is 34 miles from Manhattan.

"It's an N.R.C. decision," he said. "But the N.R.C. will be looking at that, I'm sure, based on events. But again this is not to say that we believe that reactor is unsafe. We believe that reactor is safe."

Congress gave the job of regulating nuclear reactor safety to the Nuclear Regulatory Commission when it broke up the Atomic Energy Commission in the 1970s. The Energy Department got the job of promoting nuclear power. It is part of the American response to the Fukushima accident because it has extensive scientific and engineering capabilities as well as equipment used for monitoring, and because President Obama had designated Mr. Chu, who won a Nobel Prize in physics, as the government's point person on the accident.

Mr. Jaczko reiterated Sunday that the commission would learn all appropriate lessons and act as needed, once the facts became available.

The five-member commission is to meet Monday morning to receive a briefing from its staff about what is known and what is uncertain about events in Japan. Mr. Jaczko said the agency ought to wait until more information is in hand before taking action. "It's important for us to do this in a methodical way," he said.

He said, however, that a decision made by the commission a few days before the earthquake to approve a 20-year license extension for the Vermont Yankee nuclear plant, which is a near twin of the Fukushima Unit 1 design, was not affected by the events in Japan, even though the commission staff is still finishing the paperwork before issuing the license.

If information from Japan makes it advisable to order changes at Vermont Yankee or other plants, including those that are not approaching the end of their operating licenses, action will be ordered promptly, he said.

He also said he did not anticipate any delay in the commission's approval of new reactor designs or a permit for two new reactors in Georgia later this year. Mr. Jaczko said information from Japan should be in hand before the decisions on new plants and new designs are due.

The Nuclear Regulatory Commission has sent 11 experts to Tokyo. Mr. Jaczko said there were no immediate plans to send them to Fukushima Prefecture. They are assisting Japanese regulators and the utility that operates the Fukushima plant, the Tokyo Electric Power Company, from Tokyo, he said.

Mr. Jaczko briefed Mr. Obama on Wednesday about the commission's assessment of conditions in Japan. Based on those assessments, the United States recommended that Americans stay 50 miles from the stricken reactor complex. Japanese officials have ordered an evacuation out to 20 kilometers -- about 12 miles -- and told people out to 30 kilometers, 18 miles, to take shelter.

Mr. Jaczko told Congress last week that one of the spent fuel pools was dry or nearly dry, a very important development. A dry pool would give anyone within line of sight a huge radiation dose, and the fuel might melt and radiation-emitting materials might spread. Japanese officials, however, have cast doubt on the idea that the pool was ever dry.

Asked about this on Sunday, Mr. Jaczko said that he based his statement on the "best available information" and still believed it to be true, although he added that one part of the post-accident investigation should be to examine information flow. Initial information in an accident can turn out to be wrong, he said. In this case, loss of electric power shut down a lot of monitoring equipment at Fukushima, he said. And general accident conditions do not always lend themselves to good information flow. "There's a reason they call it a catastrophe," he said.

Matthew L. Wald reported from Washington, and Joseph Berger from New York.

US Conducts Exam Of Nuclear Plants (WSJ)

By Stephen Power And Alan Zibel

Wall Street Journal, March 21, 2011

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

Former NRC Member Says Renaissance Is Dead, For Now (NYT)

By Hannah Northey, Greenwire

New York Times, March 18, 2011

The birth of the "nuclear renaissance" and proposed construction of up to 100 new nuclear reactors in the United States will be crippled by the crisis in Japan as regulators struggle to incorporate "lessons learned" into the country's existing nuclear fleet, a former member of the Nuclear Regulatory Commission said today.

"I think the effort to expand, to build a fleet of new plants ... [is] certainly dead for now," Peter Bradford said today during a briefing with reporters in Washington, D.C.

Bradford, a professor at the Vermont Law School, cast doubt over the federal government's assertions that the NRC can incorporate "lessons learned" from the crisis unraveling in Japan into the US nuclear industry without slowing or stopping the permitting and relicensing of new nuclear reactors. Japan was struck by a 9 magnitude earthquake on March 11, followed by a deadly tsunami that crippled the Fukushima Daiichi nuclear complex on the country's eastern shore.

Energy Secretary Steven Chu and NRC Chairman Gregory Jaczko have stood firm behind assertions during congressional hearings this week that although a review will be conducted of the US nuclear fleet, the ongoing regulatory process for existing and new nuclear plants will go unscathed.

But Bradford, who served the NRC during the 1970s when the agency dealt with the partial meltdown at the Three Mile Island nuclear plant in Pennsylvania, said the process of reviewing and potentially updating the safety of plants does not go hand in hand with the current pace of NRC oversight.

"Continuing a nuclear expansion in parallel with learning the lessons is just a terribly unlikely scenario," Bradford said. "The NRC can't divert resources that it's going to have to do for a 'lessons learned' process and still continue trying to have design approvals and construction and operating licenses on the original schedule."

Although Chu is right to tread carefully before final conclusions have been reached surrounding the crisis in Japan, Bradford said NRC will be strapped for funding if it tries to continue licensing plants while simultaneously undertaking a safety review of the entire fleet of 104 reactors in the United States. NRC, he added, will not even understand what happened in Japan for another nine months or so.

Bradford pointed out that NRC did not approve any additional nuclear plant licenses for up to two years after the Three Mile Island event. Instead, the agency found it necessary to shut down plants with a Babcock & Wilcox design for about four months to analyze their vulnerability, he said.

Changes were made and they came back online, and the NRC took the better part of a year to establish what had happened. Such uncertainty will also plague the understanding of events at Japan's Fukushima Daiichi plant, he said.

Robert Alvarez, a senior scholar at the Institute for Policy Studies, said the United States is currently dealing with "fragmentary" information coming out of Japan, and that the Tokyo Electric Power Co. and its onsite crew do not appear to have control of the situation.

The measures the Japanese are taking are "not in the playbook for these types of accidents," Alvarez said. Using seawater as coolant is risky because the water is corrosive and at high temperatures can corrode pumps and pipes and could impair the containment vessel, he said. The spent fuel pools are also of extreme concern because they are elevated above ground, not under the containment dome like the reactors themselves, and aerial photographs show two pools are "exposed to open sky."

Jaczko this week expressed concerns that the United States believes water has completely or partially been drained from a spent fuel pool at the reactor and could catch fire, Alvarez said, pointing out that the chairman's comments are "also vetted by the White House."

Alvarez said the danger surrounding spent fuel pools in Japan has serious implications for the United States because many of the plants here store spent fuel in pools that are at maximum capacity.

The experts briefing reporters today also questioned the federal government's assertions that the United States will not experience dangerous levels of radioactivity from the Japanese reactors.

Although the risk right now is "fairly minimal," officials should be cautious because there is "no safe level of radioactivity" and it's much too early to tell how far radioactive material can travel, said Jeffrey Patterson, a radioactive exposure expert and professor at the University of Wisconsin.

Alvarez said the United States should pay full attention to the radiation monitors that have been expanded around the Fukushima Daiichi plant and radiation equipment being used by US and Japanese military aircraft to understand the extent and travel of plumes the facility and where they will travel.

"I think it's going to be extremely important for the Japanese [and] US government ... to be very transparent about the nature of these plumes and what precautionary measures people should take," he said.

Nuclear Crisis May Affect Placement Of US Reactors (AP)

By Matthew Daly, Associated Press

Associated Press, March 21, 2011

WASHINGTON – Energy Secretary Steven Chu suggested Sunday that Japan's nuclear crisis might make it less likely that new nuclear reactors are built near large American cities, just one of many safety changes that could be forthcoming as US officials review reactor safety.

"Certainly where you site reactors and where we site reactors going forward will be different than where we might have sited them in the past," Chu said in response to questions about the Indian Point nuclear plant near New York City. "Any time there is a serious accident, we have to learn from those accidents and go forward."

Meanwhile, the chairman of the Nuclear Regulatory Commission said his agency will again review how US nuclear plants store spent-fuel from nuclear reactors. The state of the spent fuel pools at the Fukushima Dai-ichi plant has been a major concern as Japanese officials try to stem the release of radiation and bring the reactors under control.

"Five days ago everybody was worried about earthquakes and tsunamis and the reactors cooling," NRC Chairman Gregory Jaczko told The Associated Press. "Today everybody is worried about the spent fuel pools. Until this is resolved we are not going to ultimately know what the most important factors are in terms of what needs to be addressed."

Japanese officials reported progress Sunday in their battle to gain control over the leaking, tsunami-stricken nuclear complex, even as the discovery of more radiation-tainted vegetables and tap water added to fears about contaminated food and drink.

The Food and Drug Administration said Sunday that the United States is not importing any foods from the affected area of Japan, and the agency is working with Customs and Border Patrol to screen other Japanese food imports to make sure they are not tainted. They are also checking food that may have passed through Japan.

The FDA said it expects no risk to the US food supply from radiation. Japanese foods make up less than 4 percent of all US imports. The most common imports are seafood, snack foods and processed fruits and vegetables.

After the 2001 terrorist attacks, US officials took steps to make sure that nuclear reactors could withstand an attack as well as earthquakes and other natural disasters. In the days after the Japan earthquake and tsunami, President Barack Obama asked for another safety review.

In an appearance Sunday on C-SPAN's "Newsmakers," Jaczko emphasized that the 104 nuclear reactors in the United States are required to have redundant systems — "a backup to the backup" — to ensure that a loss of power will not cripple their ability to cool the spent fuel pools. In Japan, the backup generators were inoperable.

"We think we have a program in place that would deal with the kinds of situations that we are seeing in Japan, but I want to stress that what they are dealing with in Japan 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," he said.

Jaczko set off worldwide alarm last week after saying that all the water was gone from one of the spent fuel pools at Japan's most troubled nuclear plant, raising the possibility of widespread nuclear fallout. Japanese officials denied the pool was dry.

Jaczko said Sunday he was comfortable that his earlier remarks were accurate, but he added that Japanese officials have spent the past several days trying to put water into the spent fuel pools, among other steps they are taking to stem the nuclear disaster. "So we're dealing with a very different situation now," he said.

He said it was possible there is a leak in the pool, but he did not elaborate.

In an interview broadcast Sunday on CBS' "60 Minutes," a State Department official suggested that Japanese nuclear officials did not react quickly enough to the crisis.

Julia Nesheiwat, who has been working with Japan on energy issues, said the US told Japan last Tuesday "that if we don't expand the efforts we'll require heroic work that could be ... quite devastating for the workers." Asked what that meant, Nesheiwat responded, "They could very well lose their lives."

Chu was more optimistic about future developments at Fukushima.

"I think with each passing hour, each passing day, things are more under control. And so, step by step, they are making very good progress," Chu said.

The Japanese are using fire trucks to spray the spent fuel pools and are beginning to restore power there. Still, Chu and other officials acknowledged that serious problems remained at the stricken nuclear complex. Pressure unexpectedly rose in a third unit's reactor, meaning plant operators may need to deliberately release radioactive steam. That has only added to public anxiety over radiation that began leaking from the plant after a monstrous earthquake and tsunami devastated northeastern Japan on March 11 and left the plant unstable.

In the United States, lessons learned from the safety studies could affect the NRC's review of pending applications for new nuclear plants, including the types of reactor designs being proposed, Jaczko said.

"We certainly want to get good information and if that good information tells us that we need to make changes to our licensing process, then we will do that," he said.

New York Gov. Andrew Cuomo is seeking a review of the Indian Point power plant, about 40 miles north of New York City. More than 21 million people live within 50 miles of the plant.

Chu, who spoke on "Fox News Sunday" and CNN's "State of the Union," said officials believe Indian Point is safe but that they will review whether it should continue operating in the wake of the Japanese disaster.

Sen. Carl Levin, D-Mich., said the Japanese crisis should not cause the United States to turn away from nuclear power.

"I think there ought to be a period here where all of our nuclear plants are tested very, very carefully to make sure that they are safe and to make sure that this cannot happen here. But I don't think that we can say that we're not going to continue to use nuclear power," Levin said on NBC's "Meet the Press."

Unlike coal or other fossil fuels, nuclear power does not contribute to global warming, Levin said.

Rep. Ed Markey, D-Mass., said the crisis called into question the viability of nuclear power in the United States.

"We should understand that it's very difficult for us to guarantee that a catastrophic meltdown cannot happen in our country," Markey said on CBS's "Face the Nation."

Associated Press writer Mary Clare Jalonick contributed to this report.

Indian Point Nuclear Plant Near New York City Will Be Reviewed (HUFFPOST)

By Amanda Terkel

Huffington Post, March 21, 2011

WASHINGTON – Energy Secretary Steven Chu weighed in on Sunday on a controversial nuclear reactor located near New York City, saying that the administration needs to look at whether it should stay where it is.

At issue is the Indian Point Energy Center, located just 34 miles from New York City. The nuclear plant supplies approximately 25 percent of the city's power, and it has the backing of New York City Mayor Michael Bloomberg (I). As WNYC notes, "Reactors two and three were built in the 1970s and were slated for a 40-year-life. As in the rest of the country, plant operators are hoping to get an additional 20 years of productivity [out of] their reactors."

But New York Gov. Andrew Cuomo (D) is calling for the plant to be shut down. His comments came after MSNBC recently reported that Indian Point's No. 3 reactor has a high risk of earthquake damage, based on an analysis of data from the US Nuclear Regulatory Commission.

"I've had concerns about Indian Point for a long time," said Cuomo, adding, "I understand the power and the benefit. I also understand the risk. This plant in this proximity to New York City was never a good risk. But this is new information that we're going to pursue."

New York State Attorney General Eric Schneiderman (D) agrees with Cuomo against relicensing Indian Point.

On "Fox News Sunday," host Chris Wallace pointed out to Secretary Chu that the "Nuclear Regulatory Commission has called for a 50-mile evacuation zone around the reactor in Japan," but the Indian Point plant is much closer than that to New York City.

"Well, I think, again, the evacuation plans of the Indian Point reactor will be looked at and studied in great detail," replied Chu. "The Indian Point reactor is not in the situation like in Japan, but I think, again, we will be looking at whether those evacuation plans are adequate. ... And again, we're going to have to look at whether this reactor should remain. But, again, I don't want to make any – jump to some judgment about what we should do going forward."

Wallace followed up and asked, "But are you saying the issue of whether to keep Indian Point in operation is in doubt, is something you're going to review?"

Chu clarified that keeping Indian Point open is a decision that will be made by the Nuclear Regulatory Commission, which will be reviewing it. "But again, this is not to say that we believe that reactor is unsafe," he added. "We believe that reactor is safe. There is constant scrutiny of the reactors in all of our plants around the United States." [Subscribe to the HuffPost Hill newsletter!](#)

Nuclear Plant Locations Across US Under Review (WT)

Tragedy in Japan prompts safety look

By David Eldridge, The Washington Times

Washington Times, March 21, 2011

Energy Secretary Steven Chu said Sunday the nuclear crisis in Japan will force American officials to re-evaluate the locations of nuclear reactors in the US, including the Indian Point Energy Center, a three-reactor facility about 40 miles north of New York City.

In an appearance on "Fox News Sunday," the Obama administration's point man on energy said federal officials believe Indian Point is safe, but that the nuclear power plant will be a part of a nationwide safety review of US facilities.

"The evacuation plans of the Indian Point reactor will be looked at and studied in great detail," Mr. Chu said, adding that the review, ordered by President Obama, likely will change the way nuclear plants are built and regulated in the US

"Certainly where we site reactors and where we site reactors going forward will be different than where we might have sited them in the past," Mr. Chu said.

Gregory Jaczko, chairman of the Nuclear Regulatory Commission, said that his agency "will probably do some kind of short look in the near term just to re-examine the existing fleet of reactors."

However, Mr. Jaczko said in a C-SPAN interview, he did not expect a separate in-depth year-long study of reactor safety in light of the Japan crisis to affect requests from US nuclear plants to have their licenses renewed in the interim.

New York Gov. Andrew Cuomo has suggested that the New York City-area plant, with its two operational 1970s-era reactors and one closed reactor, be shut down amid safety concerns in the wake of the Japan crisis.

A massive March 11 earthquake in the Pacific and its resulting tsunami severely damaged several coastal Japanese nuclear facilities, including the Fukushima plant, where engineers believe a catastrophic failure of the reactor's cooling systems led to a partial meltdown.

The tsunami destroyed cities, roads and homes all along the northeastern Japanese coast and has claimed more than 8,000 lives, though that death toll is expected to climb much higher. Since then, deadly radiation levels at the Fukushima facility have hindered the efforts of engineers and nuclear workers to bring the damaged reactor under control.

Mr. Chu appeared on several Sunday talk shows to address questions about whether the Obama administration had lost confidence in the Japanese government's handling of the nuclear crisis and whether officials in Japan were being forthright about the scope of the disaster.

"There is no evidence that I ever heard that the Japanese were holding back," Mr. Chu said on CNN. "We are getting information from them. We have confidence in that information."

Mr. Chu, a Nobel Prize-winning physicist, said there is no indication that radiation leaking from the damaged Japanese reactor poses a threat to the US or its Pacific island territories such as Guam.

"I think with each passing hour, with each passing day, things are more in control," he said on Fox.

The Associated Press reported Sunday that Japanese officials say they are slowly bringing the leaking Fukushima reactor building under control.

"We consider that now we have come to a situation where we are very close to getting the situation under control," Deputy Cabinet Secretary Tetsuro Fukuyama said.

Still, reports of radiation-tainted vegetables and tap water have added to public fears about the crisis in Japan and raised concerns in the US about the possibilities of radiation contamination along the American West Coast.

Other Washington leaders warned Sunday that the crisis in Japan will inevitably affect the American nuclear industry, which in recent years had been the subject of much talk of a "nuclear renaissance."

On CBS's "Face the Nation," Rep. Edward J. Markey, Massachusetts Democrat, said the accident "is calling into question of the viability of nuclear power in this country."

Mr. Markey, who has called for a moratorium on the construction of nuclear power plants in earthquake-prone areas, predicted that the nuclear industry had met "its maker in the marketplace."

"It won't be protesters, it will be Wall Street investors raising questions about its viability going forward," Mr. Markey said.

Chu: Where Nuclear Reactors Are Placed Will Change (AP)

Associated Press, March 21, 2011

WASHINGTON – Energy Secretary Steven Chu says Japan's nuclear crisis will influence the locations of new US nuclear reactors.

He's suggesting that population might be a greater factor than it has been in deciding where to build a plant.

President Barack Obama has ordered a comprehensive review of US nuclear plant safety.

New York Gov. Andrew Cuomo is seeking a review of the Indian Point power plant, about 40 miles north of New York City. More than 21 million people live within 50 miles of the plant.

Chu tells "Fox News Sunday" that officials believe Indian Point is safe, but they will review whether it should continue operating in the wake of the Japanese disaster.

Chu says decisions on where to site any future plants will be different than in the past.

Japan Nuclear Crisis: Will It Give Nations Pause? (CSM)

Christian Science Monitor, March 21, 2011

Chernobyl and Three Mile Island did not stop nuclear power growth. Will the Japan nuclear crisis at Fukushima delay or end the 'nuclear renaissance'?

As media reports of workers heroically trying to head off multiple meltdowns in the smoking bowels of the stricken Fukushima Daiichi-I nuclear power plant played over scenes of thousands of evacuees fleeing radiation after Japan's powerful earthquake and tsunami, the global nuclear power industry was facing its own public relations meltdown. Skip to next paragraph

Governments around the world are pushing the nuclear pause button: shutting plants for safety checks and reevaluating energy policy. Even staunch nuclear advocates on Capitol Hill are calling for a timeout on new US nuclear plants in order to learn

lessons from Japan's tragedy. And American public support for nuclear development slid a precipitous 10 points – from 57 percent a week before the March 11 quake to 47 percent the week after.

Yet in spite of it all, nuclear industry observers say, Fukushima is unlikely to kill development of nuclear power in a world desperate for a clean – and unlimited – alternative to fossil fuel energy.

"[The Fukushima disaster] is going to slow things down, but not stop them," says Charles Forsberg, head of the nuclear fuel cycle project at the Massachusetts Institute of Technology, in Cambridge, Mass. That, he says, is because there are few alternatives to provide the electricity the world needs.

The Japanese disaster, say experts, probably will slow deployment of new plants by increasing safety regulations, heightening public opposition, and vastly increasing the cost of capital to finance hugely expensive construction.

But, says Spencer Weart, former director of the history center at the American Institute of Physics and author of two books on nuclear power's emergence, "What history suggests is that, unless this crisis causes very widespread damage, the Japanese government, even now, may ultimately feel it has no choice but to go ahead with nuclear power.... [E]ven after Chernobyl, the Russian government went ahead to develop nuclear energy because they feel that when oil runs out they're going to need it."

Indeed, while nuclear energy provides 14 percent of the world's electricity, according to the World Nuclear Association, many nations heavily depend on it: France gets 75 percent of its power from nuclear technology; Japan, 30 percent; and the United States, 20 percent. And nuclear energy figures dramatically in China's soaring economy: It has 13 operating nuclear power plants and 27 under construction, according to the International Atomic Energy Agency (IAEA).

Ever since the atomic age dawned with the bombing of Hiroshima, nuclear technology has been fraught with promise and peril.

Nuclear power's big allure has always been the idea of cheap, limitless power – "electricity too cheap to meter," as one 1960s era slogan termed it. By the mid-1980s, however, nuclear plant construction cost overruns, nuclear utility bankruptcies, and the frightening, costly accidents at Three Mile Island in Pennsylvania and Chernobyl in Ukraine had soured public opinion on nuclear power.

But in the past decade, the idea of a "nuclear renaissance" had bloomed as a clean, alternative to fossil fuels that might be an antidote to global warming.

And Americans supported the renaissance: After 25 years without a major accident, Gallup found 62 percent support for nuclear energy last March – the highest since the polling firm first asked the question in 1994.

Before Fukushima, more than 60 nuclear reactors were under construction in 15 countries – including, at the head of the pack, China, Russia, and South Korea. Other nations like Jordan, Saudi Arabia, Thailand, and the Philippines were lining up for their first nuclear plant.

Even respected environmentalists such as Whole Earth Catalog founder Stewart Brand and Greenpeace cofounder Patrick Moore had joined the "renaissance" as a last ditch effort to head off climate change.

Japan Nuclear Crisis: California Radiation Risk Still Low, Authorities Say (LAT)

Radiation in Southern California's air remains low, officials say. Also, the Los Angeles County Fire Department says an e-mail predicting acid rain is a hoax.

By Ann Simmons, Ruben Vives

Los Angeles Times, March 20, 2011

Environmental officials reassured residents Saturday that radiation in Southern California's air remained below levels of concern as workers in Japan struggled to contain releases from a stricken nuclear power plant.

Los Angeles County Fire Department officials also sought to debunk an e-mail hoax that predicted acid rain would result from Japan's nuclear accident.

The fraudulent e-mail was issued in the fire agency's name and claimed that radioactive particles released in Japan could mix with rain and "cause burns, alopecia or even cancer."

Photos: Unrelenting crisis grips Japan

The department issued a statement on Saturday telling residents that it "has not issued this statement, nor do we believe the statements within the e-mail to be factual." Officials said they had no idea who sent the e-mail, which bore the heading "Acid Rain Precautions" and used the Fire Department's official logo.

The wife of an Orange County firefighter received the e-mail and took it to the attention of officials. Given the concern many people have about radiation, the department acted promptly to prevent the ruse from gaining momentum, Fire Department Inspector Matt Levesque said.

"We are trying to be ahead of the curve on this," Levesque said. "We believe it's best to make sure people don't take a glance [at the e-mail] and start calling people all over the country."

The Environmental Protection Agency has been providing daily updates on its website. On Saturday morning, the EPA reported that its nationwide radiation monitoring system, RadNet, which continually monitors the nation's air, drinking water, milk and precipitation for environmental radiation, showed typical fluctuations in background radiation levels.

As of 5 p.m. Friday, the South Coast Air Quality Management District, the smog control agency for Los Angeles, Orange, Riverside and San Bernardino counties, said there was no increase in radiation levels. On Saturday morning, district spokeswoman Tina Cherry said radiation levels had not changed. "There's no increase of risk detected through the monitor," Cherry said.

The agency has detectors in Anaheim, Fontana and Riverside monitoring airborne radiation; the California Department of Public Health operates a fourth detector in the downtown Los Angeles area.

The four detectors are part of the EPA's radiation detection network, which operates 24 hours a day. The system was developed in the 1950s during the Cold War.

State Officials Fear A Run On Iodide Pills (BOS)

Downplay role in disaster plans

By Jenna Russell

Boston Globe, March 20, 2011

PLYMOUTH — Facing heightened nuclear concerns and a spike in demand for potassium iodide pills, state public health officials are downplaying the importance of the salt-like substance and saying residents do not need to keep the pills on hand.

The 18 Massachusetts communities located within 10 miles of a nuclear power plant will continue to provide the tiny white pills to residents who request them, as they have for almost a decade. But in a concerted effort to quell demand and head off a run on the supply, the leader of the state Bureau of Environmental Health stressed that the pills counteract only one of the dozens of radioactive isotopes that could be released in a nuclear accident, and said they play only a minor role in disaster plans.

"This is not the most critical component of emergency planning and response, but a complement to it," said Suzanne Condon, the bureau's director. "The most important advice is to listen to emergency management officials and work with us to evacuate the area."

The push to educate the public about the limited effectiveness of potassium iodide comes almost a decade after Massachusetts became the first state in the country to stockpile more than half a million of the pills, following the Sept. 11, 2001, terrorist attacks.

Late last week, as conditions seemed to worsen at Japan's damaged nuclear plant, local officials in Plymouth said the drama overseas has driven up requests for potassium iodide. Town departments received more than 100 phone calls asking about them last week, and nearly 100 people picked up the slim foil packets of pills at the town's emergency management headquarters, said Aaron Wallace, emergency management director. Plymouth, 40 miles south of Boston, hosts the state's only nuclear power plant, known as Pilgrim.

In interviews, public safety officials in the town of 60,000 urged people not to rush to get the pills, which they cautioned could expire, get lost, or be misused if stored around the house. If potassium iodide were ever needed in an emergency, they said, the state would make it available at distribution centers that would be set up outside evacuated areas.

"We would discourage people from picking pills up, because there is no need," said Plymouth Fire Chief G. Edward Bradley.

Potassium iodide, also known by its chemical abbreviation, KI, is a salt-like compound that works by flooding the thyroid with harmless iodine, keeping out harmful radioactive iodine, which could be released in a nuclear accident. Radioactive iodine can cause cell damage and cancer, especially in children. A single pill, taken within four hours of exposure, offers protection for 24 hours, said Condon.

But there is widespread misunderstanding about potassium iodide's powers, she said.

"It's effective against one isotope, but in the event of a nuclear emergency, it's highly unlikely only one isotope would be released," she said.

In China last week, panicked residents fearful of radiation drifting from Japan stripped store shelves of iodized salt, mistakenly believing that it could protect them. In this country, suppliers of potassium iodide have reported an unprecedented surge in demand, mostly from private individuals on the West Coast, as events in Japan have escalated.

Asked about KI stockpiling by a reporter last week, US Surgeon General Regina Benjamin called it a "precaution." The Department of Health and Human Services later issued a statement that said she was not suggesting people should buy personal supplies.

The federal government first offered potassium iodide to states in 2002, in response to concerns about nuclear plants becoming terrorist targets. Massachusetts became the first state to request pills, and received 550,000. State officials assessed public interest, estimated that only 10 percent of residents would want the pills, and provided each of the 18 towns within a 10-mile "critical" zone of each of three nuclear plants with enough for 20 percent of residents, said Condon. The towns include Plymouth, Carver, Duxbury, and Marshfield on the South Shore, a half-dozen including Amesbury and Salisbury on the border near New Hampshire's Seabrook plant, and others close by Vermont Yankee.

The state kept more than enough pills for all the residents of the 18 towns, about 275,000 people, said Condon.

In Plymouth, which had 12,000 pills a few years ago, the supply is down to 7,000 pills, said Wallace. They were initially distributed through pharmacies, but more recently he has made them available at his office to those who show identification to prove they are residents. All of the town's schools are equipped with pills for students, and parents are asked to sign a permission form authorizing school personnel to administer the pill to their child if needed.

Pills were distributed more widely in 2006, after new state legislation mandated that all 15 towns on Cape Cod, a half-dozen towns on Cape Ann, and the islands of Nantucket and Martha's Vineyard receive enough pills for all their residents, Condon said. The cost of the additional supplies, just under \$300,000, was covered by the owner of the Pilgrim plant, Entergy Corp.

The expanded handout raised concerns, she said, because the towns, located beyond the 10-mile "critical" zone where planning is extensive, lack the emergency communications systems that would advise residents within the zone if and when they should take the pills.

Pills taken incorrectly, in too high a dosage, can cause adverse reactions such as vomiting, she said. Allergic reactions to the pills are possible in a small percentage of the population, and they should not be taken without consulting a doctor, said Plymouth officials.

But Becky Chin, a Duxbury resident who has long pressed for better preparation for disasters, said residents should be encouraged to be self-reliant. The cochairwoman of the Duxbury Nuclear Advisory Committee and a former leader of the town's Board of Health, Chin led campaigns to buy protective masks for the town's 3,000 schoolchildren and stock schools with liquid KI, in addition to pills, to make it easier to give children small doses. Duxbury is about 10 miles from Plymouth.

"Most people don't want to think about it, and many think the government will help them out," said Chin. "The government will do the best it can, but you'd better be prepared to help yourself."

Reeling From Crises, Japan Approaches Familiar Crossroads (NYT)

By Norimitsu Onishi

New York Times, March 20, 2011

Such was the power of the magnitude 9.0 earthquake on March 11 that it bent the tip of Tokyo Tower, the 1,093-foot Eiffel-like structure that has stood as the symbol of Japan's postwar rebirth for half a century. For the first time since it was erected in 1958, the tower no longer points directly upward, the direction that Japan followed for much of its history after World War II.

The earthquake, whose epicenter was more than 200 miles north of here, and the resulting nuclear crisis, will change this nation. The open question is how, and how much. Will it, along with the bent Tokyo Tower, be a final marker of an irreversible decline? Or will it be an opportunity to draw on the resilience of a people repeatedly tested by calamity to reshape Japan — in the mold of either the left or the right? This disaster, like the 1923 Tokyo earthquake and the 1995 Kobe earthquake, could well signal a new era.

Among the concerns raising questions are the shrinking, starting in 2005, of Japan's population, the country's loss to China last year of its vaunted status as the world's second-largest economy and the aggressive pursuit of nuclear power.

Japan's economy is likely to suffer, at least in the short term, as power disruptions hobble its industries. If the reactors do melt down, in the worst case, or even if there is a steady release of radioactive vapor, there are implications for public health; on Saturday, the Japanese government announced that some foodstuffs from farms near the nuclear plant contained elevated levels of radiation. Japan's reputation — and its self-image — as an efficient, prosperous and smoothly functioning society has been dealt a blow.

"It's not an exaggeration to say that we will think of Japan in terms of pre-earthquake and post-earthquake because it has already fundamentally changed Japanese society," said Yasuyuki Shimizu, a 39-year-old who has drawn attention in Japan for

the work of his organization, Life Link, in preventing suicides. "The values of postwar Japan, and the postwar feeling of security, also now lie in ruins. Whether Japan will change in a positive or negative way, we don't know yet."

But others argue that the long-term impact on Japan will be more limited — so long as the troubled reactors at the Fukushima Daiichi Nuclear Power Station, about 170 miles north of here, do not suffer a complete meltdown and affect Tokyo, the nation's heart. Despite the psychological shock to the nation, the earthquake and tsunami devastated a thinly populated region far from Tokyo and the nation's other center of gravity, Osaka in western Japan.

"If the nuclear problem doesn't get bigger, and there's no panic in the Tokyo area, and no curfew that's imposed, I don't think this disaster will be remembered as that significant an incident," said Eiji Oguma, 49, a professor of policy management at Keio University, adding that he thought it would be compared instead with the 1995 Kobe earthquake, which, rather than spurring lasting change, came to be seen as a symbol of the end of Japan's bubble era.

Still others saw the disaster as a moment for change, including Takafumi Horie, 38, an entrepreneur who lost his Internet company, Livedoor, in 2006 on minor charges of securities fraud after brashly challenging the business establishment.

"It's possible that this calamity will rid Japan of its old order," Mr. Horie, now one of Japan's most popular authors and bloggers, wrote in an e-mail, adding, "It's an opportunity to build a new Japan."

But first is the rebuilding. There are many factors working against Japan's ability to carry it out as successfully as it has in the past: the absence of strong national leadership, the country's declining economic strength and the simple lack of young people in the northern region.

When Japan resurrected itself after even bigger disasters, like the 1923 earthquake that destroyed Tokyo or the war that ended with the atomic destruction of Hiroshima and Nagasaki, Japan was a vigorous, young and growing country, said Kazutoshi Hando, 80, a historian of the period between the Meiji Restoration in 1868, when Japan began its drive to modernize, and World War II. Today, the population is expected to keep shrinking.

"Just as we were thinking this was a problem we had to tackle now, this catastrophe occurred," Mr. Hando said of the declining population. "This has slowed us down. That's the biggest problem. We'll simply run out of workers."

Still, Mr. Hando, who survived the American wartime firebombings that destroyed much of Tokyo, said that Japan had defied everyone's expectations by rising quickly from the ashes.

"Based on my experience of the war and its aftermath, I think Japan will be all right," he said.

Mr. Hando talked of tapping the Japanese people's "hidden strength" — an expression that has appeared repeatedly in the Japanese news media in the past week, one that politicians have also seized. Implicit in the praise of Japanese traits of endurance, perseverance and grace — strengths evident in the orderly response to the unfathomable destruction up north — is a criticism of the perceived values that led to the nuclear accidents: the postwar blind pursuit of material wealth and comfort that put 55 nuclear reactors on some of the world's most unstable land, despite Japan's singular history as the target of atomic bombs.

"Japan stood at the top once before, so it's all right if it becomes second class," said Mitsuru Nakamura, 62, who was chatting with a friend in front of an apartment building near Tokyo Tower on Friday morning. He added: "It should become a country where the elderly and children can live safely. The improvement of people's lives should become important."

Being No. 20 in the world was enough, his friend added.

Perhaps unsurprisingly, nationalist politicians — who have long said that postwar Japanese have become selfish and unwilling to sacrifice for the nation's good — are already trying to harness those sentiments in a different direction.

Shintaro Ishihara, the governor of Tokyo, said the quake and tsunami were "divine punishment" that "should be used" to "sweep away" the Japanese people's "selfishness," "materialism" and "worship of money."

Sitting inside her small tobacco shop in the Toranomom neighborhood, Mitsuko Watanabe, 80, also pointed to selfishness and untrustworthy leaders as factors undermining Japanese society.

"When a country's leaders are bad, natural disasters occur," she said and, unprompted, referred to the governor. "I'm not Shintaro, but I think divine punishment isn't wrong."

Ms. Watanabe and her husband have owned the tobacco shop, which faces Tokyo Tower, for close to six decades. She said she had watched construction workers raise the tower, which instantly became a symbol of Japan's rise after World War II. The nation hailed its soaring height, the claim that it was the world's tallest self-supported steel structure and its use to transmit a new technology, television.

Yoshihiro Watanabe, a spokesman for Nippon Television City, said that it was the first time that an earthquake had bent Tokyo Tower. The company has yet to decide when to straighten it.

In Toranomom shop owners facing the tower said they were confident that Japan would pull itself up.

"Rebuilding after World War II was much more difficult," said Hayato Kikukawa, 32, the owner of a small cafe, adding that straightening Tokyo Tower should not be a priority.

But at a nearby udon restaurant, where he was getting ready for the lunchtime crowd, Keiichi Shimoda, 48, said, "If they fix Tokyo Tower, then I'll think, now things are all right."

Most Americans Worry Japanese Disaster Will Hurt Domestic Economy (HILL)

By Peter Schroeder

The Hill, March 19, 2011

A majority of Americans expect the aftermath of the Japanese earthquake will drag down the US economy, according to a new poll.

In a new poll from Rasmussen Reports, 60 percent of Americans said they expect the earthquake and resulting problems will hurt the United States economically. Another 15 percent believe it will have no impact, while 10 percent think it will actually boost America's economy.

In the immediate sense, the earthquake, tsunami, and subsequent struggles to contain damaged Japanese nuclear reactors shook market confidence early in the week. Stock markets around the globe tumbled the first few days – the Dow Jones Industrial Average shed 200 points minutes after the market opened Wednesday morning. The Nasdaq and S&P 500 saw similarly quick falls, shrinking by roughly two percent.

However, the financial markets rebounded slightly to close out the week.

In currency markets, the economic fallout from Japan's crisis led the major industrial nations that constitute the G-7 to announce Thursday their plans to intervene and stabilize the price of the yen. The extraordinary action was in response to rapid strengthening of the yen versus the dollar, which may have threatened Japan's ability to recover from the crisis.

While most Americans are worried what Japan's crisis will mean for the American economy, Rasmussen reports that most do not plan to contribute money to Japanese relief efforts. Of the 1,000 likely voters surveyed, just 28 percent said they have or will contribute money to such efforts – 46 percent said they will not give, and another 26 percent said they have not decided yet.

Stark Differences In TMI, Japan Nuclear Crises (AP)

By H. Josef Hebert, Mark Scoloro, Associated Press

Associated Press, March 19, 2011

MIDDLETOWN, Pa. – Japan's nuclear crisis has transported residents of central Pennsylvania back 32 years, when the partial meltdown of the Three Mile Island nuclear plant raised fears that a massive amount of radiation could be released into the atmosphere or the Susquehanna River.

But there are stark differences between the disasters.

"It's probably not politically correct to say it, but TMI was a piece of cake compared to what they're facing over there in Fukushima, in terms of the problem," said Harold Denton, the federal nuclear engineer who became a calming, knowledgeable voice during the height of the Three Mile Island crisis in March and April of 1979.

As it is with the Fukushima reactors, the central challenge at Three Mile Island was reversing the loss of cooling water in the reactor core that in both cases exposed the highly radioactive fuel rods, increasing the threat of a complete fuel meltdown and a catastrophic release of radiation.

But the Fukushima and Three Mile Island parallel has its limits, nuclear experts say. The Japanese engineers are facing a dramatically more complex crisis with multiple problems and challenges never faced in Pennsylvania three decades ago.

At TMI, efforts were concentrated on dealing with a single reactor. Its problems began at 4 a.m. on March 28 when a pressure relief valve failed and stayed open for two hours. Because operators thought it had closed, they shut off an emergency flow of water that had been triggered automatically, worsening the situation and exposing the fuel rods.

A presidential commission later said the TMI accident was "the result of a series of human, institutional and mechanical failures" that had implications throughout the US nuclear industry.

By contrast, the Japan crisis resulted from a massive earthquake and tsunami that knocked out critical electric power and caused physical damage within the plant, including to the reactors' normal emergency cooling system and at least one of the water-filled pool containing used fuel rods.

"That never happened at TMI," said Denton. In Japan operators lost the normal ability to put water back into the damaged reactors.

By contrast, in Pennsylvania in March of 1979, all infrastructure, from roads to electric power supplies as well as the reactor's water supply, remained intact. The critical steel and cement containment of the reactor stood solid. A water pool holding used fuel rods was secure.

In Japan, for the first time ever, nuclear engineers are trying to head off a total reactor meltdown in three reactors simultaneously, and deal with overheating fuel rods in a damaged storage pool at a fourth reactor.

While not as sweeping in devastation, the Three Mile Island accident still is the worst US nuclear accident, ranked in severity as five on the scale of seven by the International Atomic Energy Agency. Only the Chernobyl accident with its massive radiation release in Ukraine is higher at seven. As of Saturday, Japan's nuclear safety agency ranked the three Fukushima reactors in danger of a meltdown as a five in severity, the same as TMI, although that could go higher. A fourth reactor, which has had problems with the fuel cooling pond, was ranked a four in severity.

Whatever the ranking, the people near the TMI site along the Susquehanna River in central Pennsylvania are watching the news from Japan with some familiarity.

In 1979, they went through the same panic. They were victims of the same misinformation and lack of information. They, too, felt the same terror now felt by the people living near the six-reactor Fukushima complex.

"We tried to separate fact from fiction, dealt with experts who persisted in telling us either more than they knew or less than they knew. ... We struggled to present accurate information," former Pennsylvania Gov. Dick Thornburgh said recently, recalling the TMI accident which came when he was but 72 days in office in the state capital, Harrisburg, only a few miles away.

Thornburgh recalled the terror and confusion in the first five days after the accident.

At one point he strongly urged the evacuation of women and children from near the TMI reactor, only to rescind the recommendation five days later when it was found that he had been given wrong information about a burst of radiation from the plant. At times, he recalled, he couldn't get the most basic information from either the utility that owned the plant or from government officials.

Robert Houser, 62, too can sympathize with the people in Japan. He and his wife and two kids stayed in their homes near TMI when Thornburgh's evacuation order came.

"Go where? How long? Am I ever going to be able to come back?" he recalled thinking. A volunteer firefighter at the time, Houser distributed fliers advising people they may have to evacuate.

"Some people cursed you out for disturbing them; some people were just as scared as you," he said. By some estimates, as many as 140,000 people left the area.

As at TMI, information has been lacking or conflicting in Japan. There has been no clear word as to the amount of radiation being released and there is confusion over how wide of an evacuation there should be — 12 miles as the Japanese government says, or 50 miles as the US government wants for Americans.

Every indication is that Japan's crisis will persist; if TMI is any indication, questions will remain for years to come.

It was not until 1985 that US authorities confirmed for certain that a partial meltdown had occurred at Three Mile Island. That assessment came only after the heat had dropped to where they could put cameras into the radiation-filled core. The reactor core has since been removed, though a second undamaged reactor is running.

But lessons were learned from TMI, as they will be from the current crisis in Japan.

Robert Reid, who in 1979 was mayor of Middletown just three miles from TMI and still holds the office, says back then little attention was paid to having an evacuation plan at the ready. "There's not a week that goes by ... that I don't sit down and talk about our evacuation plan and our disaster plan," he recently told the AP.

While to this day several thousand people claim they had suffered ill health effects from radiation caused by the TMI accident, their lawsuit seeking damages was rejected by a federal court in 1996 with the judge concluding they had not proved their case.

Various assessments by the government and nuclear industry have concluded no radiation-related deaths or illnesses resulted from the TMI accident.

Some Critics Of Japanese Storage System See A Worse-than-Chernobyl Scenario Ahead (PHILLY)

By Faye Flam

Philadelphia Inquirer, March 20, 2011

With attention focused on tons of radioactive spent fuel that may have ignited, some experts say the Japanese will be lucky if the stricken Fukushima plant creates a disaster only the size of Chernobyl in 1986.

These spent fuel rods are now being blamed for the radioactive releases over Japan. While the reactor cores are encased in bulky containment vessels, spent fuel is separated from the environment only by the water in the pools, said former nuclear engineer David Lochbaum of the Union of Concerned Scientists in Cambridge, Mass.

That those spent fuel rods were even kept at the Japanese plant is controversial. Some used rods remain hot enough to ignite their metal coatings and release dangerous plumes of radioactive gases and dust.

Critics such as Lochbaum argue this storage system, which is widely used in the United States, poses an unnecessary hazard. Indeed, most of the 62,500 metric tons of spent fuel in the United States is stored in similar pools on site at power plants, including Limerick in Montgomery County, Peach Bottom in York County, Oyster Creek plant in Ocean County, and the Salem and Hope Creek plants in Salem County.

Some experts argue the system is not inherently flawed.

Local nuclear plants are designed to withstand earthquakes, terrorist attacks, and other potential disasters, said Krishna "Kris" Singh, an engineer and chief executive officer of Marlton-based Holtec who designed the nuclear-waste storage systems used in most local plants.

Singh said people in the East should not panic, considering how astronomically unlikely it is that a tsunami or magnitude-9 earthquake would ever hit the Mid-Atlantic region.

His firm has been asked to reevaluate storage pools at the Diablo Canyon plant in California, where such a large quake remains possible. He said that plant's overall design was more earthquake-proof than was Fukushima.

Putting rods in swimming-pool-size concrete tanks was intended only to serve as temporary storage, Lochbaum said. Before the mid-1970s, much of the country's nuclear waste was sent for reprocessing, a type of recycling that has fallen out of favor because it produces weapons-grade plutonium.

Lochbaum said his opposition to the overuse of on-site "wet" storage led him to leave the industry and join the Union of Concerned Scientists, a group focused on nuclear safety and other environmental concerns.

Many pools at US plants routinely store as much as 10 times as much waste as pools at Fukushima.

Singh and other experts said it was too early to tell why the water levels in the spent pools at Fukushima appear to have dropped enough to expose some of the fuel. The thick concrete that contains the water might have been damaged in the earthquake or water may have sloshed out.

The pools are put on the top floor of the reactor buildings - a placement that is considered an engineering choice, according to a spokesman for the Nuclear Energy Institute.

Several of the spent pools at Fukushima were reportedly losing water, but the one at Reactor 4 is causing the most concern because it carries the most fuel and the hottest spent fuel - 135 tons of rods, many of them removed just in December.

Although the fuel in these pools is considered spent, it's still so radioactive that without cooling, it will spontaneously heat up to between 1,500 and 1,800 degrees, enough to ignite the metal cladding that surrounds the fuel pellets. That burning releases explosive quantities of hydrogen gas, which can further damage the fuel and the storage pool.

As the rods heat up, Lochbaum said, gases laced with radioactive substances expand inside the rods. If the metal is breached, these gases are lofted into the atmosphere. If the temperature gets hot enough, fuel pellets will begin to crumble and release dust-size particles containing various radioactive by-products.

According to a briefing by the Physicians for Social Responsibility, those releases can contain strontium-90, which tends to concentrate in bones and cause bone cancer. Some of the fuel at Fukushima contains plutonium, which can cause lung cancer.

Also of grave concern is cesium-137, which has a long half-life and can persist in the environment for more than a century. Cesium-137 released in the Chernobyl disaster rendered huge swaths of the Ukraine uninhabitable.

The United States has never come to any agreement on how to deal with nuclear waste, which can remain radioactive for millions of years.

Singh said he still believed storage in pools can be done safely, especially as technology advances. "Clearly the earthquake was of much greater severity than the plant was designed for," he said.

Singh said his company was creating a new system that would shield the spent fuel. "We're designing it so you'll be able to walk into the building even if you had a horrible scenario like this one," he said.

He has designed aluminum racks that allow US nuclear plants to store many more spent fuel rods in the same pools. Singh's company also supplies a system of dry storage, in which waste is sealed in casks. Lochbaum and others at the Union of Concerned Scientists consider this a much safer alternative in the face of earthquakes, terrorist attacks, or other threats still unknown.

Singh's nuclear-power innovations have led to more than 17 patents. His company's storage systems are used at 80 of the country's 104 nuclear plants. A technological optimist, Singh has recently donated \$20 million to his alma mater, the University of Pennsylvania, for a new building devoted to nanotechnology.

Until the 1970s, spent fuel rods were partially recycled, the various components were separated out, leaving behind weapons-grade plutonium and uranium. But once the United States had enough plutonium to destroy the world 100 times over, the government prohibited reprocessing.

The Nuclear Energy Institute, an industry group, favors a combination of reprocessing, dry storage, and transfer to an ultimate resting place at Yucca Mountain in Nevada. For years, public opposition prevented any waste from being stored there, and in 2009 the Obama administration ruled against using the site. But the utilities and industry group continue to push for it.

Whatever happens to the nuclear-energy industry in the wake of the Fukushima disaster, the 60,000-some metric tons of nuclear waste will remain with us.

Three Mile Island's Residents Remain On Alert Three Decades After Nuclear Crisis (WP)

By Carol Morello, Steven Mufson

Washington Post, March 20, 2011

MIDDLETOWN, PA. – Almost 32 years after America's worst nuclear crisis at Three Mile Island, people who live in the shadow of the reactor's cooling towers can instantly distinguish among sirens designating three different levels of alert.

Many residents stock potassium iodide pills, and the borough of Middletown maintains a "disaster room" lined with evacuation route maps that are updated to reflect every road repair. The local phone book publishes the routes. It also offers a primer on nuclear fission and a map with a 10-mile radius drawn around Three Mile Island, which still generates electricity for 800,000 households along with a certain amount of anxiety.

The crisis here on March 28, 1979, led to "changes throughout the world's nuclear power industry," as a state historical plaque on Route 441 notes. It also altered the mindset of this small town in central Pennsylvania, creating a permanent state of vigilance that has been heightened this past week by Japan's nuclear catastrophe.

"What's happening in Japan has brought back a lot of memories," said Robert G. Reid, who is still Middletown's mayor, just as he was in 1979 when he dispatched his family to Connecticut but stayed behind to guide the town's response. "But we're much better prepared now than we were in 1979."

Over the decades, Three Mile Island has become a touchstone for attitudes toward nuclear power: a symbol of fear for anti-nuclear activists and of the success of emergency safeguards for nuclear supporters.

Comparisons between what happened at Three Mile Island and what is unfolding at the earthquake-damaged Fukushima Daiichi nuclear plant are inevitable. On Friday, Japan's nuclear agency raised the severity of the crisis on the International Nuclear Events Scale from Level 4 to Level 5, the same number the United States used to classify the far less serious accident at Three Mile Island.

A different disaster

The crisis at Three Mile Island started with the venting of steam at 4 a.m., became a partial meltdown, and didn't fully end until the last of the filtered water from the flooded containment building finally evaporated in 1993.

But there was never any loss of electrical power, no earthquake or tsunami, only a mechanical problem compounded by human error. The only explosion took place inside the containment vessel, and it withstood the blast. Water pumped in to cool the reactor stayed inside the containment structure.

While pregnant women and small children were ordered to evacuate, the decision to leave was voluntary for everyone else.

"We proved at Three Mile Island that all that [radioactive] stuff stays inside the containment structure," said Howard Shaffer, an engineer at the American Nuclear Society. "That's why I call it the garbage can over the tea kettle. Its whole mission in life is for this event. We ran a test for that, inadvertently, at Three Mile Island."

But veterans of the Nuclear Regulatory Commission remember Three Mile Island as a time of disarray.

Victor Gilinsky, an NRC commissioner then, learned of the incident when he arrived at work March 28, 1979, a Wednesday. Staffers told him that a small pinhole in the zirconium alloy jacket around the uranium pellets used as fuel had caused overheating in the reactor, but that there was no danger.

"It was not until Friday that we realized the fuel damage might be substantial," said Gilinsky in an article on the 30th anniversary of the accident. "It was five weeks later that we learned that the reactor operators had measured fuel temperatures near the melting point on that early Wednesday morning. We didn't learn for years – until the reactor vessel was physically opened – that by the time the plant operator called the NRC at about 8 a.m., roughly one-half of the uranium fuel had already melted."

The unexpected extent of the damage offers a window into Japan's shattered Fukushima Daiichi complex, where Gilinsky predicts the damage inside the reactors will be much worse than expected, too. Because of the types of gases that have been emitted by the Japanese reactors, it appears likely that three of them have had substantial meltdowns of their fuel rods.

A billion-dollar cleanup

The Three Mile Island experience also suggests that the cleanup in Japan will be a mammoth undertaking.

Luke Barrett, a nuclear consultant, was involved in the crisis response and cleanup effort, which cost \$1 billion. "For the first year, no human went into the containment building," Barrett said, because of the high radiation levels.

The NRC gave money to Carnegie Mellon University in Pittsburgh to develop robots that could work inside the reactor. Later, the technology was put to work in auto plants and in the cleanup of nuclear waste at Hanford, Wash., a former plutonium production site.

Japan contributed \$18 million to the effort, and sent 20 nuclear engineers who spent the better part of a decade living around Middletown. Before they all went home in 1989, they donated about a dozen cherry trees as a symbol of friendship. Those trees are expected to bloom right around the March 28th anniversary of the accident.

Today, Middletown has 10,000 residents, about the same as in 1979. Some who evacuated during the crisis never returned, said the mayor. But development around Middletown, which is nine miles from the state capital of Harrisburg, has brought many more people to live in the surrounding area.

In 1979, the plant was owned by General Public Utilities (now part of Ohio-based FirstEnergy). It's now run by Exelon, the nation's largest nuclear plant operator with 17 facilities in three states.

"The new owners have done a good job of PR," said Reid. "They notify me if anything happens at the plant. If a fish jumps out of the water, they call me."

Trust and caution

The plant routinely tests its emergency plans, said Ralph DeSantis, a spokesman for Three Mile Island. On April 12, the company will conduct a full-scale exercise testing its sirens and the activation of emergency centers, he said.

A local citizens group maintains a network of 30 radiation monitors, and keeps in touch with plant workers, said its coordinator, Eric Epstein. It also stocks 30,000 doses of potassium iodide.

"I'd rather it not be here," he said, gesturing toward the plant. "It's a haunting reminder of what happened here. But it's a reality. We provide an extra level of protection."

Trust levels remain high in a middle-class subdivision that lies just across the river and a two-lane highway from the four cooling towers, two of which are working and emitting steam that wafts overhead like a cumulus cloud, visible for miles.

"I'm not afraid of the island," said Maggie Williams, a nail salon owner who met her husband, a radiology technician, when he came to Middletown to work at Three Mile Island after the accident.

The couple live so close to the plant that when her husband worked there, Williams could hear him paged on the intercom. "I figured we wouldn't be living here if he didn't think it was safe," she added as she walked her three small dogs down Meadow Lane.

Deb Fulmer, who can look up while gardening and see the cooling towers about 1,000 feet away, said plans in place now give her more confidence than she had in 1979, when she evacuated with a four-week-old baby in her arms.

"The fear comes from not having a plan when something happens, for what to do, where to go, what the sirens mean," she said. "Now we know."

Yet Fulmer, a nurse who helps in disaster zones and expects to go to Japan eventually, is unsure where she placed her potassium iodide pills. And she had to search to locate the evacuation routes in the phone book, because she hasn't looked for years.

The lessons of Three Mile Island, she said, are: "Have a plan. And you've got to trust [that] your government is going to get you outta here."

Anti-nuclear sentiment

Others, however, are more wary.

Mary Osborn, who lives almost seven miles away, has become an activist against nuclear power, joining the dwindling number of demonstrators who show up every anniversary at 4 a.m. outside the plant's gates.

She keeps scrapbooks with photos of mutated flowers, vegetables and deformed animals that she attributes to the 1979 radiation release. She said she tasted metal in the air the morning of the accident, and has long suspected that a growth on her neck that she had removed was due to that.

The television in her living room has been turned to CNN nonstop since the Japan nuclear crisis began.

"This week, it's like TMI never stopped," she said, wearing a "They Lie" T-shirt adorned with "No Nukes" buttons and the badge her ex-husband wore when he helped build the plant. "It's been a nightmare."

NRC historian J. Samuel Walker said epidemiological studies of some 32,000 people who lived within a five-mile radius of the reactors have shown no increased incidence in cancer that could be attributed to radiation releases from the accident.

But some residents are skeptical. "We have friends who got colon cancer and have no history of it in the family," Bonnie Blocher said as she prepared to get her nails done at Williams's home salon. "How do we know the studies were accurate?"

Walker's view is that during the 1970s, "proponents of nuclear power had underestimated the risks of a severe accident and that nuclear critics had overstated the likely consequences."

Improvements in reactor design and performance – as well as concerns about climate change – have boosted support for nuclear power. But Walker warned against complacency.

"Before the accident, nuclear experts were confident that they had solved the most important reactor safety issues," he has written. "This confidence and the complacency it fostered were shattered on the morning of March 28, 1979."

Washington Vs. The Merciless (NYT)

By Thomas L. Friedman

New York Times, March 20, 2011

It is hard to read the news from Japan to the Persian Gulf and then reflect on American politics and not conclude, as scientists would say, that we're running an uncontrolled experiment on the only country and planet we have. And what is that experiment? We're basically taunting — there is no other word for it — the two most merciless forces on earth: the market and Mother Nature.

At a time when Japan is suffering a nuclear catastrophe that is likely to make the world even more dependent on oil and gas, at a time when the world's top oil and gas producers are entering what will be, at best, an unstable, and, at worst, a viciously violent transition from autocracy to, one hopes, democracy, and at a time when the combination of the two could slow down global growth while we're still trying to climb out of recession, America has no energy policy, no climate policy and no long-term plan to deal with its unsustainable deficit.

We're basically saying to the market and Mother Nature: "Bring it on. We're going to be dumb as we wanna be and put off all these big decisions, possibly until 2013, after the next presidential election, because our two political parties would rather focus on winning the next election and blaming the other guy than making hard choices."

Maybe the market and Mother Nature will accommodate us and wait until 2013. If so, we will get to deal with these problems in our time, in our way, with minimum collateral damage. It will be like having a rotten tooth removed by a dentist using lots of Novocain. It will hurt a little, but we'll easily recover.

If, on the other hand, the market suddenly loses confidence in our ability to maintain the value of our currency, or Mother Nature hits some internal climate tipping point, or Saudi Arabia is destabilized — any one of which could happen without warning — we will not have the luxury of a painless extraction from this situation. When the market and Mother Nature force adjustments, they never provide painkillers and, well, they're not very precise. When they act, it's like having a rotten tooth removed by a caveman using stone tools. He'll smash a lot of other teeth at the same time, and there will be blood all over the floor. That's what we're courting right now.

President Obama has the right convictions on all these issues, but he has not shown the courage of his convictions. The Republicans have just gone nuts.

If you listen to Obama, he eloquently describes our energy, climate and fiscal predicaments: how we have to end our addiction to oil and cut spending and raise revenues in an intelligent way that also invests in the future and doesn't just slash and burn. But then the president won't lead. When pressed on energy, he will say that he just doesn't have the Republican votes for a serious clean energy policy. But the president has never gotten in the G.O.P.'s face on this issue. He has not put his own energy plan on the table and then gone out to the country and tried to sell it.

It is what a lot of Obama supporters find frustrating about him: They voted for Obama to change the polls not read the polls.

On fiscal policy, the president has put forth a decent opening budget bid and has opted for the same inside game of letting Congress take the lead in forging a compromise with the G.O.P. that would bring spending under control and raise revenues. That inside game worked for the president in producing health care reform and the stimulus, but in those cases he had a Democratic majority to push through decent legislation. I fear this time he will not have the votes for the kind of serious, sensible, Simpson-Bowles-like budget cuts and tax increases we need — without his leading and enlisting the public in a much more aggressive way.

Republicans, by contrast, are insisting that we can somehow drill our way out of our energy problems, and House Republicans just reported out of committee a bill that would block the E.P.A. from taking any action to reduce greenhouse gases, while also slashing government funds to keep air and water clean. So far, the G.O.P. is calling for cuts in the things we need to invest more in — like education and infrastructure — while leaving largely untouched things we need to reduce, like entitlements

and defense spending. A country that invests more in its elderly than its youth, more in nursing homes than schools, will neither invent the future nor own it.

The world is caught in a dangerous feedback loop — higher oil prices and climate disruptions lead to higher food prices, higher food prices lead to more instability, more instability leads to higher oil prices. That loop is shaking the foundations of politics everywhere. That's why the world needs a strong America more than ever, and that's why it is vital that we fix our structural problems — now.

If we leave it for the market and Mother Nature to make the adjustments for us, we will be sorry — and so will the world. We are the keystone holding up the global system. If we go weak, our kids won't just grow up in a different America; they will grow up in a different world.

A Country's Lasting Aftershocks (NYT)

New York Times, March 20, 2011

The physicist Torahiko Terada wrote in 1934, "The more civilization progresses, the greater the violence of nature's wrath." Nearly 67 years later, his words appear prescient.

Humans have become increasingly arrogant, believing they have conquered nature. We build ever larger, ever more concentrated, ever more uniform structures. Scientists and engineers think that they are responding to the demands of society, but they have forgotten their larger responsibilities to society, emphasizing only the positive aspects of their endeavors.

The catastrophe facing the Fukushima Daiichi nuclear power plant epitomizes this phenomenon. Although earthquakes are so frequent in Japan that it has been described as "a nation lying atop a block of tofu," we have built some 54 nuclear reactors along the coast, vulnerable to tsunamis. It should have been foreseen that an earthquake of this magnitude might occur, and if the plant could not withstand such an event, it should not have been constructed.

In addition, the failure of power systems fueling the plant's emergency core cooling system suggests that the models used to design the system were too lax. The decision to pump seawater into the nuclear reactor was late in coming. Each of these problems was foreseeable.

Even now, as workers at the plant continue to do their utmost, I am haunted by a nightmare in which a succession of nuclear meltdowns produces radioactive pollution greater than what was released at Chernobyl.

Until a few years ago, power usage in Japan was such that during the summer Obon holidays, when people typically return to their ancestral homes, it would have been possible to meet demand even if all nuclear power plants were turned off. Now, nuclear energy has come to be indispensable for both industry and for our daily lives. Our excessive consumption of energy has somehow become part of our very character; it is something we no longer think twice about.

Japan reached global prominence through science and technology, but we cannot deny that this has also resulted in an arrogance that has diminished our ability to imagine disaster. We have fallen into the trap of being stupefied by civilization.

— SATORU IKEUCHI, astrophysicist at the Graduate University for Advanced Studies. This article was translated by Matthew Fraleigh from the Japanese.

Post-Postwar

Tokyo

Hours after the earthquake, the columnist Masahiko Katsuya scrapped the article he had been writing and started over. "Surely, this is a national emergency," his new column began. "Just when the Japanese nation had hit bottom politically, economically and morally, we suffered a blow so crushing it seemed it might well be the end of us. But we mustn't let that happen. ... My fellows, let us fight! Fight until our vigor is restored!"

This is the rhetoric of war. And it's not a metaphor. This disaster is the war that many Japanese have been dreading, and expecting, for a long time.

Four years ago, an article titled "War Is Our Only Hope" appeared in a political magazine. "More than a decade has passed," the young writer wrote, "since we were set adrift in society as low-wage workers. And yet society, far from extending a helping hand, heaps insults on us, saying we lower the G.D.P., calling us lazy bums. If the peace endures, the current inequality will last until we die. We need something to break this asphyxiating stagnation and set things in motion. War is one possible solution."

These words jolted Japanese society. It was a rejection of all the country has believed in for over 60 years.

Japan was fundamentally altered by its defeat in World War II. It chose to abjure war and to recreate itself as a wealthy country. But how long, one wonders, did our faith in peace, democracy and economic growth really last? Not long, it seems. Over the past two decades growth has faltered, economic disparity has greatly increased and faith in the political order has eroded.

Though they didn't say it, people could tell that sooner or later some disaster had to happen. That young writer only gave it a name.

Days after the earthquake, supermarket shelves were empty, long lines of cars had formed outside gas stations, parents were taking their children out of Tokyo. The television showed endless images of demolished towns; the numbers of the dead and missing climbed mercilessly upward into five digits; and refugees in dark gymnasiums lay trembling in the freezing cold, waiting for help. These are scenes from a war.

For the first time in his reign, Emperor Akihito made a televised address to the Japanese people. This, too, reminded us of his father's radio address at the end of World War II, 66 years ago.

And now we are transfixed by the images of reactors at the Fukushima Daiichi nuclear plant; they're emitting flames, exploding. When the first small, brown mushroom cloud rose, memories we had sealed off deep inside suddenly surfaced.

For 66 years, we lived the "postwar" life. Periodically someone would point out that the postwar period must surely be over by now — and yet it wasn't. We had no other word to describe the present.

We lost many things in those years, chief among them the bond between people. Companies, families and neighbors ceased to work together, and the word *kozoku* was coined to describe our country: *ko* meaning "isolated" or "orphaned," *zoku* meaning "family" or "tribe." We were lonely, adrift.

Eiji Oguma, one of the most prominent social historians here, once asked, "How long do we have to go on using this word 'postwar'?" He answered himself: "Forever. Because we established a new country after the defeat. When we say 'however many years after the defeat,' it really means 'however many years after the founding of the nation.'"

"Then again," Mr. Oguma added, "maybe we'll only use it until the next war."

Now, amid the chaos of the battle we are waging, we feel a familiar sense of exhilaration in the air, an intense feeling of solidarity. We can only wonder what the new Japan will look like.

— GENICHIRO TAKAHASHI, author of "Sayonara, Gangsters." This article was translated by Michael Emmerich from the Japanese.

Beyond Expectations

Tokyo

Many people are wondering why anyone would build nuclear power plants in a country so prone to natural disasters — and that's a very reasonable question. But the reality is that, having accepted nuclear power as a necessary evil, we have no choice but to go on living with it.

What is hard to accept, however, is that the electrical power companies and government agencies tried to account for the disaster by explaining that the circumstances that led up to it were far outside the bounds of anything that could have been predicted — in their words, "beyond all expectations." We have heard this phrase repeatedly on television reports.

There is something strange about this line of thinking. It even begins to appear that Japan's vaunted scientific and technical prowess has taken on the character of a kind of myth, and that myth has deluded the nation's politicians and business leaders. But it has been obvious all along that science and technology can deal only with things that fall within the range of what can be expected. And also that it is all too likely that some things that happen in our lives will indeed be "beyond all expectations" — and that it is precisely for this reason that we are able to live those lives. What, after all, would be the meaning of a life in which everything that happened was "within expectations"?

Every one of the images of the victims that we have seen on television has been gripping, but the one that has made the deepest impression on my heart is that of a little girl tearfully calling out for her missing mother. I believe in the purity of this girl's heart more than I believe in the pledges of any politician, no matter how sincere. A cry of despair, to be sure, but also a sign of her unshakable will to face reality in its very harshest form.

And yet, in the end, what else is there for each of us to do but to keep on doing what we have been doing, as long and as hard as we can? From within the daily lives of each one of us, a small light of hope will begin to glow. This is what I want to believe. Would it be too much to say that a person's ability to harbor such an unlikely belief in the power of hope is also something "beyond all expectation"?

— MITSUYOSHI NUMANO, professor of literature at the University of Tokyo. This article was translated by Joel R. Cohn from the Japanese.

Bitter Legacy, Injured Coast (NYT)

By Ian Jared Miller

New York Times, March 20, 2011

THE rugged Sanriku Coast of northeastern Japan is among the most beautiful places in the country. The white stone islands outside the port town of Miyako are magnificent. The Buddhist monk Reikyo could think of nothing but paradise when he first saw them in the 17th century. "It is the shore of the pure land," he is said to have uttered in wonder, citing the common name for nirvana.

Reikyo's name for the place stuck. Jodogahama, or Pure Land Beach, is the main gateway to the Rikuchu Kaigan National Park, a crenellated seashore of spectacular rock pillars, sheer cliffs, deep inlets and narrow river valleys that covers 100 miles of rural coastline. It is a region much like Down East Maine, full of small, tight-knit communities of hardworking people who earn their livelihoods from tourism and fishing. Sushi chefs around the country prize Sanriku abalone, cuttlefish and sea urchin.

Today that coast is at the center of one of the worst disasters in Japanese history. Despite the investment of billions of yen in disaster mitigation technology and the institution of robust building codes, entire villages have been swept out to sea. In some places little remains but piles of anonymous debris and concrete foundations.

I taught school in Miyako for more than two years in the 1990s, and it was while hiking in the mountains above one of those picturesque fishing villages that I came across my first material reminder of the intricate relationship between the area's breathtaking geography, its people — generous and direct — and powerful seismic forces.

On a hot summer day a group of middle-school boys set out to introduce me to their town, a hamlet just north of Pure Land Beach. While I started up the steep mountainside the children bounced ahead of me, teasing me that I moved slowly for someone so tall. "Are you as tall as Michael Jordan, Miller-sensei?" yelled one boy as he shot past me up the trail.

"Not quite," I told him, pausing on a spot of level ground to look out over the neat collection of tile roofs and gardens that filled the back of a narrow, high-walled bay.

"What is this?" I asked, pointing to a mossy stone marker that occupied the rest of the brief plateau. A chorus of young voices told me that it was the high-water mark for the area's biggest tsunami: more than 50 feet above the valley floor.

"When was that?" I asked, but the boys couldn't say. They had learned about it in school, they said, but like children everywhere they had little sense of time. Everything seemed like ancient history to them, but the thought of a wave reaching so high over the homes of my friends sent a chill down my spine, and I began to investigate the region's history.

A major tsunami has hit the Sanriku Coast every few decades over the last century and a half. Waves swept the area in 1896, 1933 and 1960. The small monument was put there, high above the village, to mark the crest of the 1896 tsunami. The wave killed more than 20,000 people. The boys' village, a place called Taro, was almost entirely destroyed. Seventy-five percent of the population died.

The force of those waves was amplified by the area's distinctive geography. The same steep valley walls and deep inlets that make Sanriku so beautiful also make its villages and towns especially hazardous. The valleys channel a tsunami's energy, pushing swells that are only a few feet high in the open ocean up to stunning heights. Fast-moving water topped 120 feet in one village in 1896.

In a landscape where earthquakes are a regular occurrence but major tsunamis happen irregularly, people naturally forget. The small monument — one of several commissioned for towns up and down the coast — was a mnemonic whose purpose was not commemoration but vigilance. "When there is an earthquake, watch for tsunami," reads the rather practical poem engraved into one such slab.

Japan became a modern industrial state between the 1896 tsunami and the next major one, in 1933. The country's radio and newspapers brought the story of rural fisher-folk swept out to sea to metropolitan audiences. Three thousand people died in the disaster and the humanitarian crisis elicited strong feelings of sympathy. The Sanriku region was portrayed as the nation's heartland, a place where tradition remained intact, and the disaster threatened that preserve. Once again, Taro was particularly hard hit: all but eight of its homes were destroyed and nearly half of the village's population of 1,800 souls went missing. The hamlet became an embodiment of agrarian loss.

It is paradoxical that the response to this threat to traditional ways was the application of cutting-edge engineering and technology. A huge concrete seawall was planned for Taro. Completed in 1958, that wall, 30 feet high at points, stretches over 1.5 miles across the base of the bay.

Faith in technology over nature appeared to be vindicated in 1960 with the great Chilean earthquake, a 9.5-magnitude quake that remains the largest ever recorded, which set off a Pacific-wide tsunami that killed 61 people in Hilo, Hawaii, before surging unannounced into the Sanriku Coast seven hours later. More than 120 Japanese died, but Taro remained largely unaffected, safe behind its sluice gates and concrete wall. Based in part on this success, a new program of coastal defense was initiated.

The Sanriku Coast is now one of the most engineered rural coastlines in the world. Its towns, villages and ports take shelter behind state-of-the-art seawalls and vast assemblages of concrete tetrapods designed to dissipate a wave's energy. The region

is home to one of the world's best emergency broadcast systems and has been at the forefront of so-called "vertical evacuation" plans, building tall, quake-resistant structures in low-lying areas.

In 2003 Taro announced that it would become a "tsunami preparedness town." Working with teams from the University of Tokyo and Iwate University, the town instituted a direct satellite link to accelerate the arrival of tsunami warnings. Public education was expanded and mayors from other towns visited to study this model village. Detailed maps showing projected maximum tsunami heights — using 1896 as a baseline — informed the selection of evacuation markers: a reassuring thick line defined the projected maximum reach of a tsunami. Evacuation sites were placed above that line on the maps. Similar calculations were made up and down the coast.

The lines were drawn in the wrong place. Despite the substantial infrastructure and technological investments in Sanriku, the wave on March 11 overwhelmed large portions of Taro and Miyako. Some of the evacuation points were not high enough. The walls were not tall enough. And the costs are still being tallied.

Thousands of people are missing along this beautiful, injured coast, hundreds in the town that I called home. I am still waiting to hear from one of the groomsmen from my wedding, the owner of Miyako's best coffee shop and a sometime reader of this newspaper. Google's people-finder app tells me he is alive, but I have no idea where he is or how our other friends fared. As for those rambunctious boys and all of my other students, I can only hope for the best.

Technology allowed me to learn my friend's fate. It has also helped to inspire a worldwide humanitarian response. It may be, however, that a greater application of technology in the same direction is not the answer to the problems posed by the March 11 tsunami. As a historian, I am forced to recognize that there is nothing purely natural about this catastrophe. It is the result of a far longer negotiation between human culture and physical forces. Disasters have the counterintuitive tendency to reinforce the status quo. As the terrifying events at the Fukushima Daiichi nuclear plant continue to underline, there are very real costs to an uncritical application of technology.

I look forward to returning to my old Japanese home, but I also look forward to finding something new and different when I make that journey.

Ian Jared Miller is an assistant professor of history at Harvard.

The Japanese Could Teach Us A Thing Or Two (NYT)

By Nicholas D. Kristof

New York Times, March 20, 2011

When America is under stress, as is happening right now with debates about where to pare the budget, we sometimes trample the least powerful and most vulnerable among us.

So maybe we can learn something from Japan, where the earthquake, tsunami and radiation leaks haven't caused society to come apart at the seams but to be knit together more tightly than ever. The selflessness, stoicism and discipline in Japan these days are epitomized by those workers at the Fukushima Daiichi nuclear plant, uncomplainingly and anonymously risking dangerous doses of radiation as they struggle to prevent a complete meltdown that would endanger their fellow citizens.

The most famous statue in Japan is arguably one of a dog, Hachiko, who exemplified loyalty, perseverance and duty. Hachiko met his owner at the train station when he returned from work each day, but the owner died at work one day in 1925 and never returned. Until he died about 10 years later, Hachiko faithfully went to the station each afternoon just in case his master returned.

I hope that some day Japan will erect another symbol of loyalty and dedication to duty: a statue of those nuclear plant workers.

I lived in Japan for five years as the Tokyo bureau chief for The New York Times, and I was sometimes perceived as hostile to the country because I was often critical of the Japanese government's incompetence and duplicity. But the truth is that I came to cherish Japan's civility and selflessness. There's a kind of national honor code, exemplified by the way even cheap restaurants will lend you an umbrella if you're caught in a downpour; you're simply expected to return it in a day or two. If you lose your wallet in the subway, you expect to get it back.

The earthquake has put that dichotomy on display. The Japanese government has been hapless. And the Japanese people have been magnificent, enduring impossible hardships with dignity and grace.

As I recalled recently on my blog, I covered the 1995 Kobe earthquake that killed more than 6,000 people, and I looked everywhere for an example of people looting merchandise from one of the many shops with shattered windows. I did find a homeowner who was missing two bicycles, but as I did more reporting, it seemed as if they might have been taken for rescue efforts.

Finally, I came across a minimart owner who had seen three young men grab food from his shop and run away. I asked the shop owner if he was surprised that his fellow Japanese would stoop so low.

"No, you misunderstand," the shop owner told me. "These looters weren't Japanese. They were foreigners."

Granted, Japan's ethic of uncomplaining perseverance — *gaman*, in Japanese — may also explain why the country settles for third-rate leaders. Moreover, Japan's tight-knit social fabric can lead to discrimination against those who don't fit in. Bullying is a problem from elementary school to the corporate suite. Ethnic Koreans and an underclass known as *burakumin* are stigmatized. Indeed, after the terrible 1923 earthquake, Japanese rampaged against ethnic Koreans (who were accused of setting fires or even somehow causing the quake) and slaughtered an estimated 6,000 of them.

So Japan's communitarianism has its downside, but we Americans could usefully move a step or two in that direction. Gaps between rich and poor are more modest in Japan, and Japan's corporate tycoons would be embarrassed by the flamboyant pay packages that are common in America. Even in poor areas — including ethnic Korean or *burakumin* neighborhoods — schools are excellent.

My wife and I saw the collective ethos drummed into children when we sent our kids to Japanese schools. When the teacher was sick, there was no substitute teacher. The children were in charge. When our son Gregory came home from a school athletic meet, we were impressed that he had won first place in all his events, until we realized that every child had won first place.

For Gregory's birthday, we invited his classmates over and taught them to play musical chairs. Disaster! The children, especially the girls, were traumatized by having to push aside others to gain a seat for themselves. What unfolded may have been the most polite, most apologetic, and least competitive game of musical chairs in the history of the world.

Look, we're pushy Americans. We sometimes treat life, and budget negotiations, as a contest in which the weakest (such as children) are to be gleefully pushed aside when the music stops. But I wish we might learn a bit from the Japanese who right now are selflessly subsuming their own interests for the common good. We should sympathize with Japanese, yes, but we can also learn from them.

Nuclear Energy's Unchanging Plight (CHIT)

Its future is no worse than it already was

By Steve Chapman

Chicago Tribune, March 20, 2011

Just as congressional Republicans and the Obama administration had been pushing nuclear power, the disaster in Japan arrived to complicate matters. Proponents of atomic energy fear an unfair, crippling backlash. But the crisis only confirms that in this country, nuclear is the fuel of the future — and always will be.

Over the past 40 years, plenty of things have happened that should have worked to its advantage. There was the energy crisis of the 1970s. There was the threat of climate change brought on by fossil fuels.

There were clean air laws that raised costs for coal-burning plants. There have been huge oil spills and more price spikes in the petroleum market.

But none of it has made much difference. Nuclear energy provided 19 percent of US electricity in 1990, and it provides 20 percent today. Even before the Fukushima Dai-ichi plant went down, that share was not expected to grow. Last year, the federal Energy Information Administration projected that in 2035, it will be no more than 17 percent.

Nuclear has two major challenges. The first is cost, and the second is safety. Neither has been solved, and neither is about to be.

In the United States, it's hard for atomic energy to compete with fossil fuels, which are plentiful and cheap. A 2008 report by the nonpartisan Congressional Research Service said nuclear is generally about one-third more expensive than the least expensive forms of power (coal, natural gas and geothermal). Even with big federal subsidies, nuclear is pricier than gas.

The natural gas market is volatile, but no matter. The modern gas power plant, concluded CRS, "is a competitive generating technology under a wide variety of assumptions for fuel price, construction cost, government incentives and carbon controls."

For a while, it looked as though nuclear energy would get a lift from climate change. Coal and gas produce greenhouse gases. Nuclear doesn't. If carbon emissions were restricted under a cap-and-trade system, nuclear reactors soon would be in great demand.

Nice theory, but President Barack Obama's cap-and-trade plan went nowhere on Capitol Hill. A candidate in coal-rich West Virginia aired an ad in which he blasted away at a copy of the bill with a rifle. And he was a Democrat.

Since then, the Environmental Protection Agency has announced it will regulate greenhouse gases. But how much it will do is anyone's guess. If Republicans have their way, it will lose its power to do anything.

Various likely GOP presidential candidates, from Mitt Romney to Sarah Palin, want to expand nuclear energy. But the GOP is steadfastly opposed to the policy change that would help it most. Without limits on carbon emissions, nuclear is going nowhere.

Romney says he can't "understand why some environmental activists still consider nuclear power such a bogeyman." Hmm. Maybe the prospect of uncontrolled leaks of deadly radiation across large geographic areas? Yeah, that could be it.

Other forms of energy, to be fair, carry dangers of their own. Coal mines have fatal accidents. Eleven oil workers were killed last summer when a platform blew up in the Gulf of Mexico. By contrast, no one has ever died in a commercial nuclear power accident in this country.

But that's not quite the whole story, is it? The Japan catastrophe is a reminder that while reactors rarely suffer major accidents, the ones that occur create hazards slightly more alarming than a mine collapse.

"If there is a significant release of radiation, then conceivably several thousand people could (get) cancer in the next several years to decades," said Charles Ferguson, president of the Federation of American Scientists, in an interview on the Council on Foreign Relations website.

Large areas could be uninhabitable for months. Unlike miners and rig workers, who can quit anytime they choose, most of the people in jeopardy from a nuclear meltdown have no choice.

It's comforting to hear that modern reactors are better designed and that the Japanese experience will help prevent future accidents. But if overly stringent safety regulation is what's keeping nuclear energy down, down is where it's going to stay.

In recent years, there has been talk of a major shift toward uranium-based power, which we can now be sure is not about to happen. When it comes to nuclear energy, hopes are made to be dashed.

Japan's Disaster Offers More Than A Nuclear Lesson (PATNEWS)

By Heather Long

Harrisburg (PA) Patriot-News, March 20, 2011

Can it happen here?

Who hasn't asked that question in the wake of Japan's natural disasters and ensuing crises at several reactors at the Fukushima nuclear plant.

President Obama, Energy Secretary Steven Chu and officials on down the line have spent the week reassuring anxious Americans that nuclear energy is safe and our country's nuclear reactors aren't likely to experience anything like Japan's.

Their talk has been calming — to a degree. Some of America's 104 nuclear reactors were made by the same manufacturer and around the same time as those in Japan. While magnitude 9.0 earthquakes are extremely rare, that does not mean it could never happen here.

A more pressing concern is what to do with America's nuclear waste. The plan to put spent nuclear fuel rods in Yucca Mountain, Nevada, is dead, a casualty of political and lobbying pressure. Instead, spent fuel rods are put in indoor cooling plants. Those cooling plants were not intended for long-term storage, but they are currently the only solution the US has and are just as susceptible to natural disaster, meltdown or attack as a reactor.

I also can't help but step back and put the Japan disaster in the larger context of headline news this year. The BP oil spill in the Gulf of Mexico occurred last April. It is now the worst in US history and devastated the entire US southern coastline for weeks. The mantra after that spill was similar to what we are hearing with the Japan quake: "This is an extremely rare scenario."

Then there was the Chilean mine disaster. That ended in triumph with the rescue of 33 mine workers, but it was another scenario where the hunt for resources had near-devastating consequences. The truth is there are costs associated with any form of energy production from nuclear to gas to wind farms. There are production costs as well as safety and risk costs.

As the US seeks to shift our energy future away from reliance on Middle East oil and toward more homegrown and greener sources, nuclear is going to play a role. But it might not play as big of a role as some in Washington make out. The biggest damper on nuclear energy isn't the Japan situation, but prices.

America has found a new, plentiful and far cheaper energy source in natural gas, specifically the kind right here in Pennsylvania's Marcellus and Utica Shale formations. To put it bluntly, building a nuclear power plant costs billions — in the range of at least \$5 to \$10 billion. Natural gas prices have to be at least \$7 per thousand cubic feet for nuclear to be remotely competitive. With the price of natural gas hovering around \$4 per thousand cubic feet, it's obvious why major energy companies are delaying nuclear facility plans.

What Pennsylvanians should be asking as we look at our energy future is how do we make this shale gas boom as safe as possible? How do we make sure those supposedly "extremely rare occurrences" don't happen here? The answer is adequate regulation and finances.

The most troublesome part of Gov. Tom Corbett's budget proposal isn't the figures, it's a clause that would give the secretary of the Department of Economic and Community Development power to "expedite any permit or action pending in any agency." While that power could be used anywhere in state government, the main target is drilling and related permits at the Department of Environmental Protection. To give the DCED secretary (currently C. Alan Walker, a former coal company executive) carte blanche authority over drilling is a huge error.

Protections and processes are in place for a reason — not to be burdensome, but to ensure Pennsylvanians get their gas without losing their drinkable water and decimating the state's picturesque landscape and wildlife.

The other necessity is a tax on shale gas production. Our state is the laughingstock of industry circles because we can't get this done. Sixty-two percent of Pennsylvanians support this, according to a poll released this week. Even most industry executives admit they would go along with a "reasonable" tax.

Gov. Corbett says he wants to make us more like Texas. I agree. Texas has a 7.5 percent severance tax rate. To encourage growth in the Barnett Shale, Texas does reduce that rate for initial drilling years for high cost wells, but there is still a tax in place. Nothing like that here.

The money should not be used to fill budget holes, but to address the problems associated with drilling: from torn-up roads to local and environmental impacts.

The warning coming from Japan isn't just about nuclear power. It's about looking around at all of our energy sources and asking the tough questions about safety and oversight.

Heather Long is deputy editorial page editor.

Testing Finds No Health Threat Along West Coast (AP)

Associated Press, March 19, 2011

SAN FRANCISCO – Federal and state officials sought Friday to dispel fears of a wider danger from radioactivity spewing from Japan's crippled nuclear reactors, saying testing indicated there were no health threats along the West Coast of the US

Driven by winds over the Pacific Ocean, a radioactive plume released from the Fukushima Dai-ichi reached Southern California on Friday, heightening concerns that Japan's nuclear disaster was assuming international proportions.

However, the results of testing reflected expectations by International Atomic Energy Agency officials that radiation had dissipated so much by the time it reached the US coastline that it posed no health risk whatsoever to residents.

The US Department of Energy said minuscule amounts of the radioactive isotopes iodine-131, iodine-132, tellurium-132 and cesium-137 had reached a Sacramento monitoring station tied to the U.N.'s Comprehensive Test Ban Treaty Organization, but the readings were far below levels that could pose any health risks.

A detector at the Pacific Northwest National Laboratory in Washington State earlier this week also detected trace amounts of xenon-133 — a gas produced during nuclear fission — the DOE said.

The doses that a person normally receives from rocks, bricks, the sun and other natural background sources are 100,000 times the dose rates detected at either location, the DOE and the US Environmental Protection Agency said in a joint statement.

The statement confirmed statements from diplomats and officials in Vienna earlier in the day.

Air pollution regulators in Southern California said they have not detected increased levels of radiation. The South Coast Air Quality Management District said radiation measured at its three sites was not higher than typical levels.

The agency's monitors are part of the EPA's network of more than 100 sensors across the nation that track radiation levels every hour.

In Alaska, Dr. Bernd Jilly, director of state public health laboratories, also said monitoring had shown no readings of above-normal levels of radiation.

The same was true in the state of Washington, health department spokesman Donn Moyer said. The levels would have to be hundreds of thousands of times higher than current readings before health officials would recommend any response, he said.

Graham Andrew, a senior official of the Vienna-based International Atomic Energy Agency, said that after consultation with the IAEA, the International Civil Aviation Organization found there was no reason to curtail normal international flights and maritime operations to and from Japan and "there is no medical basis for imposing additional measures to protect passengers."

The CTBTO presentation Friday showed radiation levels peaking in Tokyo and other cities in the first days of the disaster at levels officials said were well below risk points before tapering off.

"The rates in Tokyo and other cities ... remain far from levels which require action, in other words they are not dangerous to human health," Andrew said.

While set up to monitor atmospheric nuclear testing, the CTBTO's worldwide network of stations can detect earthquakes, tsunamis and fallout from nuclear accidents such as the disaster on Japan's northeastern coast that was set off by a massive earthquake and a devastating tsunami a week ago.

Since then, emergency crews have been trying to restore the Fukushima Dai-ichi nuclear plant's cooling system and prevent overheated fuel rods from releasing greater doses of radioactivity.

Japanese officials on Friday reclassified the rating of the accident at the plant from Level 4 to Level 5 on a seven-level international scale, putting it on a par with the 1979 Three Mile Island accident. The International Nuclear Event Scale defines a Level 4 incident as having local consequences and a Level 5 as having wider consequences.

Nuclear experts have been saying for days that Japan was underplaying the severity of the nuclear crisis.

Andrew refused to be drawn on that issue, saying severity assessments would be the task of a post-emergency investigation. Describing the situation as very serious, he nonetheless noted no significant worsening since his last briefing Thursday, when he used similar terminology.

Things are "moving to a stable, non-changing situation, which is positive," he said. "You don't want things that are rapidly changing."

Radiation Plume Reaches US, But Is Said To Pose No Risk (NYT)

By William J. Broad

New York Times, March 19, 2011

Faint traces of very low levels of radiation from the stricken nuclear complex in Japan have been detected in Sacramento, European officials reported Friday, bringing the distant atomic crisis to American shores for the first time.

The readings, picked up by highly sensitive detectors set up to monitor clandestine nuclear blasts, were the first solid evidence of the leading edge of a long radioactive plume that has drifted slowly across the Pacific with the prevailing winds over the past week and has now reached the continental United States.

Health experts said the plume's radiation had been diluted enormously in its journey across thousands of miles and — at least for now, with concentrations very low — would have no health consequences in the United States. In a similar way, radiation from the Chernobyl disaster spread around the globe and reached the West Coast of the United States in 10 days, its levels detectable but minuscule.

Late Friday, the Department of Energy confirmed the European statements about the arrival of the radioactive plume in Sacramento, saying the federal station there detected "minuscule quantities" of radiation that posed no health hazard.

But the Obama administration's initial reluctance to release its own radiation information and the haphazard way that the readings came dribbling out of Europe first — not the United States — raised questions about whether American officials were being as forthcoming as they had pressed the Japanese to be.

Throughout the nuclear crisis, Japanese officials have been accused of withholding information and understating the severity of the risks. But on Friday, pressure mounted on the Obama administration to release information it has gathered on the radiation coming from Japan, with six environmental and watchdog groups sending the White House a letter calling for "transparency on the part of the government."

In many respects, the plume underscores the lack of a global system for monitoring nuclear emergencies and making the results public. European officials said the system was designed to be hugely sensitive to detect cheaters trying to develop clandestine nuclear arms — but not radioactive plumes from commercial reactor failures, which are easier to detect.

"What we can measure is almost a single atom, which has absolutely no danger" for human health, said Lars-Erik De Geer, research director of the Swedish Defense Research Agency, a part of the monitoring system. "It has to be very sensitive because we are looking for people who are trying to hide the testing of weapons."

The Sacramento readings were made on Air Force equipment shared with the Comprehensive Test Ban Treaty Organization, an arm of the United Nations in Vienna. Its mandate is to monitor the global ban on the testing of nuclear arms.

The United Nations agency has more than 60 stations that sniff for radiation spikes and uses weather forecasts and powerful computers to model the transport of radiation on the winds.

Earlier this week, its scientists forecast the plume's arrival in the continental United States around the end of this week.

European officials said that — outside of Japan — its global network of detectors first picked up the presence of the Japanese plume at a station on the Kamchatka Peninsula, in Russia. Then, on Friday, they said, the station in Sacramento began to register the faint radiation. The government declined to release further details.

In both cases, officials said, the detectors found minuscule levels of iodine-131 and cesium-137 — highly dangerous byproducts of reactor operation that in large amounts can cause cancer. The measured levels are judged to be many millions of times lower than concentrations that would pose a danger to human health.

Experts tracking the plume said it would continue to drift east and might arrive in the New York region early next week.

By definition, the current measurements are tracking relatively old radiation that was released into the atmosphere at the start of the Japanese crisis. It began on March 11 when an offshore earthquake with a magnitude now estimated at 9.0 shook the reactor complex. A tsunami rolled into northeast Japan minutes later, swamping six reactors lined up along the coastline.

As the crisis has worsened, the releases of radiation into the atmosphere have increased. So it seems inevitable that the concentrations of radiation in the plume will grow — though still, health experts say, posing no health risk in the United States.

"We're monitoring the situation," said Mike Sicilia, a spokesperson in Sacramento for the California Department of Public Health. But he emphasized that no danger was anticipated.

"All data from state and federal sources," he said, "show that harmful levels of radiation won't reach California."

In brief remarks at the White House on Thursday, President Obama said he knew Americans were worrying about radiation drifting across the Pacific. "So I want to be very clear," he said. "We do not expect harmful levels of radiation to reach the United States, whether it's the West Coast, Hawaii, Alaska or US territories."

But environmental and watchdog groups cited a growing anxiety in the United States and complained of a lack of adequate information from American officials.

"The US government clearly has information that the public has a right and need to know," Damon Moglen, climate and energy director at Friends of the Earth, said in a statement.

He called federal insights into the nature of the Japanese radiation "critically important" for the Japanese people, Americans in Japan and "those here at home who are anxious that dangerous radiation may creep towards our shores."

The California readings were made by an arm of the Air Force Technical Applications Center, an institution of the cold war that monitors for signs of clandestine nuclear tests. Its unit in suburban Sacramento, northeast of the city, has radiation detectors set up at Camp Kohler, near the former McClellan Air Force Base.

In addition to serving the United States government, the unit feeds new readings into the international data system of the Comprehensive Test Ban Treaty Organization, which has 120 member states that share the monitoring insights.

Although the legal mandate of the organization is to scan the globe for clandestine bomb blasts — not reactor accidents — its officials recently decided to start sharing its data more widely in an effort to help international authorities struggling with the Japanese crisis.

In a statement on Friday, the Vienna group said it began sharing the monitoring information Friday with the International Atomic Energy Agency and the World Health Organization. The organization said it was "responding to respective requests" from the two groups that it received Thursday for help in "assessing the situation."

On West Coast Of US, Much Ado About Very Little Radiation, So Far (LAT)

US scientists and sensors are poised to detect radioactive fallout from Japan's nuclear accident, but aside from a 'minuscule' amount at a Sacramento station, they've found none.

By Eryn Brown, Molly Hennessy-Fiske

Los Angeles Times, March 19, 2011

Sensors in the United States stood ready Friday to detect any trace of radioactive material blowing across the Pacific from Japan's stricken Fukushima nuclear plant, 5,000 miles away.

So far, they've pretty much found nothing.

The only positive report from a network of sensors was of a tiny amount of radiation picked up by a super-sensitive detector in Sacramento that is capable of sensing the radioactive isotope xenon-133, created during nuclear fission.

Though scientists said they believed that this came from the Fukushima Daiichi reactors, the levels were so "minuscule" they posed no threat to human health, the US Environmental Protection Agency and Department of Energy said in a joint statement Friday afternoon.

The amount that was detected would result in a "dose rate approximately one-millionth of the dose rate that a person normally receives from rocks, bricks, the sun and other natural sources," according to the statement.

Elsewhere, though scientists and equipment sat poised, they weren't finding radioactive surges above normal background radiation levels that exist naturally.

California public health officials were still gathering air samples for radiation testing late Friday, according to Gary Butner, branch chief of radiological health with the California Department of Public Health in Sacramento.

Butner said county volunteers planned to gather samples Friday and Saturday from the state's monitoring stations. Staff members will then crunch the numbers with the help of a physicist through the weekend and post the results on the department website early next week.

They will also post data from the last two years for comparison, to "hopefully minimize some of [the public's] fears and anxiety," Butner said.

In Oregon, a health physicist checked radiation air monitoring stations Friday in Portland and Corvallis — part of the EPA's network of 100 radiation monitors known as RadNet — and found no unusual radiation. The story was the same in Alaska, where public health officials released a statement saying state scientists were monitoring levels in Anchorage, Juneau and Fairbanks.

The nuclear engineering department at UC Berkeley set up its own independent monitoring Wednesday on top of the campus' Etcheverry Hall. The system looks for gamma rays with energy "signatures" corresponding to isotopes such as cesium-137, iodine-131 and tellurium-132, which would have been emitted by Japan's plant, said Kai Vetter, a professor in the department.

As of Friday morning, Vetter said, they hadn't seen any evidence of suspicious radiation either.

Friday afternoon, at a RadNet station in Anaheim, South Coast Air Quality Management District atmospheric measurements manager Philip Fine took a break to check his watch.

The AQMD, he said, doesn't come out very often to the testing station, a mini-fridge-sized metal box sitting in a sandy, fenced-off enclosure at the edge of an elementary school. The radiation sensor sends much of its data automatically to federal EPA offices.

But with the rising public concern over the radiation from Japan reaching California, Fine went there to answer questions and assuage fears.

"What we're experiencing right here at the station today is the same radiation levels that we were experiencing here three months ago at the station," he said.

Obama's Support For Nuclear Power Faces A Test (WP)

By Peter Wallsten, Jia Lynn Yang

Washington Post, March 19, 2011

As the deepening crisis in Japan presents the nuclear power industry with its gravest test in years, President Obama has emerged as a critical ally and defender.

Repeatedly in recent days, Obama has peppered public remarks on Japan with assurances that US reactors are safe and that nuclear energy remains a key component of his energy agenda.

The president's stance again puts him in direct opposition to many in his political base, with some environmentalists and a plurality of Democratic voters in a new survey saying that nuclear power is not safe. But Obama has experience with the industry. His home state of Illinois has more nuclear power plants than any other state, and Chicago is the headquarters for Exelon, which operates the country's largest fleet of nuclear plants. And as president, Obama has proposed a dramatic expansion in government-backed loans to build new plants.

"I still think that nuclear power is an important part of our overall energy mix," he told an interviewer this week from WVEC-TV in Norfolk. He added that "we've got to do it in a safe and sensible way."

Asked about potential budget cuts to nuclear research by a local TV reporter from New Mexico, home to major atomic laboratories, the president said the Japan crisis was a reminder that funding was needed. "We've got a budget for it," he said.

The president's stance underscores the important role nuclear power plays in his broader energy agenda.

In the State of the Union speech this year, Obama presented a goal of generating 80 percent of the country's electricity from clean energy sources by 2035. Citing support among different constituencies for wind, solar, nuclear, "clean coal" and natural gas, the president said: "We will need them all."

Nuclear power already accounts for 20 percent of overall electricity in the United States and makes up the vast majority of carbon-free energy.

But because the cost of building a new reactor is so high — and Wall Street is reluctant to invest, with natural gas emerging as a more viable alternative — utilities have turned to the government for assistance. Obama has signaled his desire to help, proposing in his 2012 budget plan an additional \$36 billion in loan guarantees to build new plants.

That would come on top of the \$18.5 billion set aside as part of the loan guarantee program started under President George W. Bush's Energy Policy Act of 2005.

Some critics have charged that Obama's support for nuclear power can be traced to his political rise in Illinois, home to nuclear giant Exelon.

Those connections “run pretty deep,” said Kevin Kamp, with the watchdog group Beyond Nuclear. “That begins to explain his policy.”

Exelon has had ties to some of Obama’s closest advisers.

David Axelrod, the president’s longtime political strategist and former White House adviser, co-founded a consulting firm that worked for Exelon, though Axelrod said Friday he currently has no private clients.

Rahm Emanuel, Obama’s former chief of staff and now Chicago’s mayor-elect, helped broker the deal that created Exelon when he worked at the investment bank Wasserstein Perella.

Exelon’s political action committee and its employees have given more than \$340,000 to Obama’s congressional and presidential campaigns over the years, including \$4,300 from Exelon chief executive John Rowe, according to Federal Election Commission records.

Since Obama became president, Exelon has sided with the White House in at least one major policy battle — quitting the US Chamber of Commerce in protest of the trade group’s opposition to climate-change legislation. Exelon declined comment.

A White House spokesman, Clark Stevens, rejected the idea that Obama’s views on energy stemmed from anything other than sensible policy.

“The administration’s energy priorities are based solely on how best to build a 21st-century, clean-energy economy,” Stevens said via e-mail. “That policy is not about picking one energy source over another, in fact it is about setting a bold but achievable clean energy goal, and providing industry the flexibility on how best to increase their clean energy share through the responsible development of a broad range of energy sources — including renewables like wind, solar, and homegrown biofuels, as well as natural gas, clean coal, and nuclear power.”

Another major nuclear player is Duke Energy, whose chief executive, Jim Rogers, is helping to lead fundraising efforts for the 2012 Democratic National Convention in Charlotte. The firm, which slightly favored Democrats in its 2010 PAC donations, has agreed to guarantee a \$10 million line of credit for the convention from a local bank.

Duke Energy officials say the effort is purely an economic development initiative. “We would do it for the Republicans in 2016 if they would consider Charlotte,” spokesman Tom Williams said. “It’s not a partisan effort at all.”

Overall, Obama has not relied very heavily on energy-related contributions in his political career, and his aides have pledged to continue refusing any corporate PAC donations in the 2012 campaign. Contributors in the energy and natural resources sector gave about \$2.8 million to Obama in 2008, compared with \$4.1 million for GOP candidate John McCain, according to the Center for Responsive Politics.

Obama’s stance has surprised some in the industry who weren’t sure what to expect when he entered office.

“The nuclear industry was a little bit nervous. We didn’t know what his policies would be,” said Eileen Supko, a nuclear engineer at the consulting firm Energy Resources International. “Everybody was pleasantly surprised and very pleased” by Obama’s agenda.

The president’s position appears to be in good stead with crucial independent voters, a majority of whom view nuclear as a safe energy source, according to a new Fox News poll. The survey found that a plurality of Democratic voters disagree.

Even before this week’s events in Japan, the White House had jostled with nuclear critics on Capitol Hill.

Last year, the White House rejected a request by Rep. Edward J. Markey (D-Mass.) to enforce a law passed in 2002 requiring that potassium iodide pills be made available to all US citizens living within 20 miles of nuclear plants for use in case of exposure to radioactive iodine.

Markey said in an interview that he has asked the White House to reconsider that decision, which he said appeared to satisfy industry concerns that distributing the medicine “instills a fear of nuclear power” in people’s minds.

Japan Crisis Could Rekindle US Antinuclear Movement (NYT)

By Leslie Kaufman

New York Times, March 19, 2011

In 1973, vexed by an Arab oil embargo and soaring fuel prices, President Richard M. Nixon championed a long-term solution: to have 1,000 nuclear reactors in place in America by the year 2000 as part of a national energy independence plan.

That never came to pass: 104 nuclear reactors operate today, compared with 40 then. The last permit for construction of what became a fully operational nuclear plant was issued in 1978.

The main obstacles to the industry’s growth were huge cost overruns linked to regulatory changes, and shifts in demand for electricity, although the Three Mile Island accident of 1979, litigation and the 1970s and ’80s antinuclear movement also played a big role.

Today, activists who figured prominently in the movement's teach-ins and protest rallies are hoping that Japan's nuclear crisis will rekindle a protest movement in the United States. Their aim, they say, is not just to block the Obama administration's push for new nuclear construction, but to convince Americans that existing plants pose dangers.

"I look at Japan and think this could very possibly be us," said the musician Graham Nash, who with the group Crosby, Stills and Nash took part in the 1979 No Nukes concerts and a rally that drew nearly a quarter of a million people to the tip of Manhattan. James Taylor, Bonnie Raitt, John Hall, Jackson Browne and Bruce Springsteen were also on the bill for the events, which came months after a partial core meltdown at Three Mile Island.

It was the peak of the antinuclear movement, and campaigners felt that policymakers were finally awakening to their message. "The circumstances all came together — it was like energetic waves converging, and it was pretty powerful," Mr. Nash said. "There has not been a nuclear plant built since."

Since a tsunami knocked out power at Japan's Fukushima Daiichi Nuclear Power Station last week, leading to explosions and a desperate battle to cool reactors and spent fuel rods, more Americans seem to be rethinking their position on nuclear power, said John Hall, a former member of the band Orleans who helped organize the concert and was, until recently, a congressman representing a district in upstate New York.

"I see it in e-mails, Web postings and conversations with friend and neighbors," he said.

Paul Gunter, the director of the reactor oversight project at the advocacy group Beyond Nuclear, said a protest vigil planned for Sunday at the Vermont Yankee nuclear power plant could prove a test case. The reactor, whose troubles in recent years have included the collapse of a cooling tower and leaks of radioactive tritium from underground pipes, is a near twin of Unit No. 1 at the troubled Daiichi nuclear station. The State of Vermont argues that the plant is unreliable.

"Sunday will be the first indicator of the depth of the public mood," Mr. Gunter said of the protest. Just before the earthquake and tsunami in Japan hit, the federal Nuclear Regulatory Commission voted to reject all challenges to extending the operating license of the Vermont Yankee plant.

The movement against nuclear power in this country goes back almost as far as the industry itself. The United Auto Workers opposed construction of the Fermi 1 plant outside Detroit as early as 1957. While it was eventually built, proposed plants in Queens, N.Y., and outside San Francisco were blocked by local protests in the next decade.

The movement grew in the 1970s as proposals for new plants multiplied and local opposition groups emerged. Sometimes the protests succeeded only in part. The Clamshell Alliance, for example, campaigned to block the construction of Seabrook Station in New Hampshire, part of which was eventually built and began operating. Half of the proposed plan was shelved.

Harvey Wasserman, the editor of NukeFree.org, helped organized some of the protests and at one point was arrested outside the Seabrook plant. He attributes the movement's broad appeal to its peaceful tactics.

"This is a terrible time for those of us who've been fighting nukes all these years," he said of the crisis in Japan. "We're way too familiar with the tangible toll these releases in Japan will take on the people of the area and the workers at the plant."

Although protests continued in the United States and Europe throughout the 1980s, particularly after the Chernobyl accident in Russia in 1986, the movement may have become a victim of nuclear plant construction's decline.

As part of his plan to rein in the greenhouse gas emissions however, President Obama has billed nuclear power as a clean energy alternative and enabled loan guarantees <http://po.energy.gov/to> begin flowing for new plants. Such construction also has support among many Republicans in the newly elected House, although some have moved to strip subsidies for renewable fuels like solar and wind power from the 2012 budget.

After Mr. Obama took office, some environmental groups seemed to be tipping toward cautious support for nuclear power. But that was stilled last week.

Meanwhile, some of the musicians who were central to the movement in its early days are thinking of enlisting younger performers in the campaign. "I was in contact with Bonnie about getting some new bands involved," Mr. Nash said. "We had a lot of energy back then, but it gets wearing to see the same old groups after a while."

Matthew L. Wald contributed reporting from Washington.

US Declines To Give Details On Radiation (WSJ)

By Stephen Power, Carol E. Lee

[Wall Street Journal](#), March 19, 2011

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

Fukushima Daiichi Nuclear Plant Engineers Attach Power Cable To Try To Cool Quake-damaged Reactor (NYDN)

By Christina Boyle, Nancy Dillon
New York Daily News, March 19, 2011

Brave engineers risking their lives to avert catastrophic meltdown have successfully attached a power cable to Japan's crippled nuclear power plant.

The Tokyo Electric Power Co. said that means electricity is ready to flow to critical equipment inside the Fukushima Daiichi plant 150 miles northeast of Tokyo.

The equipment is needed to circulate cool water around the melted reactors and overheated uranium fuel rods.

The next step is to methodically make sure the cooling equipment isn't too damaged to bring back online, the company said.

If workers can salvage enough hardware to get the pumps going, the desperate situation could take its first positive turn in almost a week.

Fire trucks converge in preparation to spray water at the Fukushima Dai-ichi nuclear plant, in Iwaki, Fukushima Prefecture, Japan Friday (Kyodo News/AP)

In the meantime, emergency workers used a special water cannon from the Tokyo Fire Department to spray more water on Reactor No. 3. Steam was seen rising from Reactor No. 2 earlier.

The plan is for workers to restore electricity to the cooling pumps serving the No. 1 and No. 2 reactors by about midday Saturday and at the No. 3 and No. 4 reactors by Sunday, a spokesman with the Tokyo-based Nuclear and Industrial Safety Agency said.

"The whole world, not just Japan, is depending on them," Tokyo office worker Norie Igarashi, 44, said of the emergency teams on the job despite heightened radiation levels at the complex.

The stricken country's 9.0 earthquake and tsunami triggered fires, explosions and partial meltdowns at four of the six reactor units at the Fukushima plant.

There have been power shortages across Japan, factories have closed and the Japanese stock market has plummeted.

More than 452,000 people are believed to be homeless as a result of the disaster, about 343,000 households are still without electricity and about one million have no water.

US Monitoring Planes, Passengers From Japan For Possible Radiation (HILL)

By Keith Laing
The Hill, March 18, 2011

The US Customs and Border Protection agency (CBP) is monitoring planes and ships coming from Japan for radiation, officials said Friday after reports surfaced that passengers flying into Chicago's O'Hare airport triggered radiation detection alarms at the airport.

The customs agency said that no planes coming into the US have tested positive for harmful levels of radiation, and the small number of passengers who have are being properly treated.

"Travelers who manifest signs of radiation sickness are referred to health authorities and provided appropriate treatment," CBP spokesman Michael Friel said in a statement provided to The Hill. "CBP will continue to evaluate the potential risks posed by radiation contamination on inbound travelers and cargo and will adjust its detection and response protocols, in coordination with its interagency partners, as developments warrant."

Officials at O'Hare said Friday they were adding screenings after passengers triggered detectors with small amounts of radiation.

"We are aware of the radiation," Chicago Aviation Department spokeswoman Karen Pride said in a report from CBS News.

The concern is in response to several explosions at nuclear reactors in Japan following last week's massive earthquake and ensuing tsunami.

"US Customs and Border Protection is monitoring developments in Japan carefully and is specifically assessing the potential for radiological contamination associated with the ongoing impact of the earthquake and tsunami to Japan's nuclear facilities," Friel said.

"Out of an abundance of caution, CBP has issued field guidance reiterating its operational protocols and directing field personnel to specifically monitor maritime and air traffic from Japan."

Chicago Mayor Richard Daley said that while protecting the population at large was important – and a federal responsibility – it was also important to treat travelers testing positive for radiation.

"Of course the protection of the person coming off the plane is important in regards to any radiation and especially within their families," Daley said, according to reports.

The customs agency said it handles about 500,000 radiation cases annually in the course of normal business, most of those involving small, non-harmful doses.

Cuomo Seeks Meeting With US NRC About Indian Point Safety (BLOOM)

By Dan Hart

Bloomberg News, March 21, 2011

New York Governor Andrew Cuomo said Lieutenant Governor Robert McDuffy and other state officials will meet with the US Nuclear Regulatory Commission to discuss how safe Entergy Corp. (ETR)'s Indian Point nuclear-power plant, located about 24 miles (38 kilometers) north of New York City, would be in an earthquake.

Cuomo earlier this week expressed surprise at reports that the Indian Point plant, which opened in 1962, was the most vulnerable to an earthquake of all US nuclear facilities. Regulators have been concerned after Japan's struggles to avert a disaster at a power plant crippled last week by a tsunami and the 9.0 magnitude temblor off the northeastern coast.

The meeting on March 22 was set up by the White House at Cuomo's request, the governor's office said in an e-mailed statement. It will include Howard Glaser, director of New York state operations, the statement said.

The meeting is intended to gather information about Indian Point's earthquake vulnerabilities, preparedness and risk assessment, according to the statement. Rich Bamberger, a spokesman for the governor, could not immediately say where the meeting would be held.

The reactors, which supply 25 percent of the power used by New York City and suburban Westchester County, are designed to withstand at least a magnitude 6 earthquake, said Jerry Nappi, a plant spokesman. A magnitude 7 earthquake in the region is possible, based on the features of the two faults, according to scientists at Columbia University's Lamont-Doherty Earth Observatory.

Cuomo said in a March 16 press conference in Albany that while he was New York's attorney general, he'd concluded Indian Point shouldn't have been issued a new license and "should be closed."

Separately, the Nuclear Regulatory Commission has been aware of a leak in the liner of a refueling cavity at Indian Point since 1993 and yet allowed the plant to continue operating, according to a report by the Union of Concerned Scientists.

The liner was installed to prevent leaking of radioactive material during an earthquake and the chances of that equipment fulfilling its safety function is "nil," the report said.

To contact the reporter on this story: Dan Hart in Washington at dahart@bloomberg.net

NY State To Talk Indian Point With Nuclear Agency (AP)

Associated Press, March 21, 2011

NEW YORK (AP) – New York Gov. Andrew Cuomo says his staff will meet Tuesday with nuclear regulators to discuss whether a disaster like the one in Japan could happen at the Indian Point power plant.

Indian Point is 38 miles north of New York City on the Hudson River. It sits near the Ramapo Fault, but earthquakes on that fault line are rare.

Cuomo said Saturday that Lt. Gov. Robert Duffy and Director of State Operations Howard Glaser will meet with members of the Nuclear Regulatory Commission.

Entergy Corp., which runs the plant, says the reactors are safe. Spokesman Jim Steets said the reactors are built to withstand a magnitude-6 earthquake, and the plant's backup electrical generators are on high ground and safe from any tsunami that might swell the Hudson River.

The New York Public Interest Research Group plans to request that Cuomo also discuss the state's other aging nuclear plants at the NRC meeting.

NYPIRG's Laura Haight said Saturday that five of the state's six nuclear plants have been operating since 1980. She said a letter to Cuomo will be delivered Sunday.

The Sierra Club is also asking the governor to expand his agenda.

A spokesman for Cuomo did not immediately return a call seeking comment.

NY, NRC Officials To Meet On Indian Point Quake Risks (MTWNHER)

By Michael Novinson

Middletown (NY) Times Herald-Record, March 21, 2011

BUCHANAN – State officials will meet with the Nuclear Regulatory Commission Tuesday to discuss earthquake risks associated with Indian Point nuclear energy plant.

Lt. Gov. Robert Duffy and Director of State Operations Howard Glaser will discuss earthquake preparedness and risk assessments for the plant, according to a press release from Gov. Andrew Cuomo.

Indian Point's Unit 3 reactor has the highest earthquake damage risk of any of the nation's reactors.

mnovinson@th-record.com

Gov. Cuomo Staff To Meet With US Nuclear Regulator To Discuss Potential Earthquake, Indian Point (NYDN)

By Christina Boyle, Daily News Staff Writer

[New York Daily News](#), March 21, 2011

Gov. Cuomo's staff will meet next week with officials from the Nuclear Regulatory Commission to discuss how the Indian Point plant would weather an earthquake.

In a statement Saturday, Cuomo said he asked the White House to arrange the sit-down and it's been scheduled for Tuesday.

A recent federal report deemed the plant, just 24 miles north of the Bronx, most vulnerable to a natural disaster in the nation.

Cuomo has repeatedly called for its closure. He asked for a meeting with the NRC amid the unfolding nuclear crisis that has gripped Japan since the March 11 earthquake and tsunami.

"The purpose of the meeting will be to discuss the risks facing Indian Point in the event of an earthquake, how prepared Indian Point is to handle an earthquake, as well as what risk assessments have been completed regarding Indian Point," Cuomo said.

"We are looking forward to a productive dialogue," Cuomo added.

State Attorney Voices Fears Over Indian Point Plant (NY1)

By Josh Robin

origin.ny1.com, March 21, 2011

Fearing a nuclear crisis akin to Japan, State Attorney General Eric Schneiderman voiced concerns Friday over Westchester County's Indian Point nuclear power plant and criticized federal nuclear regulators. NY1's Josh Robin filed the following report.

An exodus from Japan is ongoing, as residents flee from radiation from the stricken Fukushima nuclear plant. It is supposedly not enough to be dangerous outside the plant's immediate vicinity, but even those 100 miles south are cautious.

"We're very afraid of the radiation but we can't do very much about it," said one Japanese woman through an interpreter.

Closer to home, events overseas are reigniting concerns about how New York gets much of its electricity. The Indian Point Power plant is just 24 miles north of the Bronx and it sits on a double fault line.

"While the possibility of an intense earthquake is relatively low, the potential for harm is so catastrophic that it has to be taken into account," said State Attorney General Eric Schneiderman.

According to Schneiderman, federal regulators do not even have to take seismic risks into account when they relicense Indian Point.

Officials at the Nuclear Regulatory Commission say they do monitor risks of earthquake and have recently been taking closer looks.

Indian Point officials say the plant can withstand what they call the worst hypothetical earthquake event for this area, a Magnitude 5.5 on the Richter scale. The Japan earthquake was Magnitude 9.0.

An energy trade group, the New York Affordable Reliable Electricity Alliance, insists the New York plant is safe.

"There's many differences between Japan and between Indian Point. It's like comparing apples to oranges." John R. Durso Jr. of New York AREA. "A tsunami is not going to hit Indian Point, nor is it capable of even forming within the Hudson Valley."

If the letter produces no action, Schneiderman said he could resort to a lawsuit. He is already suing the NRC over a recent ruling that found that Indian Point can store nuclear waste at the site for 60 years after it closes.

The limit used to be 30 years, but plans have fallen through for a nationwide repository at Yucca Mountain, Nevada.

Now the commission is even studying storing the waste a full century after a plant closes.

An NRC spokesman said there is a "solid legal foundation" for the agency's actions.

Calls Grow To Halt New Licenses For Indian Point (EPPM)

By Hannah Northey

[E&ENews PM](#), March 18, 2011

Calls for halting the relicensing of New York's Indian Point nuclear plant on the banks of the Hudson River are growing louder, this time with the state's attorney general chiming in.

New York Attorney General Eric Schneiderman (D) is demanding the Nuclear Regulatory Commission take into account seismic activity in the region before relicensing the 40-year-old nuclear plant.

Entergy Corp. is currently asking NRC to renew licenses for Indian Point's Unit 2 and Unit 3 for an additional 20 years of operation because the current licenses expire in 2013 and 2015, respectively.

Schneiderman sent a letter to the NRC today, asserting that seismic activity is a factor that NRC has repeatedly refused to consider in reviewing the relicensing application to extend Indian Point's operation.

"It is beyond troubling that at the same time the federal government acknowledges increased seismic safety risk at some nuclear power plants in this country, it refuses to fully and openly assess these specific risks to Indian Point as part of its relicensing process," he said. "Before any conversation about relicensing is concluded, the Nuclear Regulatory Commission must answer basic health and safety questions."

Concern in New York over the aging nuclear plant has been piqued by the crisis in Japan, where officials are struggling to gain control of the Fukushima Daiichi nuclear plant that was rocked by a massive earthquake and slammed by a tsunami.

But Entergy has maintained that Indian Point is safe even though it sits on a fault line, and that the facility can withstand a magnitude 6 earthquake.

"The reason the risk is low for Indian Point is partly because of the geology and tectonics of the East Coast region," Entergy said in a statement on its website. "Indian Point is neither susceptible to the type of earthquake that occurred in Japan, nor the tsunami that followed that ultimately removed the cooling capability of the Japanese plants."

Nonetheless, the company said it will be taking part in a nationwide review of nuclear facilities President Obama has called for, and the company will review the "plant's ability to respond to catastrophic events."

Schneiderman said Indian Point's older reactor, Unit 1, which was built in the 1950s, was constructed before there were requirements for earthquake protection. Although no longer in operation, the unit's systems, structures and components were conjoined to the plant's other two reactors that are now up for relicensing. New York had asked the NRC to expand its relicensing criteria to include seismic analysis in 2007, but the agency rejected that request, Schneiderman said.

Other officials and environmental groups are voicing concern as well. Earlier this week, New York Gov. Andrew Cuomo (D) called for a safety review of the plant, pointing to the fact that the plant's Unit 3 reactor sits along a fault line about 30 miles north of New York City (Greenwire, March 17).

Environmental group Clearwater called for the plant to be closed and decommissioned, pointing to the fact that population has increased around the facility over the years. Clearwater is currently involved with another environmental group in litigation over Entergy's relicensing application.

Nuclear Plant Designs: Indian Point Vs. Japan (Pleasantville Patch)

By Alice Kenny

[Pleasantville \(NY\) Patch.com](#), March 21, 2011

Indian Point's reactors are about to receive close scrutiny from New York State and from the operator, Entergy.

As Westchester residents witness Japan's waking nightmare, they have begun to reexamine their nearby Indian Point nuclear power plants and reassess whether the plants' relatively low possibility of risk plus the reward of local non-carbon energy outweighs their potential for catastrophe.

No experts predict a similar scenario: an 9.0 magnitude earthquake followed by a cataclysmic tsunami that killed thousands and sent plumes of radioactive steam into the air this week from meltdowns and explosions at the Fukushima Daiichi Nuclear Power Station.

But local residents say they have real reason for fear. Indian Point sits on a seismic zone, has a documented history of safety violations and terrorists flew past it in airplanes they used as bombs to destroy the World Trade Center.

An accident at Indian Point could expose a dense population of more than 10 million people to radiation.

Doris Lorenz of Cortlandt questioned the facility's existence.

"It should never ever have been built. Why was it even allowed to be built? Why don't they put up windmills in the middle of the river? Cuomo should shut it down and bury the rods."

Japan had been top-rated for its disaster preparedness and evacuation drills. Most New Yorkers say they feel ill-prepared for a nuclear accident.

Indian Point sits along the Hudson River in Buchanan, just 24 miles north of New York City. It has a history of safety violations including 600,000 gallons of boiling radioactive water that escaped as steam through an open valve last year and an electric transformer explosion in December.

Discussions with Indian Point spokespersons and other nuclear experts reveal similarities between the plants as well as key safety differences. Entergy-owned Indian Point Units 2 and 3, built in 1974 and 1976, use a Westinghouse pressurized water design that generates steam to spin turbines that generate energy. (Indian Point 1 began operating in 1962 and was decommissioned in 1974). The Daiichi reactors, in contrast, were built in the 1960s and depend on boiling water.

More important, the Daiichi reactors, unlike those at Indian Point, rely on American-made General Electric Mark 1 steel and concrete vessels to contain the nuclear fuel rods that power the plant. These Mark 1 vessels, nuclear experts say, are not as strong and are more likely to crack than containment vessels made later.

In terms of similarities, the Daiichi and Indian Point plants maintain on their sites spent fuel rods that contain used radioactive fuel. These spent rods along with the active uranium rods that power nuclear plants must be kept in cool water to prevent a meltdown.

Both sites rely on similar failsafe mechanisms in case control rods that normally power the plants and pump cooling water shut down. Japan's six reactors relied on 13 backup diesel generators. Indian Point's two units have 8 backup generators, said Jerry Nappi, spokesperson for Entergy at Indian Point.

The tsunami knocked out the Daiichi generators leaving the plants to rely on battery power. Batteries designed to last short-term ran out of power before emergency help could reach the devastated area and repairs could be made.

While the Daiichi plant ran out of most options and is now attempting to pour sea water on the plant, Indian Point's backup design also offers a residual steam system to drive auxiliary pumps and move water, Nappi said. In addition, Indian Point houses its spent fuel rods almost entirely below grade along the Hudson River making it difficult for water to seep and stay out.

State officials declared this week that thorough safety reviews would be taken at the facility.

Here is Entergy's response:

"Indian Point is designed to withstand an earthquake greater in size than the area has ever experienced. The NRC recently stated that "operating nuclear power plants are safe and that every plant is designed with a margin of safety beyond the strongest earthquake anticipated in the area." The reason the risk is low for Indian Point is partly because of the geology and tectonics of the East Coast region. Indian Point is neither susceptible to the type of earthquake that occurred in Japan, nor the tsunami that followed that ultimately removed the cooling capability of the Japanese plants. Nevertheless, over the next 30 days, as part of an industry initiative, Indian Point will be performing a comprehensive review of the plant's ability to respond to catastrophic events."

Still, many living near by say these differences do not outweigh their concerns.

Alison Judge from neighboring Croton-on-Hudson said, "Indian Point should never have been built here in the first place."

Former Indian Point, Knolls Employees Weigh In On Japan's Nuclear Disaster (TROYREC)

By Danielle Sanzone, The Record

Troy (NY) Record, March 21, 2011

STILLWATER – After working at the Indian Point Energy Center for about a decade, John Basile knows radiation.

He recently purchased an old brick church along the Hudson River in Stillwater with his wife and he is well aware that more radiation is found in brick than in wooden-framed homes. Nonetheless, he is thoroughly enjoying renovating the structure.

"There are items with levels of radiation everywhere," he said thoughtfully.

Though he retired from working at the plant in the early 1990s, he still recalls working at the plant's second reactor.

The energy center, about 116 miles south of Albany, was named the most susceptible in the nation to earthquakes, according to the US Nuclear Regulatory Commission, which studied 104 nuclear reactors in the country and found that most had a 1 in 74,176 chance that the core could be damaged during a large tremor while the New York nuclear power plant's third reactor near the Hudson River has a 1 in 10,000 chance. This is partially due to being near a fault.

The reactor that Basile worked with at the plant was rated a bit safer with a 1 in 30,303 chance.

Basile, who was just re-elected to the village board of trustees, said he felt a few earthquakes when he worked there in the 1980s.

"We occasionally had them," he said about the quakes. He recollected one particular time that he felt one at his home at the time, five miles away from the plant. He then called his colleagues and they had not felt it at all. "The plant is constructed on bedrock. It's solid. If there was a major incident in the area, that's where I would want to be. It is extremely safe."

The plant, he explained, has three reactors but the first one was put out of service in the 1970s. The reactors are embedded in the cliffs of the Hudson River, above the river level and the electric system is situated up on the bluff. It is tornado proof, equipped with a post-accident safety system, and has leak detection.

During his tenure in the 1980s and 1990s, he said additional safety systems continued to be installed. By the 1990s, the reactor had an average of one automatic shutdown a year which, he said, was a huge improvement from when he started. No major incidents occurred during his employment with Indian Point. Continued...

"I always felt safe there," said Basile, who is still physically-active, in his 70s, and now works in real estate. "There is significant engineering work at these plants."

Most of the energy produced at Indian Point goes to New York City.

"I'm very concerned with what happened in Japan but nuclear energy is very viable. For example, it takes a 6,000 megawatt wind farm to match the 2,000 megawatts continuously produced at Indian Point," he said.

Like the Three Mile Island disaster, said Basile, who helped investigate the 1979 incident, it will take years to know everything that occurred at the Japanese plant following the tsunami and earthquake.

For Clinton Ballinger, CEO at Evident Technologies in Troy, he is looking at the Japanese disaster from the point of view of someone with a physics and nuclear engineering background.

"It's impossible," he said about people's fears that the reactor will go critical and melt through the Earth. "From a physics perspective, it is impossible."

Ballinger worked at a plant in Missouri and with Knolls Atomic Power Laboratory. He was also an adjunct nuclear engineering professor at Rensselaer Polytechnic Institute.

"People are comparing this with Chernobyl, in 1986, but it's completely different. This is still contained," he said noting that all plants are equipped with a myriad of safety features that shut reactors down immediately if there is trouble.

From his analysis of the information, the plant's safety system worked following the earthquake but problems occurred when the tsunami hit.

"A 30 foot wall of water tends to wash everything out," he said.

The investigation at Fukushima Daiichi nuclear plant is ongoing, officials said.

Danielle Sanzone may be reached at 270-1292, @DanielleSanzone on Twitter, or by email at dsanzone@troyrecord.com.

Quake Shakes Debate On Indian Point Safety (WESTJN)

By Greg Clary

Westchester Journal News, March 21, 2011

The debate over Indian Point's vulnerability to a Japan-like earthquake rests -- literally -- on the Ramapo Fault.

With calls for the plant's immediate closure and charges that regulators haven't done enough to protect the 18 million people who live within 50 miles of its two atomic reactors, the local mood is at best wary, at worst panicked.

"In our densely populated region, families deserve to be assured that the Indian Point nuclear facility could withstand a potential natural disaster or terrorist event," said Rep. Nita Lowey, D-Harrison.

Lowey outlined her concerns in a recent letter to Nuclear Regulatory Commission Chairman Gregory Jaczko.

"The tragedy in Japan only underscores the need for adequate preparation to prevent a catastrophe from occurring, and to respond quickly if one occurs."

Jaczko has assured federal lawmakers that the nation's 104 nuclear reactors are designed to withstand an attack by nature or terrorists.

He pointed to the increased security at all of the plants after 9/11, as well as to buildings that were constructed to withstand any earthquakes a particular location had experienced.

"US nuclear power plants are built to withstand environmental hazards, including earthquakes and tsunamis," Jaczko said. "Even those plants located outside of areas with extensive seismic activity are designed for safety in the event of such a natural disaster."

Lowey and other public officials have seized on the Ramapo Fault as a key reason for greater concern.

The fault is actually a geological braid of fault lines running from the area of Clinton, N.J., to a mile or so west of the Buchanan nuclear plant, where it intersects with a second line that recent discoverers say runs between Stamford, Conn., and Peekskill.

The intersection has created a lot of headlines after a giant 9.0 quake and tsunami battered coastal Japan 170 miles northeast of Tokyo.

Partial nuclear meltdowns and fires at some of Fukushima's six damaged reactors spewed radioactive particles into the atmosphere that have already reached California.

But the US Geological Survey -- one of the nation's foremost research labs -- said geologic evidence about the Ramapo Fault is "insufficient to demonstrate the existence of tectonic faulting or... slip or deformation."

It didn't even include the fault in calculations of earthquake hazards in 2008.

Geology professor Alec Gates put it more succinctly: "The Ramapo Fault is dead," said Gates, chairman of Earth and environmental sciences at Rutgers University. "It was a big fault in the old days, but not anymore."

And despite the discovery by Lamont-Doherty Earth Observatory geologists of activity on the line between Peekskill and Stamford in 2008, the USGS hasn't even evaluated that area for inclusion in the agency's database.

Lamont researchers found 15 earthquakes less than magnitude 3.0 on that line over three and a half decades.

To put it in perspective, the quake in Japan was thousands of times more powerful than a 3.0 temblor.

What differentiates this region from more earthquake-prone areas, experts say, is that it lies in the middle of the North American Plate, a tectonic slab that encompasses North America to the Pacific Ocean, including Greenland, Cuba, the Bahamas, and parts of Siberia and Iceland.

"It's not a plate boundary; that's the primary reason you don't have activity and that it's hard to predict activity," said Paul Olsen, a professor of Earth and Environmental Sciences at Columbia University and a member of the National Academy of Sciences. "The formation of the Ramapo Fault was at least 300 million years ago. Most of the earthquakes around here have nothing to do with it."

Earthquake activity is greatest when boundaries of plate grind up against each other, pushing until one slips and the resulting movement accelerates out from the point until its energy dies out.

Earthquakes in the New York City metropolitan region don't rise very high on the Richter scale; the worst was a magnitude 5.2 event in 1884 that started in Far Rockaway, N.Y., and toppled chimneys in Suffern. The bigger ones are not that frequent.

Lamont-Doherty experts say the public should expect a magnitude 6.0 earthquake every 670 years, a 7.0 event every 3,400 years.

The NRC's estimates for Indian Point, based on ground acceleration of earthquake energy, estimates there is a 1 in 1,000 chance that the reactors couldn't be shut down safely after an earthquake in this region.

They say, also, that there is no chance for a follow-up tsunami, a forecast other geologists support.

The greatest probability for high water is storm surge from a hurricane or other strong weather pattern that would hit 20 feet above sea level.

Indian Point officials say their backup generators and other systems are built to withstand that projection.

"The basic idea is that the entire state of stress is not oriented well for a bad earthquake on the Ramapo Fault," Olsen said. "The problem we have with the East is that we have no predictive capacity at all, even where earthquakes are likely to occur. At San Andreas, you know more; Japan, the same thing."

Despite that lack of specific knowledge, the NRC and the plant builders looked at geological surveys when the reactors were designed and built on bedrock more than 40 years ago and say they put in safety margins that were conservative.

"We took the history and built to envelop it," said John Cagnetta, 79, a nuclear engineer at Indian Point 1 in 1957. "That meant more reinforcement in the concrete, more flexibility in the materials, more bracing and thicker pipes. You didn't want a single failure of something to put the plant in jeopardy."

Cagnetta, now retired and splitting time between Florida and Hartford, Conn., never had a concern about raising his family in Brooklyn, well within reach of any radiation release from a plant 30 miles north of the Bronx line.

"I never felt uncomfortable," he said. "My sense was that if there was an earthquake, the safest place to be was the nuclear plant. We looked at a hurricane creating a 30-foot wave on Long Island Sound and hitting (the Millstone nuclear plant) at 200 miles an hour. Nothing would have been standing but the plant."

Debate About Safety Of Indian Point Nuclear Power Plant Increases In Wake Of Tsunami In Japan, Report Of 'Near Miss' Incidents (CBSNY)

Skepticism Grows About Safety Of Indian Point Nuclear Power Plant

By Marla Diamond with Richard Brodsky, CBS New York

newyork.cbslocal.com, March 21, 2011

BUCHANAN, NY (WCBS 880) – With the earthquake and resulting tsunami in Japan leaving nuclear reactors there on the verge of meltdown, those who live around them in our area are on edge.

A new report shows federal inspectors logged several “near miss” accidents at the Indian Point nuclear power plant in Buchanan in 2010.

Former Westchester County Assemblyman Richard Brodsky calls the findings troubling. Brodsky questioned whether the Nuclear Regulatory Commission, charged with ensuring the safety of nuclear facilities, was up to the job.

“The NRC is to nuclear power today what the SEC was to Wall Street three years ago,” says Brodsky.

New York state Attorney General Eric Schneiderman sent a letter to the Nuclear Regulatory Commission saying that earthquake resistance should be taken into account when granting new licenses that would keep the plants working well into 2030.

Indian Point 2 is licensed through 2013 and Indian Point 3 through 2015. A commission spokesperson said the NRC would review the request and get back to the attorney general.

WCBS 880's Marla Diamond also gets comments from Attorney General Eric Schneiderman

Richard Sheirer, who headed the New York City Office of Emergency Management during 9/11, insists the plant is safe. Sheirer is a safety consultant for the plant. [View This Poll](#)

[online survey](#)

“I'm very confident. I think they do an exceptional job,” says Sheirer.

Gov. Andrew Cuomo has called for a review of the situation.

In New Jersey, Gov. Chris Christie and Sen. Robert Menendez have both raised concerns about nuclear facilities there.

New York City Mayor Michael Bloomberg is making it crystal clear that he does not believe that Indian Point should be shut down at this point.

Mayor Bloomberg discusses Indian Point

“We need energy in this city, and the first thing we have to do is take a very close look at what happened in Japan and see if there's any lessons that we should learn from that and any improvements that we should learn and make at Indian Point,” said Bloomberg.

Long term, Bloomberg says more energy is needed from different sources, including wind, solar – even reclaiming power from garbage. Short term, Bloomberg said, Indian Point is necessary. Sheirer agreed: the benefits of the plant outweigh the risks.

Some Rockland County residents don't share that view.

WCBS 880's Peter Haskell in Stony Point

Resident Jessie Razarian told WCBS 880's Peter Haskell she wouldn't stand a chance in the event disaster struck the plant – and any evacuation attempt would be pointless. “Instead of sitting in traffic, I'd rather sit with my family, listen to music, watch movies, and enjoy the rest [of] what [time] we have.”

In response to comments offered by New York Attorney General Eric Schneiderman regarding Indian Point, John Durso, Jr., Executive Director for the New York Affordable Reliable Electricity Alliance (New York AREA) issued the following statement:

“For more than 30 years, independent experts have studied seismic related issues about Indian Point and continually found the facility to be safe. In 2008 a panel of highly renowned, independent experts evaluated 64 safety issues at Indian Point, including seismic design, and also determined the plant is very safe.

There are also fundamental differences between Indian Point and the Fukushima plants. Indian Point is on a river, 24 miles from the coast, while Fukushima is on an ocean. Tsunamis are known to occur in Japan; there is no record of them in New York State, especially so well inland. Important lessons will be learned from Fukushima and there will be even higher safety standards and practices at US nuclear plants.

We urge all policy makers as well as the nuclear power industry to pay attention to these findings so that nuclear power in New York and the United States will continue to provide clean, reliable and safe energy in the future.”

What do you think? Should Indian Point be shut down, or is it safe? Sound off in our comments section.

Fukushima, Indian Point And Fantasy (NYT)

Our towns

By Peter Applebome

[New York Times](#), March 19, 2011

There's no magic number, of course. Is it perilous at 10 miles away, but not 11? Is there an evacuation zone that would be a one-size-fits-all plan for any nuclear disaster? You don't need a physics degree to answer those questions.

But we do know that American officials have told citizens of the United States to stay at least 50 miles away from the Fukushima Daiichi Nuclear Power Station in Japan as the nuclear crisis continues.

In the case of a comparable disaster here, this is what a 50-mile circle around the Indian Point nuclear plant on the Hudson River in Westchester County would look like: past Kingston in Ulster County to the north; past Bayonne and Elizabeth, N.J., to the south; almost to New Haven in the east; and into Pennsylvania to the west. It includes almost all of New York City except for Staten Island; almost all of Nassau County and much of Suffolk; all of Bergen County, N.J.; all of Fairfield, Conn.

Try evacuating that on short – or long – notice.

“Many scholars have already argued that any evacuation plans shouldn’t be called plans, but rather ‘fantasy documents,’ ” Daniel P. Aldrich, a professor of political science at Purdue University and the author of “Site Fights: Divisive Facilities and Civil Society in Japan and the West,” said in an e-mail. They are often bureaucratic documents meant to meet policy requirements, not to work in the real world, he added.

FANTASY or not, the nuclear accident in Japan is putting renewed attention on exactly how to protect or evacuate the population around Indian Point, 35 miles from Midtown Manhattan in the most populous part of the country, with population of almost 20 million people in the metropolitan region. And in the end, the future of Indian Point, which is facing renewed calls that it be shut down, is not a referendum on nuclear power. It’s a question of whether this nuclear plant at this site makes sense.

Of course, there’s no universal standard for evacuations, and no simple template for people’s personal comfort zones. France gets 80 percent of its electricity from nuclear power, and the disaster in Japan does not seem to have created a huge backlash against nuclear power there. But it has renewed questions about Indian Point’s safety — whether from an earthquake, a terrorist attack, another natural disaster like a hurricane and resulting storm surges, or something as unanticipated as the hijacked plane that flew over it on Sept. 11, 2001.

Indian Point’s evacuation plans focus on a 10-mile ring populated by about 300,000 people. Twenty miles out, roughly the area of highest concern identified by Japanese authorities, includes almost a million people. A 50-mile evacuation plan does not exist and is hard to imagine.

The most in-depth analysis of the evacuation planning for Indian Point was a 256-page report commissioned by Gov. George E. Pataki and completed in 2003 by a firm headed by James Lee Witt, former director of the Federal Emergency Management Agency.

It concluded that the plans were drafted to comply with regulations rather than to create an effective strategy to protect the population, and that they assumed people would comply with government directives rather than do what seemed to be in their own best interests.

Citing these and other concerns, the report said: “It is our conclusion that current radiological response system and capabilities are not adequate to overcome their combined weight and protect the people from an unacceptable dose of radiation in the event of a release from Indian Point.”

Jim Steets, a spokesman for Indian Point, said evacuation and emergency preparedness planning was being constantly refined and that the nuclear industry expected to adapt and to learn lessons from the disaster in Japan. “You have a nuclear industry that prides itself on learning lessons,” he said.

Both Entergy, which owns Indian Point, and Steven Chu, the federal secretary of energy, have announced reviews of the plant in response to the disaster in Japan.

But asked repeatedly whether the government’s 50-mile zone could possibly be observed in the event of a comparable event here, Mr. Steets declined to answer. “I don’t think you can automatically say you would have the same situation or you could extrapolate from one situation to the other,” he said.

No operating American plant has ever been shut down because of the lack of an acceptable evacuation plan. But you don’t have to look far to find how critical the issue can be: The Shoreham nuclear plant on Long Island was completed and then shut down without producing any commercial electric power after representatives of Mario M. Cuomo, then the governor of New York, declined to certify its evacuation plan. Last week, another Governor Cuomo called Indian Point too big a risk to remain open.

The Manhattan Meltdown Scenario (NSWK)

Antinuclear activist Helen Caldicott on how New York’s nightmare would unfold.

By Helen Caldicott

Newsweek, March 21, 2011

The two operating nuclear reactors known as Indian Point are situated in Buchanan, N.Y.—just 35 miles from midtown Manhattan. More than 17 million people live within 50 miles of these plants.

How might a meltdown start? An earthquake, obviously, is among the scenarios. Others include various forms of terrorist attacks. Regardless of the trigger, a meltdown would follow several specific stages.

First, as cooling water dissipated from the reactor core, intensely hot radioactive pellets in the fuel rods would overheat and swell, and their zirconium cladding would oxidize and rupture. Then the pellets themselves would begin to melt. (Many details described here reflect a study of Indian Point by Edwin S. Lyman.)

If the molten fuel core were to hit the bottom of the reactor vessel, it would trigger massive steam explosions that could blow the reactor vessel apart. The eventual distribution of radioactive elements would depend on several factors, including the weather.

Both the Nuclear Regulatory Commission and the Environmental Protection Agency require an evacuation plan for a 10-mile radius of the reactor: an off-site alarm set to go off 30 minutes after an event began would allow time for the operators to determine the extent of the damage. That would leave 78 minutes from the alarm's sounding to the beginning of the radioactive release.

Early fatalities from acute radiation sickness for those within the 10-mile evacuation zone would range from 2,440 to 11,500. Late cancer deaths, which would occur two to 60 years later, could range from 28,100 to a staggering 518,000 people in the 50-mile zone.

Fatalities could be reduced within the 10-mile zone if people were to shelter indoors during the acute phases of the radioactive fallout. (Evacuation tends to increase doses received, because people would be in non-airtight vehicles or on foot.) Also, if everyone were to take inert potassium iodide tablets immediately, peak doses to their thyroids of radioactive iodine could be cut by 30 percent.

Imagine the scene: more than 300,000 people are running and driving away from the stricken reactor along winding Westchester roads, trying to reach their children, their spouses, and their mates. Then they begin to taste a strange, metallic flavor in their mouths. The radio blasts out dire warnings, yet nobody knows what they are doing and nobody is in control.

The economic consequences of a meltdown would be stupendous. New York could be rendered virtually uninhabitable, with \$1 trillion or more in costs from attempts at decontamination, the condemnation of radioactive property, and compensatory payments to people forced to relocate temporarily or permanently. Add to that the extraordinary economic consequences if the world's financial capital were closed forever.

Caldicott, who was trained as a pediatrician, is cofounder of Physicians for Social Responsibility. Adapted from Nuclear Power Is Not the Answer copyright 2006 by Helen Caldicott. Reprinted by permission of the New Press.

Bigger Fish To Fry Regarding Indian Point (WESTJN)

Westchester (NY) Journal News, March 21, 2011

It's amazing how much difference a week can make.

About that long ago, the biggest question mark for Entergy, owner of the Indian Point nuclear plants, concerned the fate of Hudson River fish.

The fish, along with other aquatic life, suffer great harm from the plants, which use vast amounts of river water for cooling. Along with the water, the fish and larvae get sucked into the plants; they do not re-emerge alive. Other life is harmed when the super-heated water is returned to the Hudson.

State environmental officials looking to mitigate those harms have been pressing Entergy, as a condition of state permits, to build cooling towers, at a cost of some \$1.5 billion; Entergy has been lobbying for a much cheaper solution, something called "wedge-wire screens" – and scaring its neighbors with mockups of what Yankee Stadium-sized cooling towers would look like.

Now, of course, there is a superseding fright. The inquiries ahead

After an earthquake and tsunami left a complex of nuclear power plants in ruin in Japan, the focus in the Lower Hudson Valley has shifted from fish and larvae to the fate of all living things – that is, all life within 50 miles of Indian Point. MSNBC reported last week that the plants in Buchanan top a list of US nuclear facilities considered most susceptible – however slight the possibility – to suffer nuclear core damage from an earthquake. Fifty miles is the distance US officials told Americans in Japan to stay away from the stricken plants there. But the officials might as well have been talking to us, nerves have frayed that much.

Gov. Cuomo, who has long lobbied to close the plants, ordered an immediate review of the plants, in light of the unfolding catastrophe in Japan and MSNBC's report. Both Nuclear Regulatory Commission Chairman Gregory Jaczko and his boss, President Barack Obama, called for more study of the crisis in Japan, with an eye toward improving nuclear plants in the US. And not waiting for further inquiry, Assemblywoman Ellen Jaffee, D-Suffern, promised to introduce a resolution this month opposing federal relicensing of Indian Point, whose owner is looking to renew federal licenses that expire in 2013 and 2015, respectively. Jaffee points to long-running concern about emergency evacuation plans for areas surrounding Indian Point – plans that have long been criticized as unworkable. She said the Japan disaster only "intensify fears that a similar failure at Indian Point" could result in catastrophic loss of life.

"There is widespread consensus that the evacuation plan for the 300,000 people in Indian Point's Emergency Planning Zone is unworkable," Jaffee wrote to her Assembly colleagues on Tuesday. "... An additional 20 million persons live within 50 miles of the plant. A failure at Indian Point could devastate New York City. Given the distance radioactive releases can travel, a release from Indian Point could precipitate a public health crisis of historic proportion. Provision of energy to our region is essential; however when weighed against loss of life and property, energy becomes insignificant. Our region can and must seek other energy sources."Other energy sources

Of course, that latter point – the need to replace energy lost by a mothballed Indian Point – has never been adequately addressed in New York, notwithstanding a parade of elected officials who, through the years, have called for closing the plants. They produce an estimated 25 percent of the electricity used in New York City and Westchester and 12 percent of the power generated statewide. "We all see gas prices going through the roof," Sen. Chuck Schumer, D-N.Y., said last week. "So we have to be really mindful of the fact we should look at every domestic source of energy so we are no long dependent on foreign oil from places like Libya or Iran or Venezuela."

Sen. Kirsten Gillibrand, D-N.Y., said she supports building new nuclear plants in New York communities where there is local support for such facilities. "There's lots of places in the state that would certainly welcome a nuclear facility," she said. Unemployment rates in some upstate communities still exceed 9 percent. Rep. Nan Hayworth, R-Mount Kisco, said it "would be a challenge" to evacuate 15 million in the event of an emergency at Indian Point. The odds of that being necessary, she said in an Associated Press report, were "exceedingly remote." She described herself as "a supporter of the continued operation of Indian Point."

More answers and questions come this week. The five-member Nuclear Regulatory Commission meets in public on Monday to discuss the crisis in Japan; the members doubtless will also discuss Indian Point and the comprehensive review of US facilities that President Obama ordered. Also Monday, a Westchester County Board of Legislators committee takes up disaster preparedness. Entergy officials, now an earthquake, tsunami and nuclear crisis removed from their woes over Hudson River fish, were invited to attend the meeting in White Plains. According to a statement out Wednesday, the plants are in the midst of a "comprehensive review" of their ability to respond to "catastrophic events." The statement said Indian Point is designed to withstand an earthquake "greater in size than the area has ever experienced." The question now is whether that is good enough.

A Journal News editorial

Schneiderman Pushes NRC On Indian Point (Updated) (ATU)

Capitol Confidential

By Liz Benjamin

Albany Times Union [hich\af39\dbch\af31505\loch](#), March 21, 2011

AG Eric Schneiderman is pressuring the Nuclear Regulatory Commission to consider seismic risk in relation to the relicensing of Indian Point, an argument the state has heretofore been unsuccessful in making while seeking to prevent the nuclear plant from getting permission to remain open for another 20 years. In a letter to the NRC commissioners, Schneiderman argues that the unfolding nuclear crisis in Japan, coupled with a new report that ranked Indian Point's Reactor No. 3 as at the highest risk of quake damage in the US, merits consideration.

"As the NRC has acknowledged, Indian Point Unit 1, which was authorized in 1956, was built prior to any specific requirement for earthquake protection," the attorney general wrote. "Although the NRC revoked the operating license for the Indian Point Unit 1 power reactor in 1980, many of Unit 1's system, structures, and components were conjoined to Unit 2 and Unit 3 and are still in use today."

"These aging Unit 1 systems, structures, and components were built to inferior seismic specifications, and Unit 2 and Unit 3's continued reliance on these systems today poses significant safety questions." "The NRC has consistently blocked consideration of New York's seismic concerns, as well as related concerns about population, emergency evacuation, fire safety, and site security."

Indian Point's operator, Entergy Corporation, has applied for its two reactors to be allowed to continue operating for another two decades past 2013 and 2015 when their 40-year licenses expire. Entergy insists Indian Point's reactors can easily withstand the sort of low-magnitude quakes that occur in the Northeast, which are nothing compared to the 8.9 monster that ravaged Northern Japan, causing a massive tsunami.

Yesterday, the Obama administration ordered a safety review of all the nation's nuclear power plants. Earlier this week, Gov. Andrew Cuomo, who has long maintained that Indian Point should be closed and began the process to block its relicensing when he was AG, expressed renewed concern about the facility and ordered a complete safety review. Cuomo said the proximity

of the plant to NYC – just 24 miles to the north in Westchester County — makes it too risky to keep open. But Mayor Bloomberg said yesterday that he supports the plant's continued operation, noting it generates up to 30 percent of the city's energy.

"Short term, we have to have power if we are going to grow, and Indian Point at the moment is a big part of that," Bloomberg said. "All of these other alternatives are a number of years down the road."

The full text of Schneiderman's letter appears after the jump.

UPDATE: John Durso Jr., executive director of a business/labor/community group called the New York Affordable Reliable Electricity Alliance (NY AREA) released a pro-Indian Point statement that appears just before the AG's letter. "For more than 30 years, independent experts have studied seismic related issues about Indian Point and continually found the facility to be safe," Durso said.

"In 2008 a panel of highly renowned, independent experts evaluated 64 safety issues at Indian Point, including seismic design, and also determined the plant is very safe." "There are also fundamental differences between Indian Point and the Fukushima plants. Indian Point is on a river, 24 miles from the coast, while Fukushima is on an ocean. Tsunamis are known to occur in Japan; there is no record of them in New York State, especially so well inland."

Important lessons will be learned from Fukushima and there will be even higher safety standards and practices at US nuclear plants. We urge all policy makers as well as the nuclear power industry to pay attention to these findings so that nuclear power in New York and the United States will continue to provide clean, reliable and safe energy in the future."

March 18, 2011

Chairman Gregory B. Jaczko

Commissioner Kristine L. Svinicki

Commissioner George Apostolakis

Commissioner William D. Magwood, IV

Commissioner William C. Ostendorff

US Nuclear Regulatory Commission Washington, D.C. 20555

Via electronic and US Mail

Re: Seismic Risk at Indian Point Nuclear Generating Station

Dear Chairman Jaczko and Commissioners Svinicki, Apostolakis, Magwood, and Ostendorff:

I am writing you as a nuclear crisis, initiated by the March 11 earthquake and subsequent tsunami in Northern Japan, is still unfolding. In addition to its potentially devastating impact on the people of Japan, this crisis serves as a graphic demonstration that nuclear power facilities in the US may be vulnerable to seismic activity and experience catastrophic failures that compromise their ability to control and cool multiple nuclear reactors.

Data from your staff analysis (GS-199), which demonstrates an increased risk of seismic activity at some nuclear power plants in the country add to my concern. These factors underscore the importance of a fair, open, and full assessment of seismic risks in the relicensing of Indian Point. New York State has raised concerns about seismic risk and other issues in relation to the relicensing of Indian Point with your staff on numerous occasions.

At each turn, however, the NRC has refused to consider these critical issues in the relicensing review process.

As you know, the Indian Point nuclear power station in Buchanan, New York sits 24 miles from New York City. Of all the power reactors in the United States, the two operating Indian Point reactors have the highest surrounding population both within a 50-mile radius and a 10-mile radius. Seventeen million people live within 50 miles of these reactors. Indian Point Units 2 and 3, which initially came on line in 1973 and 1975, are currently the subject of an adjudicatory proceeding to extend their license by another 20 years (Unit 1 ceased generating in the 1970s). As the NRC has acknowledged, Indian Point Unit 1, which was authorized in 1956, was built prior to any specific requirement for earthquake protection.

Although the NRC revoked the operating license for the Indian Point Unit 1 power reactor in 1980, many of Unit 1's system, structures, and components were conjoined to Unit 2 and Unit 3 and are still in use today. These aging Unit 1 systems, structures, and components were built to inferior seismic specifications, and Unit 2 and Unit 3's continued reliance on these systems today poses significant safety questions. The NRC has consistently blocked consideration of New York's seismic concerns, as well as related concerns about population, emergency evacuation, fire safety, and site security.

In November of 2007, the Attorneys General of New York, Connecticut, Delaware, Illinois, Kentucky, and Vermont submitted a letter to the NRC which expressed the states' serious concerns about the NRC's failure to confront issues such as local seismic activity when deciding whether to renew the operating license of a nuclear power plant beyond its initial forty-year term. The states requested that the NRC expand relicensing criteria to include seismic analysis. On December 30, 2007, the NRC rejected this request.

The NRC also disregarded New York's "scoping" comments in 2007, which noted that the Indian Point operator's Environmental Report and Updated Final Safety Analysis Reports do not reflect seismic information developed after the early 1980s, and which asked the NRC to require the owner to revise those outdated documents. The NRC subsequently issued a Draft Environmental Impact Statement (DSEIS) based on this out-of-date information.

The DSEIS failed to mention new information regarding seismic activity developed recently by the United States Geological Survey (USGS) that included the area around Indian Point or to account for the findings of Columbia's Lamont-Doherty Earth Observatory 2008 study. In fact, the NRC has not revised any of its Indian Point-related environmental analyses to take into account findings from this important independent study. Perhaps most egregious is the NRC Staff's issuance of the Final Supplemental Environmental Impact Statement (FSEIS) for Indian Point, which it issued three months after Staff issued the GS-199 analysis on seismic activity.

The FSEIS did not make any reference to the NRC's own findings of increased seismic risk at Indian Point. In November of 2007, the state submitted two contentions in the license renewal proceeding arguing that the applicant's "Updated" Safety Evaluation Report and Environmental Report insufficiently analyzed alternatives for mitigation of severe accidents like earthquakes in that it: (1) failed to include recent information regarding the type, frequency, and severity of potential earthquakes and; (2) failed to include an analysis of mitigation measures which could reduce the effects of an earthquake damaging the parts of inactive Indian Point Unit 1 which are currently in use at Units 2 and 3.

The NRC Staff opposed acceptance of these contentions, and the Atomic Safety and Licensing Board excluded them from consideration in the adjudicatory proceeding because, it said, the state did not suggest feasible alternatives to address risks posed by the new data, or estimate the cost of the increased margin of safety that would result from any severe accident mitigation action.

This burden is clearly not the public's to bear and these contentions were excluded in error. Earlier this week, in testimony before the Senate Committee on Environment and Public Works, Chairman Jaczko stated the NRC's intention to conduct a review of the earthquake-related risks faced by nuclear power facilities operating in the central and eastern US. He stated that this review would take one to two years to complete, followed by a similar period of time to consider and implement mitigation measures. Indian Point Units 2 and 3 are currently the subject of a proceeding to extend their licenses by another 20 years -- proceeding in which the NRC has consistently ignored serious consideration of the risks that earthquakes and related issues pose to the Indian Point facility. NRC should not contemplate relicensing Indian Point without first completing an open and public review of earthquake-related risks faced by this facility.

For this reason, the NRC must undertake an immediate, full, fair, and open assessment of all public health and safety risks that earthquakes pose to this facility, and provide the public an opportunity to fully review and comment on all phases of this review.

In addition, the NRC must take the following actions: Promulgate an amendment to Part 54 and any other relevant regulations, which exclude seismicity analysis from the scope of safety review in relicensing proceedings, to specifically require the preparation of a public site-specific seismic analysis for the Indian Point and other reactors; Open up the GS-199 seismic analysis proceeding for meaningful participation by states and the public so that all assumptions can be identified and tested and ensure that all information used in this proceeding is made available in the public record; Address the risk posed by the Indian Point Unit 1 facilities, which share many common components and systems with the other Indian Point units, in a complete and transparent way; Incorporate USGS findings and Columbia Lamont-Doherty's findings into the Indian Point FSEIS for license renewal and re-issue the document for additional public review and comment; Make public immediately the Commission's plans, in their entirety, for addressing seismic risk at all three Indian Point plants; and Maximize public involvement in the Commission's and the NRC Staff's actions regarding seismic risk at Indian Point. Whether or not one supports the re-licensing of Indian Point Units 2 and 3, we can all agree that we must protect the health, safety, and environment of the nearly 20 million people living in close proximity to the facility.

Only through a full, fair, and open assessment of the earthquake and related security risks surrounding this uniquely-situated plant -- one that precedes any consideration of approving an extension of the Indian Point facility for another 20 years -- can we provide these fundamental protections. I thank you for your attention this request, and please do not hesitate to contact me at any time if I can provide additional information or you would like discuss this matter in greater detail.

Sincerely,
Eric T. Schneiderman
Attorney General

NRC Spokesperson: We Don't Rank Plants By Seismic Risk (MalvernPatch)

By David Powell

Malvern (PA) Patch.com, March 21, 2011

The Nuclear Regulatory Commission's Neil Sheehan wrote a clarification regarding yesterday's article about the earthquake risk to Exelon Nuclear's Limerick Generating Station.

[Updated: See below for Bill Dedman's response to the NRC letter.]

The assertions made in an msnbc.com article published March 16, which Patch linked to soon after, have been challenged by a Nuclear Regulatory Commission spokesman.

In the article, investigative reporter Bill Dedman wrote that, "the US Nuclear Regulatory Commission has calculated the odds of an earthquake causing catastrophic failure to a nuclear plant here."

Below is the letter the NRC issued in reply:

Regarding: "NRC: Risk of quake event at Limerick plant third highest in US"

The MSNBC [msnbc.com] story has to do with a seismic risk ranking it created. It is not the result of an NRC review. The NRC does not rank plants by seismic risk.

The objective of the NRC study was to perform a conservative, screening-level assessment of earthquake risk. The NRC results to date should not be interpreted as definitive estimates of seismic risk. The nature of the information used to make these estimates are useful only as a screening tool.

Currently operating nuclear power plants in the US remain safe, with no need for immediate action. This determination is based on NRC staff reviews of updated seismic hazard information and the conclusions of the screening panel. Existing plans were designed with considerable margin to be able to withstand the ground motions from the largest earthquake expected in the area around the plant.

Neil Sheehan, NRC Public Affairs

UPDATE: Bill Dedman of msnbc.com responded to the NRC statement in a comment at West Chester Patch:

Our story made clear that the NRC does not rank the nuclear plants. But it does publish its estimates for each plant, by which we ranked the plants.

If the newspaper starts publishing the American League East standings in alphabetical order, it's entirely appropriate for the reader to put the teams in order by winning percentage.

Don't be misled. NRC hasn't said our numbers are wrong. I checked my interpretation with Scott Burnell in Public Affairs, who checked with the NRC technical staff before publication. No challenge from NRC has arrived after publication.

After all, they're NRC's numbers.

What NRC is saying is that it doesn't do rankings. That's right. We did, from NRC's data. Just as the story says.

You can see for yourself in the NRC report that:

- NRC says the risk of quakes in the central and eastern states is higher than previously thought.
- It still thinks plants are safe.
- but their margin of safety is reduced.
- and some plants are now near the point where they should be re-examined, and perhaps retrofitted.
- and the staff says this should now move from being a research issue to a regulatory issue.
- and it has made its best estimates of the frequency (chance, odds) of an earthquake that would cause core damage to a plant.

A link to the report is on our report: http://www.msnbc.msn.com/id/42103936/ns/world_news-asiapacific/

Bill Dedman, msnbc.com

NRC Disavows MSNBC Study Showing Callaway Nuclear Plant Earthquake Risk (FULTON)

By Don Norfleet

Fulton Sun, March 21, 2011

An msnbc.com study showing the Callaway Nuclear Power Plant faces the least risk from damage from an earthquake of all 104 US nuclear plants has been disavowed by the US, Nuclear Regulatory Commission (NRC).

Lara Uselding, a NRC spokeswoman, said the NRC does not rank plants based on risk of damage from an earthquake.

Uselding said MSNBC reached its own conclusions in its rankings and the NRC did not approve the rankings.

"It was an incomplete report on the overall research that had been done by the NRC. Somebody at MSNBC took numbers and threw them together to create the rankings. We have said that is not accurate because the NRC does not rank plants by seismic risk," Uselding said.

She said the NRC did do a study on earthquakes in 2008 to update a previous 1982 study of recent seismic activity but the NRC did not rank each plant for seismic risk.

"We did a generic issue 199 safety risk assessment. The objective of that was to perform a conservative screening level assessment to evaluate further investigations of seismic activity of Central and Eastern United States," Uselding said.

"We continue to say, even after what has been going on in Japan that all operating nuclear plants in the United States remain safe and there is no need for any immediate action and that of course includes the Callaway Nuclear Power Plant. All nuclear plants in the United States are built to withstand the most severe natural threats recorded for that area. Even plants that are not in areas of heavy seismic activity are designed for safety in the event of a seismic disaster. Then we add a margin of error on top of that to make sure the plant is safe," Uselding said.

Uselding said nuclear plants are not engineered based on earthquake Richter Scale probabilities. "It's actually based on probable and previous ground motion and shaking. Plants are planned with safety related systems and reactor analysis," Uselding said.

Mike Cleary, an Ameren Missouri spokesman, said he had heard about the MSNBC study and was excited to learn that the Callaway plant was ranked as the least likely to be damaged by an earthquake. But when he contacted the NRC about the study, he was told the study was not valid because the rankings were done by MSNBC, not the NRC.

Cleary said that does not affect the fact that the plant was built to be safe and still is safe. He noted the New Madrid fault is 200 miles away from the Callaway Nuclear Power Plant. He said the plant was built specifically not only to meet but also to exceed the likely earthquake activity for this area as well as tornadoes and other threats.

"The plant's safety design is not tied to the Richter Scale. The same magnitude of earthquake on the Richter Scale could have a totally different impact on the nuclear plant, depending upon the type of soil present at a particular area. It is based on the geology of the Callaway Nuclear Plant site itself when the specific standards were developed for this plant," Cleary said.

MSNBC reported it did the rankings based on information provided by the NRC.

The MSNBC study showed the odds of an earthquake damaging the nuclear reactor at the Callaway County nuclear plant are only one in 500,000 each year compared to the least safest plant with odds of one in 10,000 located near New York City.

The MSNBC study showed that nuclear plants that were near heavy seismic activity were built much stronger than plants that are not near earthquake areas of the nation.

Rick Eastman, supervisor of business operations at the Callaway Nuclear Power Plant, said the plant was built to meet worst case scenarios regarding seismic activity or tornadoes.

Bill Dedman, who wrote the msnbc.com report, issued the following statement:

"Our msnbc.com story made clear that the NRC does not rank the nuclear plants. But it does publish its estimates for each plant, by which we ranked the plants.

"If the newspaper starts publishing the American League East standings in alphabetical order, it's entirely appropriate for the reader to put the teams in order by winning percentage.

"Don't be misled by the NRC's non-denial denial. NRC hasn't said our numbers are wrong. I checked my interpretation with Scott Burnell in Public Affairs, who checked with the NRC technical staff before publication. No challenge from NRC has arrived after publication.

"After all, they're NRC's numbers.

"What NRC is saying is that it doesn't do rankings. That's right. We did, from NRC's data. Just as the story says.

"You can see for yourself in the NRC report that:

"-- NRC says the risk of quakes in the central and eastern states is higher than previously thought.

"-- It still thinks plants are safe.

"-- but their margin of safety is reduced.

"-- and some plants are now near the point where they should be re-examined, and perhaps retrofitted.

"-- and the staff says this should now move from being a research issue to a regulatory issue.

"-- and it has made its best estimates of the frequency (chance, odds) of an earthquake that would cause core damage to a plant.

"A link to the NRC report is on the msnbc.com report: http://www.msnbc.msn.com/id/42103936/ns/world_news-asiapacific/."

NRC: Seismic Refits Not Yet Needed (INTLBIZ)

International Business Times, March 18, 2011

The Nuclear regulatory Commission has no plans to retrofit existing nuclear power plants due to seismic hazards, despite an increase in measured seismic risk at some sites.

Joey Ledford, of the office of public affairs at the NRC, said nuclear reactors in the US are all designed to take into account historical earthquakes, as well as some additional margin. How much that is depends on the plant and the individual permits.

An NRC study from 2008 looked at the seismic hazards facing nuclear power stations, focusing on those in the central and eastern US. There are 104 power stations in the United States, and 99 of them are in the regions in the study.

Ledford said the study was largely a screening tool, to see which plants, if any, require further evaluation. The idea was to see which plants might be at higher risks than government agencies thought and if any remedial action was needed. The 2008 study was an update to one done in the 1980s, as the data on earthquake hazards from the US Geological survey has improved since then.

There are no plans for any immediate action, Ledford said, because the data doesn't warrant it. The study says that using the updated data, all of the nuclear plants have a 1 in 10,000 or less chance per year of damage to the reactor core from a seismic event. That doesn't mean the plants won't be studied at all - merely that there isn't any need for immediate retrofits.

According to the study, there are anywhere between two and three dozen power plants that should be looked at more closely. Some of that work involves getting better data for each individual site. Another will be checking the plants themselves, some of which have been modified since they were built.

An MSNBC.com story ranked the plants according to seismic risk, using data from the NRC. The NRC doesn't rank plants that way, and has distanced itself from the way MSNBC presented the data.

The earthquake that generated the tsunami which struck the Fukushima Daiichi reactor in Japan was magnitude 9.0. The tsunami disabled the cooling systems and leaving the reactors in danger of melting down. But such earthquakes are much less likely in the eastern half of the US, though the harder rock makes even small tremors felt in much wider areas.

Another issue for the Fukushima plant was the tsunami. Before the tsunami hit the plants had shut down exactly as they were designed to do with only minor damage. It was the tsunami flooding the generators and shutting down the cooling pumps that created the current crisis.

New York Governor Andrew Cuomo has stated that he wants to see the Indian Point Energy Center, a nuclear power station in Buchanan, N.Y., shut down because of the increase in seismic risk.

While earthquakes have happened in the state of New York, the USGS notes that the biggest quakes have all occurred in the St. Lawrence River valley, near Canada. A strong temblor occurred in 1884, on Long Island, which was felt in New York and the shaking was intense enough to cause minor damage buildings. The most powerful quake so far was in 1944, centered near Massena, N.Y., near the Canadian border. At magnitude 5.8, it was felt as far south as New York, but it was not intense enough for most people to notice.

Robert Alvarez, senior scholar at the Institute for Policy Studies and senior advisor to the Department of Energy under President Bill Clinton, says the problem with relying too much on historical data is that the intensity of an earthquake can sometimes exceed historical norms. "They didn't expect a quake that powerful in Japan," he said. "Nature has a way of doing that."

Nuclear plants, he said, are designed for a 7.5 magnitude earthquake. The most powerful earthquake in California was the 1906 tremor, at magnitude 7.7 to 7.9. Earthquakes in Missouri have hit 8.0, as in the New Madrid quake of 1811. There are two nuclear reactors in Arkansas and one in Calloway, Mo., in the zone near where that earthquake took place. (The MSNBC story listed the Calloway reactor with the lowest odds of being damaged by a seismic event, at one in 500,000).

Another issue is the power station design. Alvarez notes that the reactor isn't the big problem for plants like the ones in Fukushima. So-called boiling water reactors - there are 31 in the US of the same design - have a large, elevated pool of water above the reactor vessel. That's where the spent fuel is kept. The water is both a radiation shield and a coolant.

In an earthquake, Alvarez says, the container for the pool of water could be damaged. The water would drain out, and the heat from the spent nuclear fuel could reach dangerous levels. If the fuel gets too hot, the zirconium alloy of the casing could react with the air and steam, releasing hydrogen. That risks a fire or explosion.

The reactors at Indian Point are pressurized water reactors, which operate somewhat differently and do not have the elevated pools. Instead, the spent fuel is in a separate building, which eliminates the problem of trying to elevate millions of gallons of water. The pumps that drive the water over the spent fuel still need to keep functioning, however.

Blog: EDITORIAL: US NRC Confirms MSNBC.com Reporter Mislead, Sensationalized Nuclear Story (DAYTECH)

By Jason Mick

Daily Tech, March 19, 2011

On Wednesday MSNBC.com published a story, which claimed to analyze a report [PDF] sponsored by the US Nuclear Regulatory Commission. That story, written by MSNBC.com Investigative Reporter Bill Dedman discussed which commercial US nuclear plant was at "the most risk" of exposing the public to radiation.

We wrote a piece on Wednesday criticizing numerous factual inaccuracies in Mr. Dedman's piece. At the same time we contacted the US Nuclear Regulatory Commission (NRC). On Friday, after two lengthy phone interviews and an email dialogue with the NRC we had the complete story – the NRC backed nearly every one of our assertions.

All journalists make mistakes. But Mr. Dedman made nearly every one in the book in this report.

Sensationalism and factual errors – the report and Mr. Dedman's assertions demonstrate an appalling disregard for the facts and a blatant attempt to alarm the public.

But don't take our word for it, read the facts.

I. Reporter Refuses to Correct Factual Inaccuracies: Report DID NOT Assess Public Exposure

Mr. Dedman (MSNBC.com) writes:

It turns out that the US Nuclear Regulatory Commission has calculated the odds of an earthquake causing catastrophic failure to a nuclear plant here. Each year, at the typical nuclear reactor in the US, there's a 1 in 74,176 chance that the core could be damaged by an earthquake, exposing the public to radiation.

But the US Nuclear Regulatory Commission says they calculated no such risk.

The report itself states:

In contrast [to the seismic core damage frequency], the containment performance analyses conducted under the IPEEE program did not produce sufficient quantitative information to allow the estimation of either LERF or public dose.

That seems pretty clear – the report does not talk about the risk of public exposure to radiation, so we helpfully suggest to Mr. Dedman:

This seems to be a clear cut factual error that's misleading and disingenuous – be it intentionally or unintentionally so. It seriously discolors the estimates and makes them something they explicitly are said to NOT be by the NRC.

Mr. Dedman writes us back:

No, Jason, the article is about core damage, which the NRC says would release radiation. You've decided that I must have been talking about something else, which I wasn't, and now you're saying, why aren't about that something else...

That is a clear mistake -- intentional, or unintentional.

Engaging in the due diligence that Mr. Dedman neglected to we discussed Mr. Dedman's comments and our analysis with government authorities at the US regulatory commission. They told me they never told him that.

Their spokesperson, Neil Sheehan writes us:

Seismic CDF is the probability of damage to the core resulting from a seismic initiating event. It does not imply either a meltdown or the loss of containment, which would be required for radiological release to occur. The likelihood of radiation release is far lower.

That was only the first of several falsehoods and factual errors in Mr. Dedman's correspondence and work that we were able to definitively verify.

States a separate NRC team member, "There were numerous inaccuracies in that story."

And this was but the first.

[MSNBC and its employee Mr. Dedman have not corrected this error in their story, despite knowing about it, at the time of this article's publication.]

II. Another Mistake - MSNBC.com Was Told to Use the "Weakest Link" Model

In Mr. Dedman's original piece he writes:

The chance of a core damage from a quake at Indian Point 3 is estimated at 1 in 10,000 each year. Under NRC guidelines, that's right on the verge of requiring "immediate concern regarding adequate protection" of the public.

In our report we question this number, pointing out that there's three different models and Mr. Dedman seemingly purposefully picked the most severe one. The other models take into account other scenarios of vibration damage so they seem equally valuable to "weakest link" scenario, as it's unclear what parts would be damaged by what vibration frequency.

Mr. Dedman writes us stating:

You're cherry picking. You've decided that the weighted average is the right column to use. Based on what? The NRC staff prefers the column that we've used, the "weakest link." That's the number it sent us, when it sent us one number for each plant. And as the report explains, the NRC has no basis on which to weight the averages, so it says a weighted average wouldn't be meaningful.

There are three separate falsehoods in this statement. As you will see, the NRC told Mr. Dedman nothing of the sort and he's clear mislead me, as he's done to his readers.

And again, Mr. Dedman mistakes the work of the USGS, for the NRC, clearly indicating his lack of understanding of the material he's writing on.

We write him:

Do you have a contact at the NRC who can substantiate your claims? How can you weight data without having a factor to do so? If you get me this information I can [edit my article].

Virtually always weighted data is what you would use in a case like this, as the data is typically weighted by the frequency of occurrence of the event (e.g. a probability of the probability). It's possible your correct, that would just be a bit unusual.

Mr. Dedman refused to provide us the identity of his phantom "contact" at the NRC, so we contacted them ourselves.

We asked them if they told Mr. Dedman to use this figure or told him that the weighted average was non-meaningful.

We inquire:

Did an NRC spokesperson tell MSNBC's Bill Dedman that the weighted risk was invalid and to use the weakest link model?

They respond:

No.

And they add:

The weighted average is not invalid (see Answer 5 below). All of the values in Appendix D were developed by NRC staff. Table D-1 in Appendix D uses the (2008) US Geological Survey (USGS) seismic source model, but the Seismic Core Damage Frequency results were developed by US NRC staff. The USGS seismic source model is the same one used to develop the USGS National Seismic Hazard Maps.

Tables D-1 through D-3 in Appendix D of the US NRC study show the "simple" average of the four spectral frequencies (1, Hz, 5 Hz, 10 Hz, peak ground acceleration (PGA)), the "IPEEE weighted" average and the "weakest link" model. These different averaging approaches are explained in Appendix A.3 (simple average and IPEEE weighted average) and Appendix A.4 (weakest link model). The weighted average uses a combination of the three spectral frequencies (1, 5, and 10 Hz) at which most important structures, systems, and components of nuclear power plants will resonate. The weakest link is the largest SCDF value from among the four spectral frequencies noted above. Most nuclear power plant structures, systems, and components resonate at frequencies between 1 and 10 Hz, so there are different approaches to averaging the Seismic Core Damage Frequency (SCDF) values. By using multiple approaches, the NRC staff gains a better understanding of the uncertainties involved in the assessments.

In other words, each model is important to gaining a full understanding of various possible scenarios and Mr. Dedman erroneously selected the most sensational model and then falsely claimed the NRC told him to.

The NRC adds:

The weakest link model is a method for evaluating the importance of different frequencies of ground vibration to the overall plant performance. The model and its details are not integral to understanding the fundamental conclusions of the study.

That conclusion? The nation is quite safe (as we write in our piece).

[MSNBC and its employee Mr. Dedman have not corrected this error in their story, despite knowing about it, at the time of this article's publication]

III. More Misinformation -- Did the Report Evaluate Risk at All 104 Plants?

We admit, we missed this error in Mr. Dedman's report initially, but the NRC pointed it out for us:

The US Nuclear Regulatory Commission study, released in September, 2010, was prepared as a screening assessment to evaluate if further investigations of seismic safety for operating reactors in the central and eastern US (CEUS) are warranted, consistent with NRC directives. The report clearly states that "work to date supports a decision to continue ...; the methodology, input assumptions, and data are not sufficiently developed to support other regulatory actions or decisions." Accordingly, the results were not used to rank or compare plants. The study produced plant-specific results of the estimated change in risk from seismic hazards. The study did not rely on the absolute value of the seismic risk except to assure that all operating plants are safe. The plant-specific results were used in aggregate to determine the need for continued evaluation and were included in the report for openness and transparency.

In other words Mr. Dedman claimed the study looked at all plants and discussed what risk they were at. It did not.

The NRC adds:

The plant-specific results were used in aggregate to determine the need for continued evaluation and were included in the report for openness and transparency. The use of the absolute value of the seismic hazard-related risk, as done in the MSNBC article, is not the intended use, and the NRC considers it an inappropriate use of the results.

In other words, Mr. Dedman abused the data to support his own fallacious conclusions.

Mr. Dedman accused me:

I don't mind criticism at all, but twisting of facts...

We agree with his assessment. His statements were unacceptable.

[MSNBC and its employee Mr. Dedman have not corrected these errors in their story, despite knowing about it, at the time of this article's publication.]

IV. Textbook Alarmism

Mr. Dedman claimed the results of the study showed that the chance of a plant disaster was as likely as winning a \$10,000 prize in the national Powerball lottery. This is factually inaccurate. The powerball frequency per population is greater than 1 per year. The chances of a core meltdown per population are less than 1/7,400th per year, according to the report.

Further, Mr. Dedman writes:

How much risk is too much? Is a roller coaster safe only if no one ever dies? If one passenger dies every 100 years? Every year?

This is alarmism at its finest. People are not dying every year from quake-induced plant damage in the US And there's little chance a single life will be lost over the course of the next century from quake damage in the US

The report explicitly states:

Plants have seismic margin and the results of the GI-199 Safety/Risk Assessment confirm that overall seismic risk estimates remain small. GI-199 is not an adequate protection issue.

And the NRC tells us:

The study is still under way and it is too early to predict the final outcome. However, the NRC staff has determined there is no immediate safety concern and that overall seismic risk estimates remain small. If at any time the NRC determines that an immediate safety concern exists, action to address the issue will be taken. The NRC is focused on assuring safety during even very rare and extreme events. Therefore, the agency has determined that assessment of updated seismic hazards and plant performance should continue.

[MSNBC and its employee Mr. Dedman have not removed these misleading statements from their story, despite knowing about it, at the time of this article's publication.]

V. The Moral of This Story

The moral of this story is that sensationalism and alarmism may be a ticket to cheap page views, but when you get the facts wrong and then cook up tall tales to cover up your tracks, someone will eventually call you out.

One must wonder what MSNBC.com thinks of this performance.

After all, Mr. Dedman's story apparently touched off a US Senate inquiry into plant quake safety. In other words it not only created mass public panic and misinformation, it triggered a knee-jerk response by the federal government.

Most journalists make mistakes, but most don't reach as many people as Mr. Dedman does or trigger government inquiries. And few journalists would refuse to fix blatant factual errors like Mr. Dedman did when we clearly discussed these points with him.

Thus far Mr. Dedman has defiantly refused to correct the numerous factual inaccuracies and mistakes in his piece, even when his source, the NRC, clearly stated his story was inaccurate.

We feel that it is critical to MSNBC.com's reputation as a legitimate news site that this story be removed and/or corrected immediately. And they need to take a long hard look at Mr. Dedman's reporting and how he conducts himself.

Otherwise, they are allowing themselves to become a tabloid.

Update 1: Saturday, March 19, 2011 2:20 a.m.

We've temporarily removed a paragraph referencing the ownership of MSNBC. It appears that Google Finance and Yahoo Finance may have inaccurate information with regards to Microsoft's stake. We've contacted MSNBC for more information and hope to resolve the question of ownership briefly.

We also amended the text in the opening paragraph to clarify that the NRC was responsible for Appendix D, but was not responsible for any assertion about public radiation exposure.

MSNBC.com's Bill Dedman sent us the following statment with some remaining criticism of this post:

Mr. Mink (sic) chastises me for using the weakest-link number in the NRC report, but that's the number the NRC staff provided to me. Several times I sent to Mr. Mick a copy of the spreadsheet the NRC sent to me, containing the weakest-link model as the single number it reported for the risk estimates. (We already had the eastern and central plant data from the report; this spreadsheet, for all plants, gave us the western plant data as well, as we told our readers.) Mr. Mink (sic) fails to mention this in his article. The point, as I told him, was that the NRC staff uses the weakest-link model as the best representation of the risk,

and, as I explained to our readers, this is the most conservative estimate. I also pointed out to Mr. Mink that the NRC report describes that its actually has no basis for knowing how to weight a weighted average in this case; he fails to mention this.

The NRC says, "the results were not used to rank or compare plants." Mr. Mink (sic) twists this: "In other words Mr. Dedman claimed the study looked at all plants and discussed what risk they were at. It did not." That's completely nonsensical. Yes, the NRC looked at all the plants, and made an estimate of the risk at each one. Did it rank them? No. We ranked them, from the NRC data, just as we explained in the original article.

If the newspapers starts reporting the American League East standings in alphabetical order, the reader is free to arrange them by winning percentage.

He later adds: Perhaps you're naive. Perhaps you have a bias for nuclear power. Perhaps – who knows? But for some reason, you've fallen for the oldest page in the government PR playbook: the non-denial denial.

We will let you know if he shares any further criticism.

Nuclear Power Report: 14 'Near Misses' At US Plants Due To 'Lax Oversight' (CSM)

By Mark Clayton, Staff Writer

Christian Science Monitor, March 19, 2011

Nuclear plants in the United States last year experienced at least 14 "near misses," serious failures in which safety was jeopardized, at least in part, due to lapses in oversight and enforcement by US nuclear safety regulators, says a new report. Skip to next paragraph

While none of the safety problems harmed plant employees or the public, they occurred with alarming frequency – more than once a month – which is high for a mature industry, said the study of nuclear plant safety performance in 2010 by the Union of Concerned Scientists, a Washington-based nuclear watchdog group.

The report, the first in what the UCS expects will become an annual study, details both successes and failures by the US Nuclear Regulatory Commission, which it calls "the cop on the beat." Charged with overseeing America's fleet of 104 nuclear reactors, the NRC made some "outstanding catches," but was also inconsistent in its oversight, seeming at times to nod off when most needed.

"The chances of a disaster at a nuclear plant are low," the report states. "But when the NRC tolerates unresolved safety problems – as it did last year at Peach Bottom, Indian Point, and Vermont Yankee – this lax oversight allows that risk to rise. The more owners sweep safety problems under the rug and the longer safety problems remain uncorrected, the higher the risk climbs."

Severe accidents at Three Mile Island in 1979 and Chernobyl in 1986, for instance, occurred when a few known problems were combined with worker mistakes to "turn routine events into catastrophes," the report said. Nuclear plant owners "could have avoided nearly all 14 near-misses in 2010 had they corrected known deficiencies in a timely manner," which suggests the industry is engaged in a game of "nuclear roulette" that could someday end badly, wrote David Lochbaum, the UCS nuclear engineer who authored the report.

Ironically, the most significant near-miss occurred on the 31st anniversary of the Three Mile Island accident – March 28, 2010 – at the HB Robinson nuclear plant in South Carolina. A high-voltage power cable at the plant failed and started a fire, shutting the plant down and causing an alert – the third-most serious emergency classification. Equipment failures and a remarkable number of operator errors transformed "a relatively routine event into a very serious near-miss," the report said.

"Unbelievably poor worker performance" contributed, too, suggesting bad training, the study said. Hours after the fire was put out, workers decided to re-energize the cable that started the fire – igniting a second fire that caused further damage. Six months later, the plant had another "near miss" due to another set of preventable factors.

Other examples include the Calvert Cliffs nuclear plant in Maryland, which on Feb. 18 automatically shut down when rainwater leaked in through holes in the roof and dripped onto electrical equipment. Workers had noticed a number of leaks across many months before this event, but plant managers had put off repairs. "After all, the roof only leaked when it rained," the report said.

Nuclear Safety: Five Recent 'Near Miss' Incidents At US Nuclear Power Plants (CSM)

By Staff

Christian Science Monitor, March 21, 2011

Fourteen safety-related events at nuclear power plants required follow-up inspections from the Nuclear Regulatory Commission, the NRC reported in 2010. These "near-miss" events "raised the risk of damage to the reactor core – and thus to

the safety of workers and the public," concluded a new report, "The NRC and Nuclear Power Plant Safety in 2010," by the Union of Concerned Scientists.

Here are five of these 14 "near miss" examples:

1. Diablo Canyon, California – Emergency systems disabled

At the Diablo Canyon nuclear plant, operators found themselves unable to open the valves that provide emergency cooling water to the reactor core and containment vessel, during a test on October 22, 2009.

A misguided fix of an earlier problem had prevented the emergency valves from opening, the NRC team sent to investigate found.

Tests after the valve repairs had failed to detect the problem, meaning that the reactor had operated for nearly 18 months with vital emergency systems disabled. Although the earlier modification impaired the emergency core cooling systems, workers could have opened the valves manually, which reduced the severity of the violation, the report said.

2. Wolf Creek, Kansas – Emergency system leaks

Seven hours after the Aug. 19, 2009 automatic shutdown of the Wolf Creek nuclear plant, due to an electric problem related to a lightning strike, an NRC inspector found water leaking from the system that cools the emergency diesel generators and virtually all other emergency equipment.

An internal study in 2007 had forecast such leakage, showing that a vital cooling system was prone to rust damage that would result in leaks. Management did nothing, the UCS report says. In 2008, the same piping developed the leaks, just as predicted. Management only patched the leaks, doing little about the rusting causing the problem. In 2009, the piping developed more leaks. This time, workers failed to notice the water puddling on the floor until an NRC inspector found it 7 hours later.

(While the event occurred in 2009, the NRC report appeared in 2010.)

3. Brunswick, North Carolina – Delayed reactor time

At the Brunswick nuclear plant, Halon gas – a fire suppression agent – was mistakenly discharged into the basement of the building housing the emergency diesel generator, on June 6, 2010. The release of the toxic gas into a vital area prompted control room operators to declare an alert – the third-most-serious emergency classification.

Workers did not know how to notify emergency responders, the NRC team discovered, so it took 2-1/2 hours to fully staff and activate onsite emergency response facilities – twice as long as specified in the plant's emergency response procedures.

Fortunately, the incident was not an actual emergency, the report author notes.

4. Fort Calhoun Nuclear Plant, Nebraska – Failure of emergency equipment

On Feb. 17, 2010, the NRC sent a team to the nuclear plant after the turbine-driven auxiliary feedwater (AFW) pump automatically shut down shortly after operators started the pump during a monthly test.

The AFW system is an emergency system that remains in standby mode during normal plant operation. However, although the AFW system plays a vital role in an accident, the NRC investigators found that the pump had failed numerous times over many years. The owner had never found the cause of the problem, and therefore had never taken steps to prevent it.

The NRC identified four violations of its safety regulations.

5. Surry Nuclear Plant, Virginia – Failure to recognize a problem

Degraded electrical equipment caught fire in the control room of Unit 1, about 90 minutes after an electrical short led to an inadvertent shutdown of the reactor, on June 8, 2010.

Six months earlier, a fire had broken out in the Unit 2 control room – because of similarly degraded electrical components.

After putting out the Unit 2 fire in November 2009, workers had asked technicians to investigate, but the company closed the report without any investigation or evaluation.

After the second fire, workers tested electrical components in both control rooms and found many were degraded, including some that produced visible sparks during testing.

Because the company had taken no action to protect Unit 1 from the problem they had been warned of in Unit 2, NRC's investigation team sanctioned the company.

Report: US Nuke Plant Problems Ignored, Including In Vt. (BOSBIZ)

By Kyle Alspach

Boston Business Journal, March 21, 2011

The Cambridge, Mass.-based Union of Concerned Scientists said in a report released this week that federal regulators "overlooked or dismissed" serious safety problems in 2010 at US nuclear plants, including at the Vermont Yankee plant near the Massachusetts border.

The report also says there were 14 “near-misses” at US nuclear plants during 2010 — inspections launched by the Nuclear Regulatory Commission in response to “troubling events, safety equipment problems and security shortcomings at nuclear power plants.”

“While none of the safety problems in 2010 caused harm to plant employees or the public, their frequency — more than one per month — is high for a mature industry,” the report states.

Plant owners could have avoided nearly all 14 near-misses in 2010 if they’d corrected the problems in a timely manner, the report says, suggesting that “our luck at nuclear roulette may someday run out.”

At Vermont Yankee, a 540-megawatt nuclear plant in Vernon, Vt., plant owner Entergy informed the NRC in January 2010 that it had detected radioactively contaminated water in an onsite monitoring well, according to the report.

The regulators allowed the company to continue operating Vermont Yankee while workers searched for the leak, which took weeks, the report says.

“At Vermont Yankee, an actual unmonitored and uncontrolled release of radioactively contaminated water from spurred no response from the NRC,” according to the report.

Entergy also owns the 688-megawatt Pilgrim Nuclear Station in Plymouth, Mass. This week, the plant was named the second-highest risk for suffering core damage from an earthquake among US nuclear power plants, according to a report from MSNBC that cites data from the NRC.

US Nuclear Regulations Aren’t Tougher Than Japan’s, Group Says (BLOOM)

By Jim Snyder

Bloomberg News, March 21, 2011

US regulation of nuclear-power plants isn’t more strict than Japan’s and in some cases requires operators to do less, said an official with the Union of Concerned Scientists, which monitors the nuclear industry.

“It’s unfair for us to say Japan has weaker regulation,” Dave Lochbaum, the director of the group’s nuclear safety project, told reporters today on a conference call. The Japanese “just had worse luck,” he said.

Japan has a lower threshold for replacing damaged pipes than US regulators, and requires back up power systems to run for twice as long, Lochbaum said.

Batteries to operate cooling-water pumps that help prevent reactor fuel from melting and causing an explosion must operate for eight hours in Japan, he said. In the US, 93 of the 104 reactors operating have batteries that last four hours, he said.

Nuclear plants in Japan have additional backup generators running on diesel fuel to keep the cooling-water systems operating. The units at the crippled Fukushima Dai-ichi plant were apparently washed away in the tsunami created by the magnitude-9 earthquake, leading some reactors and spent fuel pools to overheat and release radiation, he said.

“All reactors have hazards,” Lochbaum said. “We need to revisit our design and procedure so our reactors become less vulnerable.”

President Barack Obama has sought a comprehensive safety review of all US reactors. The nuclear industry has sought to reassure policy makers in Washington about the safety of US plants.

“We feel like we have a very good regulatory regime in the US,” said Bryant Kinney, a spokesman for the Washington-based Nuclear Energy Institute, in an interview.

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Morton Kondracke: Japan Quake Must Not Trigger Nuclear-phobia (MC)

By Morton Kondracke

Muskegon Chronicle, March 19, 2011

I never agree with Rush Limbaugh about anything, but here’s an exception: The mainstream media habitually spreads panic in the population. Right now, it’s about the safety of nuclear power.

The danger of a meltdown at Japan’s Fukushima Daiichi reactors is real, but the media made it a “crisis” from the get-go. The New York Times said the crisis had “veered toward catastrophe.”

And on MSNBC’s “Morning Joe” on Wednesday, co-host Mika Brzezinski opined it might prove “apocalyptic,” which is to say, world-ending.

In California, alarmed people have started stocking up on potassium iodide to guard against radioactivity-induced cancer even though 5,000 miles of ocean separate them from Japan.

The real threat here is that nuclear-phobia will take hold in the United States as happened following the partial meltdown and radioactive release at Three Mile Island in 1979, resulting in no new nuclear plant construction for 30 years.

As Sen. Lamar Alexander, R-Tenn., said in a speech on Monday, "today 104 civilian reactors produce 20 percent of America's electricity and 70 percent of our clean electricity.

"Without nuclear power, it is hard to imagine how the United States, which uses up 25 percent of all the energy in the world, could produce enough cheap, reliable clean energy to keep our economy going and keep our jobs from going overseas."

The good news is that the Obama administration is not running away from its support of loan guarantees for new nuclear facilities, and nuclear power has significant Republican support.

It also has been gaining public support, with 62 percent of US adults favoring nuclear power in a 2010 Gallup poll. New polls, post-Japan, should appear shortly.

As Energy Secretary Steven Chu testified this week, the United States "naturally" will thoroughly study the lessons of Japan's experience and try to ensure that existing and planned new plants are safe.

That should especially apply to two California nuclear reactors located near seismic faults.

But opponents of nuclear power are seizing on the disaster in Japan – caused by a gigantic tsunami triggered by the fourth-most-powerful earthquake in recorded history – to stop nuclear power in its tracks.

That would compound the lack of a coherent US energy policy that has resulted from polarized US politics.

Republicans (and some Democrats) are determined to maintain fossil fuels – oil, natural gas and coal – as the mainstays of US energy for as long as possible.

They pooh-pooh evidence that fossil fuels cause global climate change and are trying to defund conservation and alternative energy programs.

Meantime, most Democrats (but hardly any Republicans) think the world is menaced by global warming and are determined to close down the carbon economy and substitute wind, solar and other "renewables" for oil, gas and coal.

The public is confused – and divided – about what to think. According to a March Gallup poll, only 51 percent – down from 66 percent three years ago – are "worried" about global warming.

That includes 72 percent of Democrats (who also think it's caused by human activity), but only 31 percent of Republicans, two-thirds of whom think (with Limbaugh) that its seriousness is exaggerated by the news media.

Sixty percent favor increasing offshore drilling for oil (83 percent of Republicans, 40 percent of Democrats) while a whopping 83 percent say Congress should pass an energy bill that provides incentives for solar and other alternative energy as a top priority.

Actually, the public may have it right, given \$4-a-gallon gasoline and possible oil disruptions in the Mideast. The fact is that, for the foreseeable future, the US will primarily depend on fossil fuels for its energy, so domestic production should be increased.

But longer term, cleaner fuels make sense. Global warming is a fact – the polar ice caps are melting – though it's debatable whether the consequences will be as dire as worst-casers like Al Gore maintain. A carbon tax would encourage new energy sources.

Clearly, expansion of nuclear power should be part of the solution. Utilities now find it cheaper to use natural gas as fuel, so government loan guarantees – not direct subsidies – are needed to get plants built. They cost, on average, \$6 billion.

But once they are built – if they are built – they produce energy at a much cheaper long-run cost than any other fuel. It's why nuclear accounts for 80 percent of France's electricity generation and coal-rich China is building 27 new nuclear reactors.

As Alexander said in his Senate speech, "the United States invented nuclear power, but ... of the 65 reactors under construction around the world, only one is in the United States," part of the Tennessee Valley Authority anchored in his state.

He pointed out that "no one has ever died from a nuclear accident at any of our commercial or naval reactors," including the Three Mile Island incident, which led to vast upgrades in safety oversight.

And, he said, while nuclear energy has risks, "it is also important to remember that we do not abandon highway systems because bridges and overpasses collapse during earthquakes. ...

"We cannot stop drilling after a tragic oil spill unless we want to rely more on foreign oil, run up our prices, turn our oil drilling over to a few big companies and all our oil hauling to leaky tankers."

That's on the mark. America needs a do-it-all energy policy, and if nuclear isn't part of it, we will be under-powered.

Morton Kondracke is executive editor of Roll Call, the newspaper of Capitol Hill.

Japan Crisis Has Ind. Backing Off Nuclear Plan (AP)

Associated Press

Associated Press, March 21, 2011

An Indiana effort to promote nuclear power in the state is losing steam as concerns mount about radiation from Japan's crippled nuclear power reactors following the island nation's devastating earthquake and tsunami.

"With the events in Japan, I think you really need to take a step back," said Sen. Beverly Gard, R-Greenfield, who helped author a bill that would encourage the construction of Indiana's first nuclear plant. "I think it's going to take months, if not years, for an investigation to get to the source of the problem."

The Senate last month passed Gard's bill, which would provide financial incentives to companies to build a nuclear plant and allow them to pass along construction costs to customers years before the plant goes into operation, The Indianapolis Star reported.

But Gard says the issue should be put on the back burner until the situation in Japan is under control.

Senate President David Long, R-Fort Wayne, agreed.

"We need to take a step back, try to understand how this happened, what the circumstances were," he said. "We don't have the answers to that right now, and we need to have some answers."

Indiana has long relied on coal for energy but has been looking at other options in recent years. Illinois has 11 nuclear plants, Michigan has four and Ohio has two, but Indiana has none.

Two efforts in the 1980s to build nuclear power plants were scrapped because of opposition and cost concerns. The Northern Indiana Public Service Co. proposed a 644-megawatt plant near the Indiana Dunes National Lakeshore in 1967, but it was never built. Public Service Indiana's planned Marble Hill Nuclear Power Station in southeast Indiana was halted 1984 mid-way through construction.

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

Critics say the state should focus more on clean energy such as wind and solar power.

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

Supporters say the technology has improved and that nuclear plants have a good overall safety record.

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

Opponents of Gard's bill had said its incentives would circumvent the state's utility regulatory review process and damage efforts to boost Indiana's clean-energy sector.

US Nuclear Output Rises As American Starts Reactor In Michigan (BLOOM)

By Colin McClelland

Bloomberg News, March 21, 2011

US nuclear-power output rose for the fourth day after American Electric Power Co. started the Donald C. Cook 1 reactor in Michigan, the Nuclear Regulatory Commission said.

Production nationwide increased by 382 megawatts, or 0.4 percent, from yesterday to 87,543 megawatts, or 86 percent of capacity, according to a report today from the NRC and data compiled by Bloomberg. Fourteen of the nation's 104 reactors were offline.

American Electric's 1,060-megawatt Donald C. Cook 1 reactor was operating at 28 percent of capacity. The plant is located on the eastern shore of Lake Michigan, 26 miles (42 kilometers) northwest of South Bend, Indiana. The 1,009-megawatt Cook 2, another unit at the site, is operating at full power.

Constellation Nuclear Energy Group LLC, a joint venture of Constellation Energy Group Inc. (CEG) and Electricite de France SA, boosted its 867-megawatt Calvert Cliffs 2 reactor in Maryland to 95 percent of capacity from 83 percent yesterday.

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

Some reactors close for maintenance and refueling during the spring and fall in the US, when demand for heating and cooling is lower. The outages can increase consumption of natural gas and coal to generate electricity.

The average US reactor refueling outage lasted 41 days in 2009, according to the Nuclear Energy Institute.

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Utah Gov. Gary Herbert Says 10-year Energy Plan To Include Nuclear Power, Renewable Energy :: The Republic (REPUBLIC)

Republic (Columbus, IN), March 21, 2011

Nuclear power must be an important part of Utah's future energy portfolio, Gov. Gary Herbert said Friday, adding that a 10-year plan he was set to unveil will emphasize the need for nuclear energy alongside traditional fossil fuels and renewable sources.

The disaster at a Japanese nuclear power plant, where workers were trying to avert a meltdown after a huge earthquake and tsunami, highlights the need for serious study about nuclear power, Herbert told The Associated Press.

Still, nuclear power cannot be discounted as an option, he said.

"The practical reality is that going forward, the demand will increase and the equation doesn't work without nuclear," he said.

Matt Pacenza, policy director for the Healthy Environment Alliance of Utah, said the danger should be enough to persuade the governor to oppose nuclear power. There are also waste and water problems to consider, he said.

"Even in a technologically advanced country like Japan, and with a well-designed plant, things can go wrong," Pacenza said. "With nuclear, it becomes a major disaster."

There are 104 nuclear power plants in the United States — none in Utah. One plant has been proposed for eastern Utah, near Green River. Water demands in the arid region have posed the biggest roadblock to development.

Utah's 10-year plan was put together by a committee of energy executives, government officials and environmental groups.

The state has one of the lowest energy costs in the country, which makes it easier to attract businesses, Herbert said.

Utah has two major coal-fired power plants, plus multiple smaller municipal power plants. Geothermal plants have been running in southern Utah, and the federal government has designated a region in the West Desert as a prime spot for solar power.

Sara Baldwin, senior policy director with Utah Clean Energy, said if cheap power is the goal, the plan fails because it overestimates the cost of renewable energy and doesn't consider the potential cost of climate change.

"We need a more balanced and diverse portfolio," Baldwin said.

[View the discussion thread.](#)

Gov. Gary Herbert's Energy Plan Includes Nuclear (DESMN)

By Lee

[Deseret Morning News \(UT\)](#), March 21, 2011

Despite the nuclear power-plant meltdown in Japan and its associated risks, Utah's governor said nuclear energy should be considered as the state develops its long-term energy strategy.

Speaking at the University of Utah on Friday, Gov. Gary Herbert said the issue of nuclear energy should be discussed and debated seriously regarding its possible use in the state's energy future.

"There's the role of nuclear power in the world ... in America, and specifically there's the role of nuclear power in Utah," he said. "The practical reality that we face here in this country and particularly in our state is we have a need for carbon-based fuels — which has its own challenges — and or nuclear power," Herbert said. "We need to have a vigorous debate and discussion on the viability of nuclear power in Utah."

The governor unveiled a 10-year strategic energy plan that combines using the state's abundant natural resources such as coal, along with increased development of alternative and renewable fuels like wind, solar, geothermal, as well as considering a nuclear power component.

The 42-page report stated that accomplishing the state's energy goals would require developing resources thoughtfully through careful evaluation of resource potential, impact on economic development, the natural environment, human health, along with weighing physical and regulatory constraints.

The plan was developed by the governor's energy task force, which included industry, academic, environmental and government leaders who gathered public input statewide. While the initiative included a 10-point plan of goals and mentioned using a combination of fossil fuels, renewable alternatives and nuclear power, it offered no definitive recommendations for the overall makeup of the state's energy portfolio or specific dates to reach energy milestones.

A new KSL/Deseret News poll found that a majority of Utahns surveyed have a less than favorable opinion about building a nuclear power plant in Utah. The surveyed of 432 Utahns by Dan Jones & Associates found 55 percent opposed the idea. The poll, conducted March 15-17, had a 4.75 percent margin of error.

Amanda Smith, Utah Department of Environmental Quality director and newly appointed state energy adviser, said the inclusion of nuclear power can be "an emotional issue" for Utahns, given the state's history with nuclear testing and the resulting health fallout.

"Let's really focus on how we are going to meet our future baseload (power needs)," she said. "Every energy source that has the potential to meet baseload has issues ... and they are all kind of at their breaking point with technology."

NRC Sets Japan Staff Briefing, Scraps Meeting On Restart Of Fla. Plant (EPM)

By Hannah Northey

E&ENews PM, March 18, 2011

The Nuclear Regulatory Commission has canceled a meeting to discuss restarting the 838-megawatt Crystal River nuclear plant in Florida after a second gap was discovered in the plant's concrete containment building.

The March 22 meeting had been intended to address Progress Energy Inc.'s pressurized water reactor that's been shuttered since 2009 for refueling. The agency has said a similar meeting will be rescheduled before the plant is restarted. The plant is about 80 miles north of Tampa.

In the fall 2009, the company replaced steam generators located inside the plant's containment structure, a large concrete building that houses the entire reactor system, NRC spokesman Roger Hannah said.

During the process, the company had to cut a hole in the 42-inch containment wall to accommodate the generators and noticed a gap within the wall about 9 inches from the outer surface, he said.

The wall contains steel cables and provides extra protection from any internal pressure.

After extensive analysis and repair, Progress Energy is now reporting indications of an additional separation or gap resulting from the repair work on the original containment wall.

NRC is also reviewing an application Progress submitted to relicense the reactor for another 20 years. The plant's license expires in 2016.

Concerns about the safety of nuclear plants have surged since a massive earthquake and tsunami on March 11 crippled the Fukushima Daiichi nuclear plant in Northeast Japan.

The Japan nuclear crisis will be discussed at an NRC public meeting on March 21 at the agency's Rockville, Md., headquarters. NRC announced the staff briefing today.

Coakley Warns On Spent Fuel Rods (BOS)

AG says storage at Vt. Yankee, Pilgrim a risk

By Beth Daley

Boston Globe, March 21, 2011

Federal officials have underestimated the potential danger posed by radioactive spent fuel storage pools at the Pilgrim and Vermont Yankee nuclear power plants, the Massachusetts attorney general charged yesterday, underscoring five years of legal challenges the state has waged to force the Nuclear Regulatory Commission to examine the risks more thoroughly.

The unfolding Japanese nuclear crisis at the Fukushima Daiichi plant — including a spent fuel pool that US officials have said appears to have gone dry and released radioactive material — has riveted attention on possible vulnerabilities at US plants. Late last week, President Obama and the nuclear industry pledged a full review of reactors, including their cooling systems and spent fuel storage.

Massachusetts has long argued that the lack of a federal repository where plants can send spent fuel rods, coupled with plans by plants such as Pilgrim and Vermont Yankee to operate 20 years beyond the 40 years they were originally licensed for, will ramp up the number of radioactive rods in pools on site — and the risk from an accident, natural disaster, or terrorist attack.

"Since 2006, we have urged the NRC to consider alternative storage at these plants, but the NRC concluded that further study was unnecessary because the risk of breach and subsequent fire was 'insignificant.' We believe it is surely worth reconsidering that assessment," Attorney General Martha Coakley said in a statement.

Coakley has failed through past legal efforts to get the NRC to budge, and she has limited legal options now, but she is hoping to bring pressure to bear on the NRC.

She said nuclear energy is an important way to help meet the state's and country's energy needs, but the NRC "should be doing all it can to ensure the safety of these plants, and reevaluating the risks of wet spent fuel storage in light of the events in Japan must be part of that process."

In previous court filings, her office has suggested the NRC look more closely at dry storage, which usually involves placing the spent fuel in stainless steel containers surrounded by concrete.

But the NRC, nuclear industry officials, and spokesmen for Pilgrim, in Plymouth, and Vermont Yankee, in Vernon near the Massachusetts border, said yesterday the spent fuel pools were sturdy and safe.

"The NRC has extensively studied the safety and security of spent fuel storage at US nuclear power plants. This includes a fresh assessment after the 9/11 attacks," agency spokesman Neil Sheehan said in a statement.

Yesterday, NRC chairman Gregory Jaczko told the C-Span "Newsmakers" program that post-9/11 safety analyses at US nuclear plants have made them especially robust, and said the commission is meeting, starting today, to look at lessons it can learn from the Japan crisis.

Spent nuclear fuel is still radioactive and must be stored in pools with circulating water to prevent radioactive release. Nuclear plant operators originally assumed that some spent fuel would be recycled and the rest disposed at a federal repository. But commercial reprocessing never happened, and amid strong local opposition, a nuclear fuel repository never opened at Yucca Mountain in Nevada.

Plants have been left to deal with growing numbers of spent fuel rods in near-capacity and, state officials say, densely-packed pools. Japan's plants also have years worth of spent fuel rods on site.

Dozens of nuclear plants now place some partially cooled rods in dry storage, a technology that nuclear critics say is more secure than pools because it doesn't risk large-scale radioactive release that can occur in spent fuel pools. However, dry storage is significantly more expensive.

In recent years Vermont Yankee has moved some fuel to dry storage, according to a spokesman for Entergy, which owns the plant. Spokesman Larry Smith said the pools were safe and the move to dry storage was to get some rods ready for when the federal government would have a repository to take them.

The spent fuel rod issue has "been looked at in detail and the questions have been answered," Smith said. The NRC voted to extend the license of Vermont Yankee the day before the Japan earthquake, but its staff has not issued it because the agency has been too busy helping Japan, the NRC said last week.

Yesterday on C-Span, Jaczko said the Vermont Yankee decision was done and we are going "through some of the last paperwork." However, he said if special concerns were raised about design or other issues, they would be corrected right away.

A vigil and protest outside the plant yesterday drew a crowd that local police estimated at 200 to 250 people, but organizers said the number was more than double that.

Pilgrim, also owned by Entergy, is in final design stages for moving some rods to dry storage, said a spokesman, and also stressed the safety of the pools. Pilgrim has not yet been relicensed by the NRC.

Both Pilgrim and Vermont Yankee have come under extra scrutiny in the last 10 days because their spent fuel pools are elevated, like the compromised one at Fukushima Daiichi. Critics say this design makes them more vulnerable to loss of coolant that can spill from the structures if they suffer structural damage.

The spent fuel pool of the Seabrook nuclear plant in New Hampshire is below grade.

The Massachusetts attorney general first intervened in the Pilgrim and Vermont Yankee relicensing proceedings in 2006, arguing that post-9/11 terrorism concerns and new studies about the risk of fires in spent fuel pools called for additional analysis.

But the NRC said those issues affected all nuclear facilities and if they were to be considered at all, it should be as part of a general rule-making process instead of an individual license application. Massachusetts appealed, and lost. The NRC also decided against doing the broader analysis of spent fuel pools; Massachusetts, New York, and Connecticut appealed that decision and lost again.

Yesterday, Coakley seemed to express frustration at the lack of information released by NRC officials, who often cite terrorism or national security concerns as a reason they cannot disclose studies on spent fuel pools or risks.

"In conducting its review, the commission also should be open with the public regarding the facts, studies, and opinions it considers when making its rulings," Coakley's statement said.

Opponents of the Pilgrim nuclear plant said they hope Coakley's renewed effort could result in more say over the plant's relicensing.

"We now have a pool jam-packed way beyond its original design," said Mary Lampert of Pilgrim Watch, a group that has opposed the plant's relicensing. "If the water drops for any reason — acts of malice, a storm — there would be a fire we could not put out and the consequences would be disastrous."

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Calls Heat Up For Reviews Of California Nuclear Plants (LAT)

State and federal officials are pushing for comprehensive checkups of the San Onofre and Diablo Canyon facilities, which have been cited repeatedly in recent years for safety lapses.

By Ken Bensinger, David Sarno

Los Angeles Times, March 21, 2011

Pointing to Japan's nuclear crisis, state and federal officials have begun pushing for comprehensive reviews of California's two commercial nuclear plants, which are near powerful fault lines and have been cited repeatedly in recent years for safety lapses.

If reviewers identify new problems, it could lead to added safety measures — or potentially, delays or denials for renewals of the operating permits for the plants. The two plants, which have been online for decades, supply nearly 15% of the state's electricity.

"The fundamental question is whether these facilities should be located next to active faults and whether they are operated safely," said state Sen. Sam Blakeslee (R-San Luis Obispo), who holds a doctorate in geophysics. "With what's unfolding in Japan, why would anyone approve a permit for these plants to keep operating until every question is answered?"

Federal regulators have cited Southern California Edison's 2,350-megawatt San Onofre nuclear power plant near San Clemente dozens of times in recent years for safety violations that include failed emergency generators, improperly wired batteries and falsified fire safety data, records show.

At Pacific Gas & Electric's 2,240-megawatt Diablo Canyon facility on the Central Coast, inspectors in late 2009 found that safety valves designed to allow cooling water into the reactor core in emergencies had been stuck shut for 18 months.

In light of the crisis at Japan's Fukushima reactors, some state and federal lawmakers are now questioning whether the two utilities have underestimated the severity of earthquakes that could strike the plants.

Less than three years ago, a previously unknown fault was discovered within a mile of Diablo Canyon, and although regulators have asked the companies to conduct further seismic studies, neither has sought permits necessary to do so.

Edison has said that its facility, which houses two reactors, could withstand the equivalent of a magnitude 7 quake and is protected by a 30-foot seawall that is higher than the calculated maximum tsunami for the area.

PG&E, for its part, said that Diablo Canyon's two reactors could survive a magnitude 7.5 temblor, noting that it's built on a cliff 85 feet above sea level.

The reactors at these facilities are a different type — which experts say may be more robust — than the one at the Fukushima plant in Japan.

But some lawmakers and regulators point to the still-uncontrolled nuclear crisis in Japan after the massive quake and tsunami there as a strong justification for taking a hard look at the safety of this state's reactors and for possibly requiring additional retrofitting or even the eventual closure of the plants.

Blakeslee plans to ask PG&E to withdraw its application to the US Nuclear Regulatory Commission to extend permits for its two reactors to operate until 2045 until further seismic studies are completed. Edison has not yet decided whether it would submit its own renewal application.

The NRC licenses each nuclear reactor separately. Licenses for the two reactors at Diablo Canyon expire in 2024 and 2025, while those for San Onofre both expire in 2022.

On Monday, the state Senate Select Committee on Earthquake and Disaster Preparedness will conduct a hearing on nuclear safety, focusing on lessons learned from Japan.

Last week, California's Public Utilities Commission said it was delaying an April hearing on extending the Diablo Canyon license to take into account events in Japan. And at the federal level, California's two senators asked the NRC last week to conduct a complete safety review of both facilities.

"Our two plants need immediate inspections and investigations, and they need to look at the increased risk of serious earthquakes, an increased risk of tsunamis and at the safety cultures at those plants," said Sen. Barbara Boxer (D-Calif.). She noted that more than 7 million people live within 50 miles of San Onofre, while nearly half a million are within that distance from Diablo Canyon.

In 2006, state lawmakers passed a bill calling on the California Energy Commission to review the safety at both plants; the commission in turn urged both utilities to conduct new high-tech surveys to update earthquake risk assessments.

San Onofre's chief nuclear officer, Pete Dietrich, said SCE was seeking more funds from the state before obtaining permits for new geological surveys. Dietrich said the utility hadn't decided whether it would apply to renew federal licenses for its two reactors.

Regarding Diablo Canyon, the PUC had asked PG&E to complete a thorough seismic review of the area before submitting its renewal application to the federal government.

But in 2009, PG&E applied to renew the licenses without having performed the new studies. The renewal application, which would allow the plant to operate until 2045, is now being considered by the NRC.

PG&E spokesman Paul Flake said that although the company began work on some new seismic surveys in January, it had not yet sought permits for the most conclusive testing urged by regulators.

"Our license renewal application and our seismic studies are two separate issues," Flake said.

Dan Hirsch, a nuclear policy lecturer at UC Santa Cruz and president of the Committee to Bridge the Gap, an anti-nuclear group, said California's reactors were built when the seismic risks involved were not well understood.

In Diablo Canyon's 1967 application to the PUC, PG&E said the site had only "insignificant faults that have shown no movement for at least 100,000 and possibly millions of years." Four years later, researchers discovered the Hosgri fault about three miles offshore, which led to expensive retrofitting of the plant.

In 2008, PG&E argued to the state Assembly that it had thoroughly reviewed its local geography and that no further seismic risks existed.

Yet weeks later, the US Geological Survey revealed that it had found a second fault less than a mile from Diablo Canyon. That fault, called Shoreline, is thought by geologists to be capable of producing a magnitude 6.5 quake, while the Hosgri fault is rated up to 7.3.

Geophysicist Jeanne Hardebeck of the USGS helped discover the Shoreline fault. She said that the network of faults in the area appeared to be connected and that she feared a rupture at one could compound into a larger quake.

"There is a real issue of uncertainty when we put a magnitude on a fault," Hardebeck said, noting that the Japan quake occurred on a fault with a predicted maximum potential quake of magnitude 7.9, but in fact reached 9.

In its 2008 report, the California Energy Commission warned that San Onofre "could experience larger and more frequent earthquakes than had been anticipated when the plant was designed."

NRC spokesman Scott Burnell said that the quake risk at the two plants was acceptable. "All 104 licensed reactors in the country are meeting the agency's requirements to operate safely," he said.

Even so, NRC reports show that Diablo Canyon operated for 18 months with flawed valves that would have prevented cooling water from automatically flowing into the reactor core in an emergency. The problem was discovered in October 2009, and the NRC issued several sanctions against the plant.

The Union of Concerned Scientists, an environmental group, called the event a "near miss," singling it out as one of the most serious incidents at an American reactor in the last several years.

PG&E spokesman Flake contended that valves could still have been opened manually in an emergency. "PG&E has a very strong safety record," he said.

At San Onofre, the NRC cited operators for failed diesel generators in 2007 and again in 2009. In December 2008, inspectors found that a battery used to power emergency systems at the plant had been incorrectly connected and probably had been inoperable for four years.

The NRC noted in January 2008 that San Onofre employees had "willfully" falsified fire safety records for five years. That string of citations led the agency, a year ago, to issue a letter highlighting what it called a "chilling effect" in the plant's safety culture in which employees "have the perception that they are not free to raise safety concerns."

On March 4, the NRC issued its annual review of San Onofre, identifying improvements but noting that in the area of human performance, "corrective actions to date have not resulted in sustained and measurable improvement."

Dietrich, the plant's chief nuclear officer, acknowledged that the plant had safety problems in the past but said they were corrected, and that Edison was "working very diligently to make sure we have an environment where people feel comfortable to discuss these issues."

Dale Bridenbaugh, a nuclear engineer who left his job at General Electric 35 years ago, said that crises at nuclear facilities generally come when small errors add up.

"It's an attitude of not caring about details that in and of itself won't cause an accident, but in certain situations can cause a cascading series of failures," said Bridenbaugh, who worked as a nuclear consultant until he retired in 1996. "Things seem fine and all of a sudden you're in deep yogurt."

Nuclear Industry Aims To Grow Despite Disaster (SDUT)

By Mike Lee

San Diego Union-Tribune, March 19, 2011

A slow revival of atomic power in the United States will hang in limbo for the immediate future, but industry experts said Japan's crisis isn't likely to derail US energy policy, which has been trending toward nuclear sources for the past decade.

Despite concerns raised by radiation leaks caused by the earthquake and tsunami in Japan, Atlanta-based Southern Co. said it does not expect delays as it tries to build what would be the nation's first new nuclear power units started in a generation. President Barack Obama has renewed his support for loan guarantees designed to give Wall Street confidence in financing more nuclear plants. And some investment bankers already regard a recent sell-off of nuclear-based stocks as a good chance to buy.

Officials at the Nuclear Energy Institute, the industry's policy arm, said they expected between four and eight new nuclear plants to be built nationwide by 2020 before the earthquake and tsunami slammed Japan — and they said this week that the forecast remains unchanged.

California has banned new nuclear power facilities since 1976 over concerns about long-term storage of spent fuel. A statewide poll last year showed building more nuclear plants continues to lack majority support, a stance that's unlikely to change in the wake of Japan's turmoil.

What's virtually certain is that radioactive releases north of Tokyo will spark detailed reviews of disaster preparedness at the United States' aging fleet of 104 nuclear reactors at 65 plants. One analysis projected that all but a handful of those facilities will reach the end of their lifetimes by 2050, forcing the nation to consider replacements in light of widespread demands to decrease reliance on fossil fuels and energy imports.

The toughest short-term questions already are hitting places such as the San Onofre Nuclear Generating Station north of Oceanside because it's just a few miles from a major earthquake fault. Those assessments will play into relicensing for San Onofre, where approvals are due for renewal by 2022, and other sites nationwide.

"People are going to say, 'Is this the direction we want to be headed in, and if so, what are the policies, procedures and safety precautions that we need to make it work?'" said Scott Anders, director of the Energy Policy Initiatives Center at the University of San Diego.

Federal regulators are reviewing applications for about 20 new nuclear power plants, which can cost \$5 billion or more, including the Southern Co.'s proposed reactors in Georgia. None of the permits under review are in California.

Obama has cheered the industry. "We're going to have to build a new generation of safe, clean nuclear power plants," he told a crowd in Maryland last month.

The vast majority of nuclear reactors — both existing and planned — are in the eastern half of the country, where quakes and tsunamis aren't a top concern. Still, Japan's crisis has stalled pronuclear measures in Indiana, North Carolina and elsewhere, while policy makers and residents are taking a wait-and-see approach.

Industry leaders and analysts said setbacks were temporary.

"Nuclear concerns appear to be overblown," said a stock note issued this week by the global securities firm Jefferies & Co. "We believe there is minimal impact to the nuclear operators in the US and any design changes implemented as a result of the incident in Japan will be minimal."

Such predictions could change once more is known about the specific failures at the Fukushima Daiichi power plant north of Tokyo.

As of Friday, Japanese authorities ranked it as a 5 on a seven-point international scale for ranking nuclear incidents, making it similar to the partial meltdown at Three Mile Island nuclear plant in Pennsylvania in 1979. That accident essentially put the domestic nuclear industry on ice for decades.

Problems in Japan "will slow things up, but it won't kill it again," said Eric Smith, assistant director of the Energy Institute at Tulane University, which is sponsored by power companies. "The reason is the situation is radically different from what it was 30 years ago. Thirty years ago, we could just build more coal plants."

Current concerns about air pollution and greenhouse gas emissions linked to global warming mean coal plants aren't nearly as politically palatable as they in the 1970s and 80s. Other alternatives face their own challenges.

The United States gets about 20 percent of its electricity from nuclear power, and it has by far the most nuclear generation of any country in the world. California is among the top 10 states in nuclear power production, and it gets about 13 percent of its electricity from nuclear plants.

In testimony before Congress this week, Energy Secretary Steven Chu reiterated Obama's "bold but achievable goal" of generating 80 percent of America's electricity from "clean sources" — including nuclear — by 2035. Nuclear energy is expected to grow but at a lower rate than overall energy generation.

Other energy options such as solar and hydro, along with concerns about plant safety and a focus on conservation, have limited the support for more nuclear power in California. In 1989, voters in Sacramento County became the first in the nation to shut down an operating nuclear plant — Rancho Seco — by a referendum.

Republicans in the state are much more likely to approve of nuclear power, while the majority of Democrats oppose new plants, according to a July 2010 survey of 2,502 residents by the Public Policy Institute of California. Overall, it showed 49 percent against new plants, 44 percent in favor and 7 percent undecided.

Murray Jennex, a veteran of the nuclear industry and a business professor at San Diego State University, said people with strong views on nuclear power probably won't be swayed by recent events.

"The ones who will have to decide are the majority of people who are in the middle," he said. "Four-dollar gasoline ... will force them to think about the ability to generate power without fossil fuels."

The challenge of safely storing spent fuel continues to hamper nuclear sites, but the technology creates little air pollution, runs efficiently and offers a potentially large source of jobs.

Those factors make new nuclear plants acceptable even to some left-leaning groups such as Third Way, a think tank in Washington D.C. The long layoff since the last facilities were built and the fear of cost overruns mean government loan guarantees backed by Obama are needed to jump-start the industry, the group said.

Revive Yucca (CHIT)

Chicago Tribune, March 19, 2011

Before the nuclear disaster in Japan, most people probably didn't know that there is something potentially worse than a nuclear reactor core meltdown. That's the breach and exposure of containers holding hundreds of radioactive rods of spent nuclear fuel.

That's what crews are battling at the crippled Fukushima nuclear facility.

Here's why that is potentially a bigger problem than a meltdown: In the Japanese reactors – as in many US reactors – the spent fuel is housed in large water-filled pools in the reactor building but outside the concrete-and-steel fortress that surrounds the reactor core.

If the core melts down, any radiation released is likely to be partly bottled up by the containment vessel.

Not so for the spent fuel pools, which often contain far more radioactive material than in the reactor. If the water that keeps those rods cool drains or boils away, the used fuel can catch fire. Result: A dangerous plume of extremely high radioactivity spewed into the air.

Obvious question: Why do nuclear plants store spent fuel that way?

Obvious answer in the US: Yucca Mountain isn't open. In the 1980s, the federal government launched plans to ship nuclear waste to a storage lair carved into the mountain in Nevada and let it slowly and harmlessly decay.

But lawsuits, politics and environmental challenges stalled the project for decades.

Last year – 12 years after it was supposed to open – the Obama administration declared Yucca dead and created a panel to study "alternatives."

"We're done with Yucca," White House energy adviser Carol Browner said at the time. "We need to be looking at other alternatives."

Alternatives that, presumably, weren't in Senate Majority Leader Harry Reid's backyard.

The decision to mothball Yucca was a huge mistake, and the Obama administration should recognize that in the wake of the nuclear disaster unfolding in Japan.

The storage caverns at Yucca would be 1,000 feet below the surface and 1,000 feet above the water table in the Nevada desert. They would be geologically stable. Water seepage from the surface is minimal.

Wake-up call: Illinois is home to more spent fuel rods than any other state in the nation.

The US doesn't have another three decades to dither about where to store nuclear waste. Those spent fuel rods are piling up in reactors near major cities – including at the scuttled Zion nuclear power plant here. About 1,100 tons of highly radioactive spent fuel rods stand about a football field away from Lake Michigan. Another 6,100 tons are stored at other Illinois plants.

A breach of those fuel pools and a release of huge radioactive plumes could create a disaster as bad as, or worse than, Chernobyl.

In 1997, the Brookhaven National Laboratory on Long Island studied the worst-case toll of a spent fuel conflagration. The scary results: 101 immediate deaths in a 500-mile range, 138,000 eventual deaths, 2,170 miles of land contaminated. Estimated economic damages: \$546 billion.

Until the Japanese earthquake and tsunami ruined the Fukushima reactors, the likelihood of a spent-fuel cataclysm seemed remote. No, we're not going to have a 9.0 earthquake in Zion or tsunami on Lake Michigan. But let's not mask that there is substantial risk to stalling on a central, secure storage location for the nation's spent nuclear fuel.

In the short term, America's nuclear industry can reduce risks by moving more spent fuel from reactor buildings into dry casks – sturdy concrete and steel containers nearly the size of a truck trailer – elsewhere on site.

In the long run, however, nuclear waste shouldn't be scattered near population centers across the country. It should be entombed in Yucca Mountain.

Millstone Vulnerable, Activist Warns - StamfordAdvocate (STAMADV)

By Bill Cummings

Stamford Advocate, March 21, 2011

NIANTIC – A group dedicated to closing the Millstone Nuclear Power Station warned Friday that the same type of disaster now unfolding in Japan could happen here in Connecticut.

Nancy Burton, director of the Connecticut Coalition Against Millstone, said the two operating reactors and one mothballed reactor at the Waterford plant could melt down much like what is happening at the Fukushima Daiichi Nuclear Power Station in Japan.

"A tsunami is not likely to occur in the Long Island Sound off Millstone, nor is an earthquake measuring 9 on the Richter scale," Burton said during a news conference along Niantic Bay, within sight of the Millstone complex.

"However, hurricanes, tornadoes and other storm events can and do occur and they and other factors can set off a chain of events crippling the nuclear power station and even leading to a meltdown," Burton said.

She said poor regulatory oversight, old reactor design and the presence of spent fuel in storage pools could all contribute to a disaster. A terrorist attack could cripple the plant and trigger a catastrophic release of deadly radiation.

"I'm here to talk about whether it could happen here. The answer is very definitely, 'Yes,' " said Burton, who has lobbied since the late 1990s to force Millstone to close. Burton's group claims the plant causes cancer, regularly releases radiation and is generally a hazard to the surrounding human and animal populations.

Kenneth Holt, a spokesman for Dominion, the utility which owns Millstone, dismissed Burton's comments as more of the same. He said the plant was built with a variety of backup systems and its design took into account the possibility of natural disasters.

"The plants ... were designed with all manner of natural destruction in mind, whether hurricanes, earthquakes or tornadoes. They were designed to withstand not only the historical worst but they added extra margins," Holt said.

Burton used the disaster that has engulfed a series of waterfront reactors in Japan as a backdrop for her comments. That disaster began nearly two weeks ago after a tsunami, triggered by a massive, deep-ocean earthquake, ripped through the shoreline area around the plants and cut off electricity.

Pumps that circulate water throughout the plant to cool the reactor and keep water circulating in spent fuel pools stopped working, leaving nuclear fuel exposed. Some of that fuel has caught fire or is melting, releasing radioactive elements into the air.

Millstone consists of two operating reactors and one mothballed reactor. Unit 1 is no longer operating and its spent nuclear fuel is being stored in an above-ground pool within the containment dome. Unit 2, which began operating in 1975, produces 875 megawatts of electricity while Unit 3, which began operating in 1986, produces 1,154 megawatts of electricity. Nearly 50 percent of Connecticut's electricity comes from the plant.

Burton said Millstone is vulnerable to attack by firing a torpedo-like device at the three water intake ports that draw liquid from Niantic Bay to cool the reactor and spent-fuel pools. She said buildings that house those pools could also be struck by aircraft, triggering a pool fire that would release tremendous amounts of radiation and possibly cause the reactor itself to melt down.

Anti-nuke Activists In Conn. Point To Japan Crisis (NECN)

New England Cable News, March 18, 2011

(NECN: Brian Burnell, Niantic, Conn.) - An anti-nuclear activist here in Connecticut says what's happening with the reactor in Japan could happen at this nuclear power plant in southeastern Connecticut. But a spokesman for the company that runs the plant says not likely.

Nancy Burton, CT Coalition Against Millstone: "We know that these are radioactive clouds because of what has happened here. Cascading, out of control meltdowns."

Nancy Burton compares the release of radioactive clouds from the Fukushima nuclear power plant to steam released from the Millstone Nuclear Power Station in Waterford, Connecticut in 2005. She has worked for years to get Millstone shut down. While she admits the likelihood of an earthquake and tsunami similar to what hit Japan is remote here in Connecticut she worries about a hurricane or tornado and the failure of systems designed to keep spent fuel cooling pools similar to the pools in Japan intact.

Nancy Burton, CT Coalition Against Millstone: "If there were to be a loss of coolant and the rods, which are highly radioactive, in that spent fuel pool were to overheat and water drain out there could be the same kind of calamity that seems to be taking place not at just one but several nuclear reactors in Japan on the northeast coast.

Kenneth Holt is a spokesman for Dominion Power which runs Millstone. He says the pool Burton is talking about cools spent fuel from unit one which was shut down in 1998.

Kenneth Holt, Dominion Power: "That reactor hasn't operated for more than 15 years so that fuel is actually very cool right now relatively speaking so as long as we maintain that equipment and keep it cool we will not see the problems that they're seeing in Japan right now."

He adds the systems that handle that are designed to withstand worse than the worst case scenario in terms of a natural disaster.

"When we consider the possibility of an earthquake and a tsunami on the Atlantic like what happened in Japan consider this. That's Long Island out there... a natural barrier to that happening here."

Folks Concerned About CT Power Plants (WTNHTV)

By Tina Detelj

WTNH-TV Hartford, CT, March 18, 2011

NIANTIC, Conn. (WTNH) - After an earthquake and tsunami crippled a nuclear complex in Japan, some folks in southeastern Connecticut are expressing concern about the safety of the state's nuclear power plants.

Some wonder if what is happening in Fukushima, Japan can happen in Niantic, Connecticut. That's a question being asked by many living within view of the Millstone Nuclear Power Plant.

Nancy Burton who heads the Connecticut Coalition Against Millstone has her answer.

"I'm sad to say that the answer is most definitely yes," says Burton.

Millstone' Nuclear Power Plant spokesperson Kenneth Holt disagrees. Holt says the plant is built to withstand a 6.2 earthquake, the biggest one ever felt in East Haddam was 5.9 back in the 1790's.

"We have flooding barriers, we have tornado doors," says Holt.

He says there are back up systems in place.

"We have had cases where we've lost off site power in all of those cases our emergency diesel generators have kicked on like they're supposed to," says Holt. "The back up was to be diesel generators just as at Fukushima, unfortunately the diesel generators failed."

Burton compared steam release. Fortunately Millstone does not use mox fuel.

Millstone two and three is different than Japan's which is considered vulnerable.

"It is the same type but it has been shut down since 1997 I'm sorry 1998 we permanently decommissioned. There is still fuel being stored in spent fuel pool there, and we maintain those systems to keep that fuel cool," says Holt.

Allen Kushner went on line to set his mind at ease.

"I was able to determine that the probability of a problem with the Millstone plant was about one in 44,000 and that was good enough for me," says Kushner.

Representatives from Dominion which runs Millstone are meeting with the new DEP Commissioner in his office in Hartford on Mar.18. The meeting was set up earlier this month because Daniel Esty was just appointed, but no doubt safety concerns at the plant will be discussed.

The Day - Dominion Weighs Removing Waste From Closed Reactor | News From Southeastern Connecticut (NLDAY)

By Patricia Daddona

New London (CT) Day, March 21, 2011

A nuclear activist said Friday that the owner of Millstone Power Station should remove radioactive waste from the pool atop its closed reactor, a step the company said is already under review.

Paul Gunter, director of reactor oversight for the activist group Beyond Nuclear of Takoma, Md., said Friday that Millstone owner Dominion should remove the waste from Unit 1 and put it in some of the dry-cask storage available on site, since the pool could be vulnerable if ever exposed in a catastrophe like that occurring in Japan.

Dominion spokesman Ken Holt said Friday, however, that the company had been evaluating the possibility of moving spent fuel into dry storage before the events still unfolding in Japan took place.

Japan's situation "is a factor in making our decision and will be considered when we make our decision," Holt said.

"While wet storage of fuel is safe and the way it's being stored now is safe, dry storage has some benefits to it," Holt said. "Mainly, it's a passive system. It doesn't require pumps or motors. It uses natural air circulation to keep the fuel cool."

The spent fuel pool at Unit 1, which was permanently closed in 1998, sits atop the reactor building, which is a boiling-water reactor design similar to the plants at the Fukushima Daiichi Nuclear Power Station in Japan. Two of the Fukushima reactors

have experienced fire or explosions in their pools in the aftermath of the earthquake and tsunami that battered the nation's northeast coastal area last week.

The Millstone nuclear complex on Long Island Sound has two other operating reactors, Units 2 and 3, in addition to the one that's shut down. Units 2 and 3 are pressurized water reactors whose spent fuel pools are in concrete buildings adjacent to the reactors.

Twenty-three reactors in the United States are Mark 1 boiling-water reactors like those in Fukushima. Unit 1 at Millstone is a Mark 3 reactor with Mark 1 containment, Holt said.

The risk to the public involves the release of radiation during a catastrophe. Millstone Unit 1's reactor pool is covered by a vented, fire-retardant metal roof and surrounded by walls made of reinforced concrete, Holt said. But the roof could be torn off in an explosion or calamity and expose the fuel.

Dry-cask storage at Millstone today includes 19 concrete bunkers the size of one-car garages lined up hundreds of yards away from the reactors. Fourteen of those bunkers house one canister each filled with 32 fuel assemblies from the Unit 2 reactor. Each Unit 2 assembly holds 176 used, 14-foot-long fuel rods.

Inventory needed

Gunter says President Barack Obama's call for a comprehensive review of safety issues at the country's 104 reactors should include the inventory of nuclear waste still sitting in these nuclear-waste storage pools.

"It's not just the seismic event that one needs to be concerned about; it could be an accident initiated by any kind of event," Gunter said.

Nancy Burton, an anti-nuclear activist from Redding Ridge and Mystic who called Friday for the Millstone complex to be completely closed, also noted Unit 1's vulnerability in extreme circumstances.

Moving spent fuel to dry-cask storage is complex, said Holt.

Dominion now has permission to build up to 49 bunkers but is only allowed to move waste from Units 2 or 3 into them, Holt said. The company would have to return to the Connecticut Siting Council to add more bunkers and move Unit 1 waste into the new ones, he said, adding that the NRC would also have to grant permission to move the Unit 1 fuel.

"It's a process to do it safely and right," he said.

Neil Sheehan, a spokesman for the federal Nuclear Regulatory Commission, which Obama has ordered to conduct a review, said in an e-mail it is too early to say whether that national review would include moving spent fuel into dry storage. The NRC plans to meet early next week on Obama's directive, he said.

"The NRC certainly intends to carefully study the Japanese events for implications for US reactors," Sheehan wrote. "However, the immediate focus is on providing technical assistance to the Japanese and monitoring any developments there."

The Nuclear Energy Institute has also asked reactor owners to examine their safety systems in connection with fires, aircraft impact, explosions and loss of power.

On Wednesday, Dominion put together a team of engineers, operators, maintenance personnel and other key workers to look at the kinds of safety issues the Japan incident has raised and "to ensure we are prepared as we can be in the event of an event like this," Holt said.

"We're doing our own investigations," Holt said. "We want to do what we can to increase the safety of our reactors. They're safe now, but we feel we can make them safer."

Millstone Nuclear Plant To Review Disaster Plans (NB)

Norwich Bulletin, March 19, 2011

Waterford, Conn. —

An official at Connecticut's only nuclear power plant says it will be reviewing its disaster contingency plans in light of the crisis surrounding Japan's crippled reactors.

Spokesman Ken Holt says the Millstone Power Station in Waterford is starting to pull together teams that will evaluate response plans for earthquakes, floods or other natural catastrophes.

The Dominion-owned plant at the entrance to Niantic Bay in southeast Connecticut opened in 1970. Its two units generate about 2,000 megawatts of electricity, enough to power half a million homes.

Holt said the plant has been following developments closely in Japan. He said the crisis has not prompted any changes in Millstone's inspection regimen, although the plant will look to make any needed improvements.

Conn. Nuclear Plant To Review Disaster Plans (AP)

Associated Press, March 21, 2011

HARTFORD, Conn.—An official at Connecticut's only nuclear power plant says it will be reviewing its disaster contingency plans in light of the crisis surrounding Japan's crippled reactors.

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Holt said the plant has been following developments closely in Japan. He said the crisis has not prompted any changes in Millstone's inspection regimen, although the plant will look to make any needed improvements.

Connecticut's Millstone Power Station In Waterford To Review Disaster Plans After Japan Crisis (WCBS)

WCBS-TV New York, March 21, 2011

HARTFORD, Conn. (CBSNewYork/AP) – An official at Connecticut's only nuclear power plant says it will be reviewing its disaster contingency plans in light of the crisis surrounding Japan's crippled reactors.

Spokesman Ken Holt says the Millstone Power Station in Waterford is starting to pull together teams that will evaluate response plans for earthquakes, floods and other natural disasters.

For more on the situation in Japan go to CBSNews.com

The plant, owned by the power company Dominion and located at the entrance to Niantic Bay in southeast Connecticut, opened in 1970. Its two units generate about 2,000 megawatts of electricity, enough to power half a million homes.

The news coincides with concern from New York's Attorney General, Eric Schneiderman, regarding the Indian Point nuclear plant in Westchester County.

On Friday, Schneiderman sent a letter to the Nuclear Regulatory Commission saying earthquake resistance should be taken into account when granting new licenses to its reactors.

The NRC said it would review the request and get back to the attorney general.

New York Attorney General Demands Earthquake Study On Nuclear Plant (ABC RADIO)

ABC News Radio, March 20, 2011

(NEW YORK) – New York Attorney General Eric Schneiderman demanded Friday that federal nuclear regulators investigate the earthquake readiness of a nuclear power plant just north of New York City before they renew its license to operate. The Indian Point Energy Center, 24 miles from the city in Buchanan, N.Y., has been leaking water from a safety lining since 1993.

"It is beyond troubling that at the same time the federal government acknowledges increased seismic safety risk at some nuclear power plants in this country, it refuses to fully and openly assess these specific risks to Indian Point as part of its relicensing process," said Schneiderman at a press conference Friday, a week after a massive earthquake damaged nuclear reactors in Japan. "While the possibility of an intense earthquake is low, the potential for harm is so catastrophic that it has to be taken into account. . . . We are adamant that the relicensing of Indian Point not go forward until seismic risks are evaluated."

In 2007 Entergy, the Louisiana-based company that runs Indian Point, applied for a 20-year license extension for its operating reactors. The decision from the Nuclear Regulatory Commission (NRC) is expected in 2013. In a letter to the NRC, Schneiderman declared that the agency must amend its regulations to include seismicity in the scope of its licensing review.

Entergy says the site can withstand a 6.0 quake. Two fault lines intersect just north of Indian Point, but the biggest earthquake in New York in the past 70 years measured 5.8 and occurred near the Canadian border.

Both Schneiderman and his predecessor as attorney general, current New York governor Andrew Cuomo, have been harsh critics of the plant because of the potential danger it poses to those living nearby. More than 20 million people live within 50 miles of its two operating reactors. Cuomo ordered a state safety review of the plant Thursday.

In a move that may complicate the relicensing, the state has denied a request for water-quality certification of the plant, saying that the cooling plants "do not and will not comply with existing New York State water quality standards."

Schneiderman said he is also concerned about the spent fuel rods that are currently in a decommissioned reactor on site. "We know from Japan that there is long-term risk from nuclear waste stored at Indian Point," said Schneiderman.

An NRC spokesperson declined to comment to ABC News about Schneiderman's statements, but said that the agency would respond to the Attorney General's letter after reviewing it.

Fed Official: 'Insane' To Have Reactors So Close To NYC

Indian Point, where the first reactor was licensed in 1962, has been controversial for decades. In 1979, Robert Ryan, director of the NRC's Office of State Programs, told a presidential commission, "I think it is insane to have a three-unit reactor on the Hudson River in Westchester County, 40 miles from Times Square, 20 miles from the Bronx."

"I'm sorry," said Ryan. "I just don't think that that's the right place to put a nuclear facility."

More than 30 years later, Indian Point has become the focal point of government and scientific community pressure to repair or shut many of the nation's aging and leaking plants. Indian Point is one of dozens of US plants with licenses scheduled to expire by 2015.

On Thursday, the Union of Concerned Scientists called new attention to the leak at Indian Point, which is in a lining in the refueling cavity that is meant to stop leakage of radioactive materials in the event of an earthquake.

"NRC inspectors at Indian Point recently found that the liner has been leaking 2 to 20 gallons per minute since at least 1993 and that the plant owner has not yet delivered on repeated promises to fix the leak," said the activist group in a report. "That means the device installed to prevent leakage after an earthquake is leaking before an earthquake even occurs."

"By allowing this reactor to continue operating with equipment that cannot perform its only safety function, the NRC is putting people living around Indian Point at elevated and undue risk," the report says.

A spokesperson for Entergy said the container that is leaking is only filled during refueling, which occurs every two years, and leakage from the structure is captured and pumped out.

"This is something we have been aware of and the NRC is aware of, and there are no safety issues with it," the spokesman said. "There is no leak of fuel."

Indian Point Safety Issues

But Indian Point's safety issues have not been confined to a single leak. In 2005, Entergy reported leakage in the spent fuel pool of reactor two, resulting in the emission of strontium and tritium. There was leakage from the spent fuel pool in reactor one in 2008.

In 2009, 100,000 gallons of water contaminated with trace amounts of tritium leaked out through a broken pipe. Indian Point is one of about two-dozen plants in the US that have reported tritium leaks. The NRC noted that the amount of tritium was well below the level allowed to be released.

In 2010, the state denied Entergy's request for water-quality certification at the plant, saying that Indian Point's two operating units violate state law and the federal Clean Water Act because they kill close to 1 billion marine organisms annually, including an endangered sturgeon, while consuming 2.5 billion gallons of water per day.

Even skeptical scientists acknowledge, however, that so far, the environmental concerns at Indian Point and other aging reactors around the country fall short of the potential for catastrophe.

"The chances of a disaster at a nuclear plant are low," the Union of Concerned Scientists noted. "When the NRC finds safety problems and ensures that owners address them -- as happened last year at Oconee (Georgia), Browns Ferry (Alabama), and Kewaunee (Wisconsin) -- it keeps the risk posed by nuclear power to workers and the public as low as practical. But when the NRC tolerates unresolved safety problems -- as it did last year at Peach Bottom (Pennsylvania), Indian Point, and Vermont Yankee -- this lax oversight allows that risk to rise. The more owners sweep safety problems under the rug and the longer safety problems remain uncorrected, the higher the risk climbs."

Druggists Report Run On Potassium Iodine Pills (DNT)

By John Burgeson

Danbury (CT) News Times, March 21, 2011

BRIDGEPORT -- The crippled Fukushima Daiichi nuclear reactor is a half a world away, but that hasn't stopped people from calling their local pharmacies to ask about potassium iodide pills.

An informal survey of about 25 pharmacies in Fairfield County revealed that most druggists have had at least a few requests for the tablets and some are getting dozens of calls every day.

The trouble is there are almost no supplies of the over-the-counter drug anywhere in the state, they say. This is in part because the tablets have a shelf life of only five years, and there is no demand for the drug most of the time. The last rush on the drug was after the 9/11 terrorist attacks.

At Hope Street Pharmacy in Stamford, the "calls have been coming in every day, left and right," said Lisa Wolfe, the manager. "It's not something that we normally stock. We have three wholesalers that we normally deal with and it's on back order. We've been calling some of the other wholesalers that we don't usually deal with on a daily basis, and everyone's been telling us 'We don't have it.'"

The song was the same at the Grannick's Pharmacy in Darien. "Tons of requests," said owner Harris Grannick. "Usually, I'll stock a couple bottles, but I've been getting calls from people who are either going to the West Coast or who know people who live there."

About the only pharmacy in the region that has supplies of the potassium iodide is Compounded Solutions in Pharmacy LLC, at 179 Main St. Monroe, which can formulate the drug from the raw materials, potassium and iodine, according to Janis Covey, who works there.

"We've been getting multiple phone calls all week, so we decided that we are going to stock it," she said. "We can make the tablets on-site because we're a compounding pharmacy," she said. "Fourteen tablets for 10 dollars."

But potassium iodide, or KI as it's called in the trade, is of very limited use in preventing radiation disease, experts say.

Michael Nailor, clinical assistant professor of the University of Connecticut School of Pharmacy, said that KI only offers some protection for certain types of thyroid cancers, and only when the patient has been in contact with radioactive iodine.

"In healthy people, the thyroid gland takes up iodine to make hormones. The idea is to flood the body with nonradioactive iodine to prevent the thyroid from absorbing radioactive iodine," he said. "It only works for about 24 hours, so the patient should not be taking it now, because it would be ineffective."

He also said that since it is an over-the-counter drug, "there's always a risk of counterfeits and dubious pills entering the market."

CBS News is reporting that there are fake potassium iodine pills on the market. Officials are warning that any bottle of "iodide" pills that says it can cure a variety of ailments is bogus, even if it has a "no risk, money-back" guarantee.

Experts say Connecticut residents have little to be fearful of in terms of an earthquake causing a nuclear meltdown at the Millstone Nuclear Power Station in Waterford.

"Here in the Northeast, it's a very different setting in terms of the plate tectonics," said Maureen Long, a professor of geology at Yale who specializes in seismology. "Japan is in a subduction zone, so it's in a region that's capable of producing very large earthquakes. That isn't the case here in the Northeast. We don't think that there is any risk of a very large earthquake in this region."

Long, who studies subduction-zone quakes, just like the kind that occurred off of Honshu's Pacific coast last week, said that while there is some seismicity in the Northeast – there was a magnitude 5.1 quake that shook Au Sable Forks, N.Y. in April, 2002 – a 5.1 quake is small potatoes compared to the one that occurred off of Honshu.

"In Japan, they're on a plate boundary, and there's a lot more opportunity to build up the strain for a major earthquake," she said. "But here, in the Northeast, we're nowhere near a plate boundary – we're in the middle of the North American plate, which extends from the mid-Atlantic Ocean all the way to California."

She added that although there are dozens of fault lines running this way and that through the state, just about all of them are old and inactive.

But Friday, Nancy Burton, the director of the Connecticut Coalition Against Millstone, said that earthquakes aside, poor regulatory oversight, old reactor design and the presence of spent fuel in storage pools could all contribute to a meltdown at the two operating reactors and one mothballed reactor at the Millstone Nuclear Power Station in Waterford.

"However, hurricanes, tornadoes and other storm events can and do occur and they and other factors can set off a chain of events crippling the nuclear power station and even leading to a meltdown," Burton said.

You can reach John Burgeson at 203-330-6403 or by e-mail at jburgeson@ctpost.com. Follow twitter.com/johnburgeson.

Folks Seek Radiation Pills In Groton (WTNHTV)

Iodide pills in high demand

By Tina Detelj

WTNH-TV Hartford, CT, March 21, 2011

GROTON, Conn. (WTNH) - Potassium iodide pills are a hot commodity for folks living near the nuclear plant in Groton following the plant meltdown in Japan.

The Japanese people paused today for a moment of silence, and prayers. The official death toll from this disaster stands at more than 65-hundred people. Half a world away in Connecticut the events in Japan are raising radiation concerns.

Though the risk is low that a similar disaster could happen in the state, some people in Groton are stocking up supplies to fend off radiation sickness. The little pills have become a hot commodity ever since the nuclear contamination concerns in Japan, but at pharmacies they may be hard to find.

"I've had a couple of people come in asking for them for friends and family in Japan and I've had a lot of phone calls seeing if we can order in which we've had trouble finding," says Pharmacist Jennifer Stone.

The potassium iodide pills are said to block the thyroid's absorption of cancer-causing radioactive iodine released from a nuclear reactor or bomb. Stone lives near the Millstone Nuclear Power Plant and is concerned herself.

"I am and I know there's some documentation we had to sign for the school that allows the school to dispense it to the children," says Stone.

There is a heightened awareness at Fort Hill Pharmacy in Groton.

"If anyone's gonna have those pills it's gonna be the staff here if you're concerned. We don't have any in stock and we used to carry them for a long time just in case because of Millstone but they ended up going outdated," says Stone.

For a while folks like Chelsea Chanady weren't very concerned but now they're keeping a closer eye on Japan's nuclear crisis.

"I'm more lets be prepared for the worst and stock up in case ever were to go wrong," says Chanady.

The pills are available to those living in towns close to Millstone.

"Oh we're seeing a huge increase, in fact yesterday alone we had 200 pills that we gave out which is probably much more than we had in the last number of years," says Paul Formica, East Lyme First Selectman.

The potassium iodide pills come with a map showing the emergency evacuation routes. The state had given them out to folks who live or work near the nuclear power plant.

The Centers of Disease Control warns that Americans should NOT be taking iodide pills.

Nuclear Safety: Five Recent 'Near Miss' Incidents At US Nuclear Power Plants (CSM)

Christian Science Monitor, March 21, 2011

Fourteen safety-related events at nuclear power plants required follow-up inspections from the Nuclear Regulatory Commission, the NRC reported in 2010. These "near-miss" events "raised the risk of damage to the reactor core – and thus to the safety of workers and the public," concluded a new report, "The NRC and Nuclear Power Plant Safety in 2010," by the Union of Concerned Scientists. Here are five of these 14 "near miss" examples:

- Staff

Degraded electrical equipment caught fire in the control room of Unit 1, about 90 minutes after an electrical short led to an inadvertent shutdown of the reactor, on June 8, 2010.

Six months earlier, a fire had broken out in the Unit 2 control room – because of similarly degraded electrical components.

After putting out the Unit 2 fire in November 2009, workers had asked technicians to investigate, but the company closed the report without any investigation or evaluation.

After the second fire, workers tested electrical components in both control rooms and found many were degraded, including some that produced visible sparks during testing.

Because the company had taken no action to protect Unit 1 from the problem they had been warned of in Unit 2, NRC's investigation team sanctioned the company.

Our Nuclear Future (RICHTD)

Richmond (VA) Times-Dispatch, March 21, 2011

Until the catastrophic tsunami that struck Japan last week, nuclear power had been enjoying something of a renaissance in popularity, thanks to its status as the only zero-carbon-emissions technology capable of providing reliable power on an industrial scale. The problems at Japanese reactors have prompted second thoughts among erstwhile enthusiasts, and strident demands for a moratorium from those who never were convinced of nuclear power's merits in the first place.

As difficult and alarming as the explosions and radiation leaks at Japan's facilities have been, however, they need to be put in context. The reactors have served the Japanese people extremely well for many years. They were struck by a natural disaster of biblical proportions. And they largely withstood it. Thousands – perhaps tens of thousands – of people have died in the catastrophe. Nearly no nuclear-related casualties have been reported. That may change as time wears on, but it's worth noting that even the worst nuclear accident to date – Chernobyl – is responsible for vastly fewer lives lost than the number who have died from the production and use of fossil fuels.

The difference, of course, is that sudden disasters take lives quickly and in a spectacular fashion, while the far more numerous people who have died from the production and use of fossil fuels die singly, in ways that go unnoticed: a pipeline worker gets crushed in a machinery accident; an old woman dies of complications from an infection made worse by air pollution; and so on. The odds that you will die in a plane crash in any given year are one in 400,000. The odds that you will die walking across the street in any given year are one in 48,500 – eight times higher. Yet countless Americans are dreadfully more afraid of

entering an airplane than they are of entering a crosswalk. By the same token, people fear nuclear power when they ought to fear the lack of it.

Nuclear power boasts an astoundingly good safety record, and will continue to do so even after the events in Japan are taken into account. Dominion Virginia Power sets a standard in this regard. It would be the height of foolishness to let the panic of the hour divert the country from a future in which nuclear power plays a much bigger part.

Don't Give Up On Nuclear (NB)

Norwich Bulletin, March 21, 2011

The growing nuclear crisis at the Fukushima Daiichi Nuclear Power Station in Japan is certainly reason for concern and reflection on the wisdom of nuclear power as an alternative energy source.

In comparison to nuclear plant mishaps at Chernobyl and Three Mile Island, the crisis at the Daiichi plant appears to pose a far greater threat with the potential of a catastrophic release of radioactivity into the ground, air and water.

A massive release of radioactivity poses the gravest threat to human life. A last-ditch effort of using sea water to cool the reactors and avoid a meltdown has shown little success thus far in diminishing the threat.

We have long supported nuclear power as an alternative energy source, and will concede that the events of the past week have caused us to take pause and reconsider that position. However, despite the dangers the situation in Japan now presents, we remain convinced nuclear power is a safe alternative form of producing electricity.

But it is also quite clear that there are lessons to be learned and additional safeguards developed and implemented. As we've come to learn, being prepared for a worse case scenario is one thing; having to actually face it is something entirely different.

The Daiichi station, constructed 40 years ago, suffered no structural damage from either the earthquake or the 23-foot tsunami. Earthquakes are not uncommon in Japan, and clearly this plant was constructed with that in mind — as are all nuclear power plants built on or near fault lines.

The earthquake, however, did knock out power to the plant, crippling the pumps that supply the water to cool the reactors. Backup generators were damaged by the tsunami, leaving plant officials with only the third and final line of defense in the emergency contingency plan — batteries.

The plant was equipped with eight-hour batteries that clearly were not enough.

The 104 US nuclear power plants have similar contingency plans, with backup generators and batteries. What is a concern, however, is that the average battery life at many US plants is six to eight hours — similar to those used at the Japanese facility. That is certainly one change that needs to be addressed.

Local power stations

At the Dominion Millstone Nuclear Power Station in Waterford, in a population range of 2.9 million within 50 miles, batteries that can be charged while in use, along with an additional generator in reserve, are part of the emergency plan.

Because of its proximity to Long Island Sound, earthquakes, floods and prolonged off site electrical blackouts were all considered in its initial construction so it is assumed and expected that it too, can withstand natural disasters without suffering structural damage.

But what the situation in Japan has shown us is, that may not be enough.

The Daily Beast ranked Millstone 37th out of 65 “most-at-risk” nuclear plants based on risk of natural disaster, safety performance assessments and surrounding population. However, according to Bill Bradley, Nuclear Energy Institute director of risk assessment, it is almost impossible to rank the absolute safety risk due to a number of variables.

Nuclear energy, in our opinion, remains a viable source of electric generation. A re-examination of the safeguards to ensure its safe operation, however, is clearly needed.

Keep Nuclear Part Of Energy Future (MHTR)

Manitowoc (WI) Herald Times Reporter, March 21, 2011

Nuclear safety is on everyone's mind as events play out in Japan, where nuclear plants were damaged or compromised following a devastating earthquake and ensuing tsunami.

We don't know the full extent of the damage there, or its impact on human health or the environment. That will become more clear in the days and weeks ahead.

Manitowoc County has two nuclear reactors — at Point Beach — and another located in neighboring Kewaunee County. Combined, they provide one-fifth of all the electricity used in Wisconsin.

The inevitable question arises: Could what happened in Japan happen here?

The answer is yes. Natural disasters — and their severity — defy even the best the science of prediction has to offer. This was, after all, the largest earthquake ever to strike Japan, and there was no advance warning.

Don't pack up the kids and your belongings just yet, though.

Those in the nuclear industry said reassuring things following the Japan disaster. Viktoria Mitlyng of the US Nuclear Regulatory Commission said the Kewaunee and Point Beach nuclear plants were made to survive the worst natural disasters on record.

Sara Cassidy of the Point Beach plant said the facility's design and maintenance are based on the worst-case seismic scenario for the plant's location.

And Mark Kanz of the Kewaunee nuclear plant said its owner, Dominion Resources, would review all of its safety systems.

They all are comforting, albeit predictable, statements.

In this case, however, we put more stock in the past than in what might happen in a future impossible to predict. The Point Beach and Kewaunee facilities have, for the most part, had clean safety records since going online in the 1970s.

There have been occasional glitches, but they were thoroughly examined by the NRC and corrective measures were taken. None of the instances rose to the level of seriously compromising public safety.

We can be thankful that current and previous management of the local nuclear facilities has been, if not always stellar, at least proficient to the point of keeping the plants operating safely and efficiently.

That says a lot in an industry coming under increasing fire from those who believe the US nuclear footprint should be much smaller, if not eliminated altogether.

President Obama has asked the NRC to conduct a "comprehensive review" of the safety of all 104 US nuclear plants following the disaster in Japan. It's another in a series of predictable responses.

Ongoing review of nuclear safety is, after all, what the NRC does. We hope that those reviews are, indeed, comprehensive. New data from the Japan disaster can prove helpful.

More to the point in the president's recent remarks is this: "Nuclear energy is an important part of our own energy future."

That bodes well for an industry in the midst of battles over plant decommissioning, new and costly rules, and environmental regulations.

We hope that nuclear power, with ongoing and thorough oversight, will continue to be part of the nation's energy landscape for many years to come.

After Japan's Disaster, Will Nuclear Energy Have A Future In America? (WP)

Washington Post, March 19, 2011

The Post asked energy experts, lawmakers and others how the recent events in Japan would affect the "nuclear renaissance" in the United States. Below, responses from Steven F. Hayward, Virginia Gov. Robert Mc-Don-nell (R), Ellen Vancko, Marvin Fertel, Douglas E. Schoen and Frances Beinecke.

STEVEN F. HAYWARD

Fellow at the American Enterprise Institute

Japan's nuclear disaster came at a time when nuclear power seemed poised for a new birth in the United States. Opinion polls have shown rising support for nuclear power over the past decade, after more than two decades of opposition. More significantly, environmentalists were slowly, tentatively abandoning their reflexive opposition to nuclear power because of the bigger problem of climate change. Japan's catastrophe hits the reset button on the whole issue. One irony is that the climate campaign is a big near-term loser, as carbon dioxide emissions in Japan and Germany (which switched off seven nuclear plants) will go up.

It is remotely possible that the aftermath of this disaster might ironically lead to the go-ahead for a new generation of smaller, safer nuclear designs that are in development. If Japan can come through the worst-case scenario, it might calm our longtime nuclear phobia. But many big questions remain unresolved: Putting aside Wall Street's reluctance to finance new nuclear plants, the insurance industry's inability to price the risk and underwrite new plants, and Congress's resistance to large loan guarantees, it is not clear that nuclear power can compete with suddenly cheap natural-gas-fired power on a level playing field.

ROBERT MCDONNELL (R)

Governor of Virginia

We have all watched with shock and sadness the recent events in Japan. While Americans donate generously to relief efforts, we must also keep a proper perspective about what Japan's disaster means for energy policy here. I believe it would be most unwise to let this unprecedented tragedy lead to the retraction or abandonment of the American nuclear energy industry.

Nuclear energy is clean, reliable, affordable and critical to generating the volume of electricity we need to power our homes and businesses and grow our economy.

Virginia is home to two nuclear facilities, in Surry and Louisa counties. They generate roughly 40 percent of our electricity. They have multiple redundant systems to provide backup electrical power. The stations were also analyzed against worst-case acts of nature, such as earthquakes, floods and hurricanes, and modified as necessary to protect them. There are 19 emergency drills scheduled for this year.

We must use all our God-given resources here in America to pursue our goal of greater energy security. Nuclear energy is an important part of our energy portfolio. Virginia is moving forward with plans to build a third reactor in Louisa, and I support that effort. We should of course learn from the tragedy in Japan and use the unparalleled ingenuity and know-how of American scientists and our free-enterprise system to ensure that our nuclear plants continue to be prepared and improved. What we should not do is turn our back on an industry that provides needed clean and affordable energy while creating good jobs for Americans.

ELLEN VANCKO

Nuclear Energy and Climate Change Project Manager at the Union of Concerned Scientists

With Japan's nuclear disaster still unfolding, not all lessons have been learned, but a few things are already clear:

The Nuclear Regulatory Commission must review the safety of US nuclear plants and ensure that existing rules and regulations are stringently enforced and that any new nuclear plants are significantly safer than existing ones. Forthcoming NRC regulations that will require owners to integrate security measures into reactor designs should specify that the NRC — not reactor owners — will determine which measures meet that criterion.

The nuclear renaissance in the United States was in trouble long before Japan's earthquake and tsunami. Spiraling construction cost estimates, declining energy demand, low costs of natural gas and the government's failure to place a price on carbon already threatened the industry's future. This month the nation's top nuclear executive told a gathering at the American Enterprise Institute that he would not invest in new nuclear reactors because they are not economically competitive — nor will be for the next decade or two — when compared with such other low-carbon alternatives as energy efficiency, natural gas and upgrading the generating capacity of existing reactors. (I would add cost-effective windpower and other renewable energy technologies to the list.)

It is impossible to fully plan for natural disasters, but we can at least put in place all practical mechanisms to protect our citizens and environment from known hazards. Utilities and first responders are not yet prepared to respond to a combination of disruptive events, natural or man-made, that could damage critical infrastructure and precipitate a nuclear accident. Adding more safety features to nuclear reactors will make nuclear power more expensive, as will improving our emergency preparedness, compared with other, less risky low-carbon energy alternatives. The American people will need to decide how much safety they want to pay for.

MARVIN FERTEL

President and chief nuclear officer of the Nuclear Energy Institute

It is premature to reach conclusions, but I believe that expansion of the nuclear energy sector will proceed. Our industry has been forecasting the development of four to eight new reactors between 2016 and 2020; four are under development. The forecast beyond 2020 is unclear simply because so much depends on market conditions.

Over the past week, industry leaders have reached out to their customers and met with members of Congress and other policymakers to ensure that they understand the facts in Japan. Broadly speaking, these meetings show that support for nuclear energy remains strong. As national leaders seek to enhance our energy security with an expanded domestic portfolio, they are doing so based on the full knowledge of nuclear plant capabilities and our steadfast commitment to safety.

The president and congressional leaders have had a measured response to the Fukushima accident based on their understanding of the US nuclear energy safety record and its unique contributions to the nation's electricity portfolio: power plants that generate low-carbon electricity virtually around the clock, with an industry-average capacity factor of 90 percent; and a key component of a diversified energy mix that enhances national security.

The tragic forces of nature and the accident at the Fukushima nuclear power plant will have repercussions for our industry but also will result in changes for the better. President Obama has reassured our nation that there is no threat to public health from the Japanese accident and that the US industry is safe. Every US nuclear power plant is reexamining the programs in place to respond to extreme natural events or significant loss of critical plant systems.

DOUGLAS E. SCHOEN

Democratic pollster and author

There will be no new nuclear renaissance in the United States, and there frankly shouldn't be one, until we know the full extent of the damage caused by the earthquake and tsunami in Japan.

That means that the Nuclear Regulatory Commission should put on hold its review of the 20 license applications from companies eager to initiate or complete new nuclear plants.

It also means that the president's proposed \$36 billion for loan guarantees to construct new facilities should also be frozen.

Before the tragedy in Japan, those of us in the center were advocating bipartisanship to promote a broader-based expansion of the use of nuclear power as part of our energy mix.

Now we need a different kind of bipartisanship to promote more offshore drilling and the development of domestic energy resources.

What happened in Japan can be a trigger of a new commitment to energy independence, casting aside divisive fights about cap-and-trade and concentrating on bringing the right and left together to address one of our huge national challenges.

FRANCES BEINECKE

President of the Natural Resources Defense Council

The future of nuclear power in America depends on whether plants are safe, cost-effective and environmentally sound. The crisis in Japan underscores the fact that these critical concerns have not been fully addressed.

The explosions, fires and radioactive releases from Daiichi are resulting from the failure of cooling water pumps following the loss of electricity. The majority of US nuclear reactors have just four hours of backup capability, which poses serious risks in the event of our own disaster.

Threats at Daiichi are also coming from spent fuel pools. Tons of spent fuel are in similar pools at US reactors. The Nuclear Regulatory Commission should require that fuel be moved out of pools and into safer, hardened casks once the fuel has cooled.

We also need an environmentally safe geologic repository for nuclear waste, which is radioactive for thousands of years. Such waste must be safely stored if nuclear power is to be used, and we need to address the harm done to water and lands from the entire nuclear fuel cycle, from uranium mining to plant operations.

Taxpayers pony up billions of dollars in nuclear subsidies each year to guarantee loans and assume the risks of a catastrophic disaster. After more than five decades, this mature industry shouldn't rely on public subsidies. That money should be invested instead in energy efficiency and the development of safer, sustainable sources of power and fuel. Creating an energy future that strengthens our economy and makes our country more secure transcends politics and ideology. That's where Democrats and Republicans alike can, and should, find common ground.

FitzPatrick, Nine Mile Point 1 Reactors Are Similar In Design To Japan's Out-of-control Nuclear Plants (SPS)

By Tim Knauss

Syracuse Post Standard, March 21, 2011

Scriba, NY – The March 11 earthquake that devastated Japan was more than 1,000 times stronger than any quake that has hit New York state.

The tsunami that followed rose from an ocean that makes Lake Ontario look like a puddle.

But the Japanese nuclear plants that flared out of control after that one-two punch are very similar to — in some cases, mirror images of — Oswego County's three nuclear reactors along Lake Ontario.

The similarities have nuclear watchdogs and the public asking whether US nukes are sturdy enough to withstand nature's worst.

Three General Electric-designed Japanese reactors rocked by explosions at the Fukushima Daiichi plant are nearly identical to 23 US plants, including the FitzPatrick and Nine Mile Point Unit 1 reactors in the town of Scriba.

The spent-fuel pool at a fourth Fukushima plant, where US officials say exposed fuel rods spewed dangerous radiation, is similar to pools at many US sites, including all three plants in Scriba.

Nobody here is panicking.

The three Oswego County plants have a combined 95 years of operation, and they are humming along better now than they did in decades past. Their safety records are relatively pristine, according to the US Nuclear Regulatory Commission.

The three nukes made about 15 percent of the electricity used by New York state in 2009, the last year for which records are available.

But the Fukushima disaster chills American nuclear experts in a way that the 1986 Chernobyl meltdown in Ukraine did not.

The devastation at Chernobyl, which polluted more than 1,000 square miles and caused thousands of cancers, stemmed largely from a faulty plant design that allowed the reactor core to rupture and send radiation skyward, said physicist Frank Congel, of Jefferson County, who retired in 2005 as of director of enforcement at the Nuclear Regulatory Commission.

The troubled Fukushima plants, on the other hand, are General Electric-designed Mark I boiling water reactors — BWRs in nukespeak — like FitzPatrick and Nine Mile 1. And they're similar to the next-generation Mark II BWR at Nine Mile 2.

"Chernobyl was a totally different piece of equipment," Congel said.

Just how bad a beating the Fukushima plants took from the earthquake and tsunami is still unknown, at least to US observers. But the crisis that made the plants uncontrollable was the loss of electrical power, said David Lochbaum, a nuclear engineer at the Union of Concerned Scientists.

Lochbaum, who worked at nuclear plants for 17 years and later as an NRC trainer, said American nukes are vulnerable to power disruptions, too.

"Ice storms in the Northeast or a tree in Cleveland can cause an extensive blackout that puts us in a very similar situation," he said.

The Northeast blackout of 2003, precipitated in part by trees falling on lines in Ohio, knocked out power to all six nuclear plants in New York. Each of the three Oswego County reactors was running at full capacity when the blackout struck. They automatically shut down.

For about seven hours, until outside electricity was restored, plant operators relied on backup diesel generators the size of locomotives to run water pumps and other equipment to cool the radioactive fuel and maintain stability, according to government reports.

Nine Mile 1 has two diesel generators, and Nine Mile 2 has three, said Jill Lyon, speaking for owner Constellation Energy Nuclear Group. FitzPatrick, owned by Entergy Corp., has four emergency generators, said spokeswoman Tammy Holden.

At the Nine Mile Point station, there's enough fuel in underground oil tanks to run one of the generators flat out for four days, Lyon said. FitzPatrick stores enough fuel for seven days, Holden said.

If the generators fail or run out of fuel, the plants have batteries that are supposed to keep vital equipment running for at least four hours. After that, without power, comes "station blackout," a dreaded event that could lead to loss of control over hot fuel in the reactor core, in the spent-fuel pool, or both.

"That's well, well recognized to be a vulnerability, a severe one," said Congel, the former NRC official. "That's why it's backed up so deeply."

At Fukushima, batteries provided eight hours of backup service after the generators were disabled by the tsunami, said Lochbaum, of the Union of Concerned Scientists. The NRC should consider beefing up backup power requirements in this country, he said.

Beefed-up containment

Although the loss of power and the inability to cool fuel rods are believed to have caused partial core meltdowns in some Fukushima reactors, observers remained hopeful there would be no major breach in the large steel-and-concrete containment structures that encircle the reactors.

John Berry / The Post-Standard, 2007 The Nine Mile Point and FitzPatrick nuclear facilities sit on the shore of Lake Ontario.

Containment held during the 1979 emergency at Three Mile Island in Pennsylvania, the worst in US history, Congel said. The fuel melted, but most of the radiation remained trapped inside the vessel.

Some critics have expressed anxiety about the Fukushima reactors because they use the Mark I containment structure, designed by General Electric in the 1960s. By the early 1970s, several GE engineers and US regulators began warning that the Mark I might not withstand a "loss-of-coolant accident."

But all 23 Mark I reactors in this country have been extensively modified since the 1980s and made safe, said NRC Chairman Gregory Jaczko, speaking at a Senate committee meeting last week. That includes FitzPatrick and Nine Mile 1. Key improvements included vents to release pressure and a system to remove oxygen, reducing the risk of explosions inside the vessel.

The explosions that rocked the Fukushima plants appear to have occurred outside the containment structures after hydrogen gas was vented to relieve pressure, experts say.

GE officials issued a statement last week saying there had never been a breach of a Mark I.

"To be fair to GE — and Japan, for that matter — any reactor design currently operating today that had been faced with an earthquake followed by a tsunami that took out primary power and backup power would likely be in a very similar situation to what we have," said Lochbaum, of the Union of Concerned Scientists.

What about the fuel?

But the spent-fuel pools at Mark I and Mark II facilities are a problem, said Lochbaum and his colleague, physicist Edwin Lyman. The pools are located on the upper level of the reactor buildings, outside primary containment areas, and are used to cool fuel rods removed during refueling.

Because there is no long-term storage facility for US nuclear waste, spent-fuel pools have evolved into semi-permanent storage sites. Both FitzPatrick and Nine Mile 1 have received permission over the years to increase the number of fuel rods in their pools.

At Fukushima, the water in a similar pool has leaked out or burned off, exposing the fuel rods and allowing radiation to escape, according to NRC Chairman Jaczko.

The NRC considers the pools safe. In December, the agency adopted a rule allowing US nuclear plant operators to store used fuel on-site for as long as 60 years after a plant closes. At Nine Mile 2, the youngest of the three Scriba reactors, spent fuel rods could remain in the pool until 2106.

Attorneys general from three states, including New York, have gone to court to try to block the new NRC rule. Attorney General Eric Schneiderman — like his predecessor, Gov. Andrew Cuomo — cites problems at Entergy Nuclear's Indian Point facility, where leaks from spent-fuel pools have contaminated groundwater.

According to the NRC, the leaks have been repaired.

Some nuclear plants, including FitzPatrick, have moved their oldest fuel rods into 135-ton "dry cask" containers that are passively air-cooled and can be stored outside the plant without any connection to electricity. Lyman, of UCS, advocates a more aggressive use of dry storage to lessen the risks from pools.

Constellation plans to begin using dry cask storage soon at the Nine Mile Point reactors, Lyon said. Construction of a storage facility and associated equipment is expected to be complete by 2012, she said.

Planning for earthquakes

Beginning in the 1960s, US regulators required nuclear plants to withstand the strongest earthquake known to have occurred within 200 miles of the plant, said consulting engineer John Stevenson, of Cleveland, Ohio, who has worked in the nuclear industry for 45 years.

John Berry / The Post-Standard, 1986The first 12 1/2-foot, 400-pound fuel rod assembly is loaded into the reactor core under 65 feet of water at Nine Mile 2 in Scriba.

In the case of Oswego County, that benchmark was the 1944 earthquake at Massena, which registered a magnitude of 5.8, Stevenson said.

In the late 1980s and early 1990s, as better geological information became available, regulators required all nukes to double their resistance to seismic forces, adding a margin of safety beyond the original standard, Stevenson said.

Actual specifications for the Oswego County plants were not immediately available, operators and NRC officials said.

Unidentified security issue

Other than the Three Mile Island accident in 1979, during which pregnant women and preschool-age children within a 5-mile radius of the plant were advised to leave, there has never been an evacuation around a US nuclear power plant, said Neil Sheehan, speaking for the NRC.

Should that day come to Oswego County, the decision would fall to county Legislature Chairman Barry Leemann to order an evacuation. Leemann, who participates in nuclear emergency drills, said the chairman makes that decision in consultation with nuclear plant operators and emergency personnel from the state and county.

Oswego County's nuclear emergency plan, like most, calls for evacuating an area up to 10 miles from the Scriba plants. In Japan, American officials have warned people to stay at least 50 miles from Fukushima.

Jaczko said the NRC plans extensive reviews of the Japanese disaster to decide whether changes should be made to US policies.

In the meantime, the agency goes about the day-to-day task of looking over the shoulders of nuclear operators.

The most recent NRC inspections at the three nuclear plants in Scriba resulted in good report cards, Sheehan said. One exception was a "security-related inspection finding" at FitzPatrick that will result in elevated NRC scrutiny on that subject during 2011, he said.

Sheehan declined to give details. Security issues have to do with plant procedures to prevent attacks or sabotage.

"We do not provide details on security-related inspection findings because we do not supply potential plant adversaries with any information that might be useful," he said.

Cleanup mistakes

At the Nine Mile station, the NRC's biggest concern recently was Constellation's response to an accident that disabled two pumps that suck cooling water from Lake Ontario into the plant.

On Nov. 4, 2008, two divers went down to clean silt and sludge away from water intakes, according to an NRC report. One of the divers inadvertently allowed a section of his 6-inch-diameter plastic hose to trail in front of the pipe grate, where the 9,000-gallon-per-minute rush of water ripped off a piece and sucked it into the pump.

Rather than stop the dive and notify plant managers, the team tried to correct the problem. In the process, another piece of hose was sucked into a different pump, disabling it.

After clearing pieces of hose from the pumps, the workers did not test the pumps. Several days later, when the pumps were started up again, they failed. More parts of hose were discovered.

The incident never threatened plant safety, the NRC said.

Mark Sullivan, a Constellation spokesman, said nuclear operators constantly try to learn from events.

"Continuous improvement is a founding principle of our business," he said.

SIDEBAR: Fukushima, Oswego County plant similarities

There are similarities between three nuclear power plants in Oswego County and the reactors at the Fukushima Dai-ichi plant in Japan, which was damaged by the March 11 earthquake and tsunami. Four of the six Japanese reactors there have experienced explosions, structural damage, partial meltdowns or rising temperatures in spent fuel pools. Radioactive gases are believed to have escaped four of the reactors, prompting an evacuation and creating serious risks to humans and the environment.

Common traits between the Oswego and damaged plants include:

- All are boiling-water reactors designed by General Electric.
- All began operating in the 1970s except Nine Mile Point Unit 2, which is newer.
- All except Nine Mile Point Unit 2 use the GE Mark I type of reactor containment vessel, which some nuclear industry officials have criticized.
- Spent fuel rods from all of the reactors are stored onsite in pools of water that are less protected than the reactor vessels.

At Fitzpatrick, the oldest rods are stored in hardened casks of steel and concrete

SIDEBAR: Nukes in our backyard

There are three nuclear power plants 34 miles from downtown Syracuse in the Oswego County town of Scriba.

FITZPATRICK NUCLEAR POWER PLANT

Operator: Entergy Nuclear Operations

Licensed: Oct. 17, 1974

Re-licensed: Sept. 8, 2008

License expires: Oct. 17, 2034

Reactor type: Boiling water reactor

Electrical output capacity: 852 megawatts

2009 output: 7.4 million megawatt hours, or 5 percent of the state total

Reactor designer: General Electric

Containment vessel type: Mark I

NINE MILE POINT UNIT 1

Operator: Constellation Energy Nuclear Group

Licensed: Dec. 26, 1974

Re-licensed: Oct. 31, 2006

License expires: Aug. 22, 2029

Reactor type: Boiling water reactor

Electrical output capacity: 621 megawatts

2009 output: 4.5 million megawatt hours, or 3 percent of the state total

Reactor designer: General Electric

Containment vessel type: Mark I

NINE MILE POINT UNIT 2

Operator: Constellation Energy Nuclear Group

Licensed: July 2, 1987

Re-licensed: Oct. 31, 2006

License expires: Oct. 31, 2046

Reactor type: Boiling water reactor

Electrical output capacity: 1140 megawatts

2009 output: 9.9 million megawatt hours, or 7 percent of the state total

Reactor designer: General Electric
Containment vessel type: Mark II

Japan Crisis Casts Pall Over Maryland Nuclear Power Expansion (GLFDPTCH)

Radiation dangers in wake of earthquake, tsunami could sour public opinion on building more reactors.

By Andy Marso

Guilford Patch, March 21, 2011

WASHINGTON - Maryland's only nuclear power plant is fundamentally different from the endangered Fukushima plant in Japan, but what's happening on the other side of the world could suppress the public's appetite for more reactors here.

The Fukushima plant, damaged by a 9.0 earthquake and ensuing tsunami on March 11, has six boiling water reactors. Maryland's Calvert Cliffs Nuclear Power Plant, located in Lusby on the southwest coast of the Chesapeake Bay, has two pressurized water reactors. Proposals to add a third reactor stalled in financial negotiations and a French company's bid to take on the expansion now appears even less likely to come to fruition.

"Public opinion has changed in the last couple days," Maryland Comptroller Peter Franchot said.

Franchot said economics are still the biggest obstacle for proponents of a Calvert Cliffs expansion, but the situation in Japan would have a "huge impact on the Nuclear Renaissance" across the country.

Questions about the design of boiling water reactors appear to date back almost to the time when Fukushima started operating in 1971. The Center for Public Integrity reported March 15 that in 1972 Stephen Hanauer, a senior member of the Atomic Energy Commission staff, said the "pressure suppression" safeguards built into such reactors were not as effective as "dry" radiation containment structures like towers or domes.

As a pressurized water reactor plant, Calvert Cliffs does not allow water to boil within the reactor core, but rather transfers the heat to a steam generator which produces electricity. Pressurized water reactors have domed containment units that enclose the reactors entirely – including the steam generator and pressurizer.

Diane Screnci, of the Nuclear Regulatory Commission's Office of Public Affairs, said the containment units are made of reinforced concrete with a steel lining. Screnci said boiling water reactors and pressurized water reactors have similar safety records.

"Both of those types of plants are operating in the United States and operating safely," she said.

Constellation Energy owns the Calvert Cliffs plant. Mark Sullivan, director of communications for the company's nuclear group, said via e-mail that safety was the company's top priority.

"We have emergency response plans in place which are approved at the federal, state and local government agencies," Sullivan said. "The plans have detailed procedures which are routinely reviewed and used in training of our teams. We have training exercises and drills to test our ability to effectively implement our plan and are formally evaluated by the NRC."

Sullivan also said Calvert Cliffs' reactors would be shut down if certain levels of seismic activity were detected in the area and that the NRC required all plants to be designed to withstand natural phenomena like tsunamis.

Quakes and tsunamis are exceedingly unlikely around Calvert Cliffs. According to the US Geological Survey, there has never been an earthquake centered in the Washington, D.C., area in recorded history (though the area has felt mild effects from quakes centered elsewhere).

Nathan Hultman, a University of Maryland professor in the School of Public Policy who is an expert on atomic energy policy, said reactor containment units in the US are built to withstand tremendous impacts – even the force of a plane flying into them, a scenario that came up after the terrorist attacks of Sept. 11, 2001.

But Hultman said the cooling ponds where used nuclear rods are placed at most facilities are sometimes more vulnerable. Spent rods must be radioactively cooled for several years before they can enter "dry cask" storage. Fires have broken out in some of the pools at the damaged Fukushima plant, sending high levels of radiation into the atmosphere.

"Even if someone did try to fly an airplane into a nuclear reactor ... it's likely not going to actually break the reactor and release radioactivity," Hultman said. "But if you fly the airplane into the pool of spent fuel, you can create essentially a dirty bomb, right, from just this activity and maybe even set the thing on fire."

Sullivan did not respond to an e-mail and phone message Wednesday inquiring about how Calvert Cliffs stores and protects spent nuclear rods during cooling.

Hultman said Fukushima was on the "knife edge" Wednesday – that there is still the possibility of containment, but the plant is teetering on the brink of disaster. He said that if containment fails, low levels of radiation might reach the US, which could sour the nation on nuclear power for a long time.

Even if the Fukushima crisis is completely contained today, he added, it would still be the second-worst nuclear power accident in history, trailing only the Chernobyl disaster. That explosion at a nuclear power plant in Ukraine in 1986 gave off a cloud of radioactive fallout that caused thousands of cancer deaths.

Fukushima could lead to more US regulations, which would make it more costly to operate old plants or build new ones. Hultman said that could be all it takes to stop a "Nuclear Renaissance" in its tracks after 30 years of safe operation.

"In the end you're only boiling water to create electricity – that's all you're doing with a nuclear power plant," Hultman said. "You can create electrical potential in all kinds of other ways and move electrons in all kinds of other ways. So if a utility's looking at needing to fill a load, the combination of public opinion and changes in costs, both of those have to go into their decision. Clearly it's going to be more difficult, in the near term at least."

David Saleh Rauf contributed to this report.

Nuclear Risk Is Just Too Great (BSUN)

Baltimore Sun, March 21, 2011

Our prayers go out to the people of Japan who must cope with the fear of exposure to radioactive contamination from the nuclear reactor and nuclear waste partial meltdowns in Fukushima following the devastating earthquake and tsunami. The Daiichi nuclear accidents occurred on the eve of the 25th anniversary of biggest nuclear disaster of all, at Chernobyl. The death toll for the 25 years since the catastrophe has recently been estimated at 900,000 in Europe and Russia.

Those of us who have been concerned about the "insurmountable risks" with nuclear power know that a disaster unfortunately could occur here, no matter how reassuring industry and government officials try to be. Recently we learned that the US nuclear power plant at the highest risk for core meltdown due to an earthquake is at Indian Point, less than 50 miles from the 20 million people who live in and around New York City. Governor Andrew Cuomo has called for its closure.

Our own Calvert Cliffs, also near a fault line, is lower down on the earthquake likelihood scale. Yet it has its own very risky variables, as detailed in a recent article in the Washington Post. It is "next door" to a liquefied natural gas plant. It is subject to dangerous weather events such as in 2000, when a tornado with winds of 200 miles that passed in its vicinity. Finally, evacuation from an emergency at the plant would be a nightmare with limited highways to the north and one bridge to the south that can cause 45-minute delays on an ordinary day. Imagine the scene on the escape routes were the sirens to sound the alarm.

In general, risks of a malfunction at a nuclear power plant are greatest for very old and very new power plants. The very old nuclear power plants should be closed rather than the present Nuclear Regulatory Commission pattern of approving all extensions. There should be a moratorium on approval of new plants with their unproven and questionable safety features. Power plants in risky environments (Indian Point, Calvert Cliffs) should be reassessed.

Radioactive contamination from a nuclear meltdown would cause death and destruction long after the memory of the disaster has faded. The land would be left uninhabitable for hundreds of years or longer. These are risks too big to take. We have alternatives: wind, solar, conservation and higher efficiency standards.

Dr. Gwen L. DuBois

The writer is a member of Chesapeake Physicians for Social Responsibility.

Experts Criticize Design Of Plant (times dailu)

By Eric Fleischauer

Times Daily, March 21, 2011

The Tennessee Valley has more reason than much of the world to study the nuclear disaster unfolding in Japan.

Browns Ferry Nuclear Plant — 30 miles east of the Shoals — has the same General Electric reactor design — the Boiling Water Reactor Mark I — as the damaged reactors at the Fukushima Dai-ichi plant in Japan. The disaster in Japan has, according to some experts, highlighted problems in the Mark I design.

GE defended the Mark I design Monday, calling it an "industry workhorse" and saying, "There has never been a breach of a Mark 1 containment system."

By Wednesday, indications from Japan were that there has been at least two such breaches.

The event jeopardizing the reactors in Japan was cataclysmic. A 9.0 earthquake was followed by a tsunami. By itself, the earthquake did not create an unforeseen nuclear emergency. The plants successfully inserted neutron-absorbing control rods, which ended the nuclear fission within the reactors.

The combination of earthquake and tsunami, however, was disastrous.

All power to the plant was lost. Flooding from the tsunami rendered the backup power supply, diesel generators, useless. The final electrical backup, batteries that could operate the plant's essential functions for eight hours, did not last long enough to permit replacement with another power supply.

The power loss disrupted efforts to cool the still-hot fuel rods in the reactors and spent-fuel pools. It also disabled hydrogen igniters, designed to remove the gas before it reached explosive levels. Hydrogen explosions damaged the buildings around three of the reactors, disabling a last-resort system designed to keep radiation from entering the atmosphere.

The combination of earthquake and tsunami could not happen in Alabama, but similar double disasters could, said David Lochbaum, a nuclear engineer who worked at Browns Ferry.

"While many of our plants may not be vulnerable to the one-two punch of earthquake and then tsunami, many of our reactors are in situations where earthquakes or hurricanes in the Gulf or ice storms in the Northeast or a tree in Cleveland can cause an extensive blackout that puts us in a very similar situation," he said.

A tornado could disrupt the power grid and compromise Browns Ferry. An earthquake could damage both Browns Ferry and, by disabling dams on the Tennessee River, cause flooding. Either an earthquake or tornado could cause a fire at Browns Ferry, potentially damaging the backup power supply.

Spent-fuel pools

An increasingly dangerous problem in Japan involves the spent-fuel pools. In the Mark I design, the pools are essentially in the plant's attic, above the reactor.

Fuel rods in the pool are thermally hot and radioactive.

They rely on water and circulation pumps to avoid reaching temperatures that melt the metal cladding around the fuel rods, a condition that releases radiation. The spent fuel is not as well protected as the fuel in the reactor. In Japan, the spent fuel is now open to the atmosphere in at least two plants. The danger posed by the pools is significant. According to Lochbaum, a US study shows a drained spent-fuel pool delivers a lethal dose of radiation to a worker at its railing in 16 seconds.

Browns Ferry is more vulnerable to problems with the spent-fuel pools than are the plants in Japan. Delays in constructing a storage facility for depleted fuel — planned at Yucca Mountain in Nevada — resulted in Browns Ferry and other plants stockpiling the fuel in the cooling pools. TVA is gradually moving the spent fuel to on-site dry casks, but the pools remain near capacity.

That means they have more radioactive content than the pools at the Japan reactors, and they are more dependent upon electric pumps to circulate water within the cramped quarters.

"Our spent fuel pools in the reactors like the one in Japan are almost filled to the brim, and the risk from the spent fuel pools — either from an accident or from an act of malice — are about as high as you could possibly make them," said Lochbaum, director of the nuclear safety program at the Union of Concerned Scientists, which describes itself as a watchdog group that neither supports nor opposes nuclear power.

Another issue that some experts fear will come into play in Japan involves the consequences of melting fuel rods within the reactor.

Fuel rods melting

If cooling efforts fail, the fuel rods ultimately will melt into a lava-like substance. The heat would melt the steel reactor vessel, allowing the melted fuel to drop to the concrete containment vessel. In Mark I reactors, the containment vessel is concrete with steel at the edges.

"In the Mark I containment, there is a known vulnerability to containment failure known as liner melt-through," said Ed Lyman, a physicist at Union of Concerned Scientists. "If that melt spreads to the corners, then it may be able to melt through the steel shell of the containment as it ate through the reactor vessel."

If it happens, especially if the containment vessels are damaged as they are in Japan, "that would essentially mean large radiological release to the environment."

TVA Chief Operating Officer Bill McCollum said he is confident the authority's reactors are safe, but TVA will seek to learn from the problems in Japan.

"TVA's plants are designed, built and operated to be safe," McCollum said. "That's our No. 1 mission. Our plants are designed to be very robust against all types of occurrences.

"It's far too early to assess the total impact of this. I believe we'll have to wait to understand the facts and events as they've really occurred, and what actions may need to be taken and lessons to be learned out of this."

Expert: Browns Ferry Vulnerable To Leak Like Japan Plant (DECD)

By Eric Fleischauer

Decatur Daily, March 20, 2011

A nuclear engineer's theory for why a spent fuel pool at a Japan reactor is losing water, and thus is spewing radiation, raises the possibility similar problems could occur at Browns Ferry Nuclear Plant in the event of a power outage.

Reactor No. 4 at Japan's Fukushima Dai-ichi plant was down for refueling on March 11, when the earthquake and tsunami hit. Initially, most attention was focused on the plant's No. 1 and No. 3 reactors. On Tuesday, however, a fire broke out at No. 4.

If spent fuel rods — deprived of adequate water — get too hot, they can suffer damage and release radioactive gases into the atmosphere. Eventually they can catch fire, releasing even more radiation.

Another fire started at No. 4 on Wednesday, followed by a surge in radiation that forced workers to leave the plant. On Thursday, Japanese workers used water cannons to try to blast water into the No. 4 spent fuel pool. The efforts were ineffective.

David Lochbaum, a nuclear engineer who served at Tennessee Valley Authority's Browns Ferry from 1980 to 1983, suspects water is leaking out of the No. 4 spent fuel pool through a seal that, because of the loss of power, is no longer water tight. Browns Ferry, he said, has the same kind of seal.

Ray Golden, a spokesman for TVA's nuclear operation, said Saturday it is too early to draw conclusions from the situation at the Japanese plant. Once TVA and the Nuclear Regulatory Commission know what happened, Golden said, they will apply the lessons to any vulnerabilities at Browns Ferry and other nuclear plants.

Browns Ferry, located 11 miles northwest of Decatur in Limestone County, has three reactors. They are General Electric Mark I boiling water reactors, the same design and about the same age as those at the Fukushima Dai-ichi plant.

The nuclear disaster in Japan relates primarily, if not exclusively, to one fact: the reactors lost all three power systems. An earthquake separated the reactors from the AC power grid. Flooding from the tsunami destroyed diesel generators intended to back up the AC power. The last resort, batteries, worked for eight hours as designed.

Eight hours was not long enough to replace either of the other power sources, however, so major problems began once they burned out.

Electric power is essential to the operation of a nuclear plant, even after control rods have been inserted in the reactor and ended the nuclear reaction, as had taken place in the No. 4 reactor before the earthquake. Monitoring equipment relies on electricity. Hydrogen igniters, designed to keep hydrogen gas from collecting to explosive levels — as it did in Japan — rely on electric power. Electricity runs pumps designed to push cooling water into the reactor and spent fuel pools, and runs pumps that circulate the water to maximize cooling of the closely packed fuel rods. Keeping seal tight

Another role of electric power, explained Lochbaum on Saturday, is to keep a seal between the reactor and spent fuel pools water tight.

Lochbaum, a nuclear engineer, worked in the US nuclear industry for 17 years before becoming director of nuclear safety at the Union of Concerned Scientists.

Water is essential when dealing with fuel rods. Not only does it keep the rods thermally cool, it is a shield that prevents radiation from escaping into the atmosphere.

Consequently, the insertion of fresh fuel rods into the reactor and the transfer of the spent fuel from the reactor to the spent fuel pools is performed under water.

To facilitate this operation, a large concrete door — about 20 feet tall and three feet wide — is installed when refueling operations take place. To keep water from leaking through this door and into a large cavity between the reactor and spent fuel pool, a seal like a bicycle inner tube surrounds its side and bottom edges. Pressure is maintained in this seal with an electric compressor powered, said Lochbaum, exclusively by the AC electrical grid.

The spent fuel pool remains full of water during refueling operations. The reactor containment vessel, normally dry above the reactor head, is flooded with water to facilitate refueling. That gives operators the ability to lift fuel rods out of the reactor without removing them from water, after which they can be transferred through the door into the pool.

"When the earthquake occurred that took out the electrical grid, the air compressors for that seal were lost. The seal stopped getting air. That doesn't mean it immediately deflates, but as the air leaks out of the seal it becomes less and less effective at closing the gap between the gate and the walls," Lochbaum said. "The Browns Ferry reactors, like the reactors in Japan, are vulnerable to that situation."

In 1986, a similar event occurred at the Hatch Nuclear plant in Georgia, which also has a GE Mark I reactor design.

"At the Hatch plant it took four or five hours for the inflatable seal to deflate and 141,000 gallons of water — about half the water from the spent fuel pool — leaked out through the gap between the gate and the walls," Lochbaum said. "It was discovered at Hatch before the fuel heated up and was exposed to any kind of damage."

A leak in the seals would hinder efforts to replenish water in the cooling pools in two ways, Lochbaum said. First, replacement water would have to enter the pool faster than it is leaking through the deflated seals. Second, the reduced water

levels mean the water in the pools is much hotter as a result of its exposure to the heated fuel rods. This means much more water is lost through steam and evaporation, increasing the amount of replacement water needed.

Potentially complicating the problem, Lochbaum said, is that the seal — both in Japan and at Browns Ferry — operates solely on AC power from the electric grid. That means even with effective power back up, water leaks could begin after an AC power outage.

TVA's Golden said any loss of seal in the door only plays a role if there is a power disruption while the door is installed, generally during refueling.

Unit 4 of the Fukushima Dai-ichi plant was in the midst of a refueling outage at the time of the earthquake and tsunami.

"What (Lochbaum) is postulating — and this is my struggle with all of this — everybody is trying to fill this (information) void and speculate as to what has and hasn't happened," Golden said. "Honestly, until this event is over — and maybe sometime after that when they can get robotics or whatever in based on radiation levels — then we'll know. Right now, we don't." Same backup supplies

Browns Ferry relies on the same backup power supplies as those used unsuccessfully in Japan, with one exception.

The battery backup at Browns Ferry lasts only four hours, half the duration of the Japan batteries. While Browns Ferry's battery backup duration is less, Golden said, the Limestone County plant has more diesel generators than required.

Golden said there are eight diesel generators at Browns Ferry, even though only one is required for each reactor.

"They are above the flood plain," Golden said of the generators. "They're also in a water-tight, solid concrete building. The exhaust is off the roof, so there is not a path for water to get in."

Japan Nuke Crisis Sheds Light On Stability Of Browns Ferry (ATHENNC)

By Adam Smith

Athens (AL) News Courier, March 21, 2011

By now, most Americans are fully aware of the devastation in Japan and the realization that country is on the precipice of a catastrophic nuclear disaster.

An earthquake measuring 9.0 rocked the northeastern portion of the country on March 11, triggering a massive tsunami that killed at least 7,000. Thousands more are still missing, and at least 45,000 are homeless.

Hovering above the unspeakable human tragedy is the status of the Fukushima Daiichi nuclear power plant, severely damaged and left powerless by the earthquake and accompanying rush of water.

On Friday, at least 180 workers were still attempting to cool down spent nuclear fuel rods in the plant's main reactor in hopes of averting a complete meltdown. Earlier this week, the US urged Americans living within 50 miles of the plant to evacuate.

Reporters in Japan raised the notion Friday of sealing the reactors and fuel rods in concrete as an emergency measure. But officials with Japan's nuclear safety agency and the plant's operator did not embrace the idea.

"We believe it is not a realistic option," said Hidehiko Nishiyama of the Nuclear and Industrial Safety Agency. And Teruaki Kobayashi, a manager at the Tokyo Electric Power Co., said the utility would not rule out entombing the reactors but thinks the probability is low.

Nuclear plants emit few heat-trapping gases, but their radioactive fuel must be controlled and contained for centuries. President Barack Obama on Thursday asked the Nuclear Regulatory Commission to conduct a "comprehensive review" of the safety of all US nuclear plants.

The nuclear crisis in Japan has drawn comparisons to the partial meltdown of a reactor at Three Mile Island near Harrisburg, Pa., in 1979 and the Chernobyl nuclear accident in the Ukraine in 1986, which forced a resettlement of about 336,000 residents.

Japan's nuclear safety agency raised the severity rating of the country's nuclear crisis Friday from Level 4 to Level 5 on a seven-level international scale, putting it on par with the Three Mile Island accident.

The hallmarks of a Level 5 emergency are severe damage to a reactor core, release of large quantities of radiation with a high probability of "significant" public exposure or several deaths from radiation.

As a result of the crisis in Japan, countries that rely on nuclear power have been examining emergency procedures in an effort to avoid becoming another Three Mile Island, Chernobyl and now, Fukushima.

The Tennessee Valley Authority has also rushed to quell fears about the safety of its three nuclear power plants in Athens, Soddy-Daisy, Tenn., and Spring City, Tenn. Those three plants supply 30 percent of TVA's power supply, which serves nine million people in seven states.

However, the TVA postponed a long-scheduled media tour Wednesday at its Watts Bar Nuclear Plant near Chattanooga that is the site of the nation's only nuclear reactor currently under construction "while the industry focuses on events in Japan."

Retiree Carolyn McMahan lives near TVA's Sequoyah Nuclear Plant at Soddy-Daisy and said she has confidence in TVA. McMahan said there are risks anywhere you live.

Could it happen here?

Just how safe is the Browns Ferry Nuclear Plant, and could a natural or manmade disaster force the evacuation of hundreds of thousands of residents? Could the beautiful and lush countryside surrounding the facility decay and become overgrown with radioactive moss?

Those are questions elected officials, emergency workers and residents have pondered over the last several days. However, there have been no seemingly concrete answers, but instead positive assurances that the Tennessee Valley is, in fact, safe.

A letter written to employees by TVA Chief Operating Officer Bill McCollum basically said Americans shouldn't worry about nuclear plant safety, while stressing workers should not be arrogant or complacent in regard to knowledge, preparation and capabilities.

"People in our part of the world naturally want to know the implications these events have for American nuclear plants and whether the problems in Japan could happen here," reads the letter. "Those are very natural questions, and the answer is that it's most unlikely."

A worker at Browns Ferry who wished to remain anonymous said he wasn't worried about the safety of the plant and said there was a lot of misinformation being spread about the safety of TVA's nuclear facilities.

"With the regulations we have in place, everything will be fine," he said.

TVA Spokesman Ray Golden said the company is watching the events unfold at Fukushima with "great interest," though he said it's important that residents understand the 9.0 quake and tsunami were unprecedented events.

He said the Fukushima plant would have survived without issue had the tsunami not knocked out power to the plant.

"There was a tank that provided oil for the electrical generators that appears to have been swept away," Golden said. "It was the combination of that, plus the fact that water also got into the lower elevations and electrical switches that provide circuit protection."

He said TVA's nuclear power plants are situated above a maximum flood event to eliminate water intrusion on electrical components. He said fuel tanks are safely located in a hardened underground facility.

Columbia, S.C.-based Friends of the Earth, a nuclear watchdog group, issued a press release this week expressing uncertainty about the safety of Browns Ferry, saying the reactor here and the one at Fukushima are of the same design.

Designed in the early 1970s, the Mark 1 design has been controversial since its inception, the release says, and has been considered a less robust containment than other models.

"The old Mark 1 boiling water reactor design used in the southeast has less robust containment than other reactors and may well pose additional risk, as we have seen by the performance of this same design in Japan," said Tom Clements, Southeastern Nuclear campaign coordinator. "The public is encouraged to pay close attention to the performance of the aging boiling water reactors located near them."

Worst-case scenario

While it's certainly an impossibility the Tennessee Valley could be hit by a tsunami, the area isn't necessarily immune to other natural disasters or domestic terrorism.

Tornados and destructive straight-line winds are a way of life in North Alabama in the spring and early winter months — but could an earthquake happen here?

Though it doesn't run directly through Alabama, the New Madrid Fault Line — which stretches southwest from New Madrid, Mo., through part of Tennessee and Arkansas — could potentially create seismic activity in North Alabama in the event of a major earthquake. However, Golden ruled out the Browns Ferry Plant being affected by an earthquake because there are no major tectonic plates interacting with each other in North Alabama.

"From a risk perspective, you could have tornados or earthquakes that might cause a dam to break; those are the more realistic events," he said.

Browns Ferry was reportedly designed to withstand a 6.0-magnitude earthquake based on its proximity to the New Madrid fault, TVA spokesman Duncan Mansfield said.

The Watts Bar nuclear plant at Spring City, Tenn., and its Sequoyah plant at Soddy-Daisy, Tenn., are designed to withstand a 5.8-magnitude quake based on an 1897 tremor at Giles County, Va., Mansfield said. None of the TVA's reactors are seen as being vulnerable to tsunamis since they are so far inland.

Arkansas' only nuclear plant is located about 150 miles away from the New Madrid fault zone, which produced a series of large quakes in 1811 and 1812, including several over magnitude 7. The shaking was so strong that it reportedly caused the Mississippi River to flow backward and could be felt as far away as New England.

Golden said when designing a nuclear power plant, it must be designed to withstand the worst-case scenario, which he said would most likely be human error or the potential for terrorism.

"After 9/11, the nuclear industry spent billions on security enhancements," Golden said. "We continually try to improve our performance."

To that end, TVA inspectors have been meeting on a regular basis, he said, and have formed teams at all three nuclear plants.

"We're meeting several times a day and going through all the information we can get from any and all sources," he said.

Emergency plans

Most Limestone County residents receive a calendar each year from the Alabama Emergency Management Agency containing information about emergency notification sirens and evacuation routes.

Those unable to flee are advised to stay indoors, close all doors and windows and shut off any devices that blow in outside air.

"If you must go outside, protect your breathing. Place a damp towel over your nose and mouth," the EMA information says. "Do not use the phone unless you have a special emergency. Leave the lines open for officials business."

In case of an emergency evacuation, residents are advised to stay calm, turn off lights and water, leave pets by themselves with an ample supply of food and to follow evacuation routes to the nearest reception center and register as an evacuee. Those forced to flee in the event of an emergency at Browns Ferry can also rest easy, because "law enforcement officers will secure the evacuated areas to protect homes and businesses."

In an ironic twist, the state EMA will be one of 11 states tapped to participate in a national exercise in May featuring the scenario of earthquake response. The scenario will also examine how nuclear plants would fare in the event of an earthquake.

However, Art Faulkner, director of the state EMA, wants to assure residents the drill is not in response to the events in Japan, but instead has been in the planning stages for the last two years.

"We will have 17 counties that will be participating with us and will involve a nuclear power plant," he said. "This is about us taking a proactive approach, because we do know (the scenario) is possible in Alabama and across the nation."

Last week, Faulkner was in Limestone County and met with local EMA officials. The topic of response to an earthquake and nuclear plant emergency was discussed.

"We have had some counties that have received calls from citizens and we've been trying to make sure we put out factual information to our counties around Browns Ferry," he said. "We're always looking at keeping our plans up to date on everything we face in the state."

He said the EMA stays in contact with the Federal Energy Regulatory Commission and the National Radiological Agency in regard to response to a nuclear plant accident.

"The difference this year over previous years is that we do have a real-world situation we can turn to and see if there's anything we can learn out of that," Faulkner said.

Get out of town

In the event of a forced evacuation, would Limestone County's infrastructure be prepared to handle thousands of vehicles and mass panic?

At least one evacuation route — Nuclear Plant Road — has its share of critics. The two-lane road leading away from Browns Ferry Nuclear Plant is riddled with potholes and in need of repair.

Athens Mayor Ronnie Marks said repairing the road has been a top priority of his administration, but finding the available revenue is another matter.

"There's certainly a sense of urgency, and it's important to have a good evacuation route," he said. "We know how important it is to fix it, but it's a \$2 million project."

Marks said he's talked with the TVA and leaders at state and federal levels. However, he called it a "long shot" that available funds could be found for the project in short order.

"Any issue like the horrific events in Japan sends a red flag up," he said. "We're going to keep this as a high priority. We're trying to patch potholes as we can, but it is a critical issue and it needs to be fixed."

— The Associated Press contributed to this report.

ANR To Start Discharge Permit Study For VY (BRATBORO)

By Bob Audette , Reformer Staff

Brattleboro (VT) Reformer, March 21, 2011

BRATTLEBORO – Following the announcement that the Nuclear Regulatory Commission will soon issue a new license for Vermont Yankee nuclear power plant to continue to operate until 2032, the Vermont Agency of Natural Resources announced it will begin its own task – investigating what standards should be in the plant's updated pollution discharge permit.

The state was also awaiting the Environmental Protection Agency to release an updated version of its Draft Guidance for Water Quality-based Decisions. That document is expected by the end of next week.

"This is the right time to start the permit renewal," said Deb Markowitz, secretary of ANR.

Another thing that was holding up the process, she said, was the cost of doing the work required to insure the permit was scientifically valid.

"The Legislature changed the law about a year ago to allow us to charge Vermont Yankee for the cost," said Markowitz.

Because ANR is now allowed to "charge back" expenses related to the permit, it plans to hire a consultant to help ANR's staff to determine the impact of the change in water temperature due to the discharge and its effect on the river's wildlife and habitat.

In addition to awaiting charge-back authority, ANR has been watching developments at another Entergy-owned plant in New York – Indian Point – regarding the second part of Yankee's discharge permit, whether Entergy is using the "best technology

available" to reduce the effects on river life when water is taken from the Connecticut River for cooling purposes.

The permit from the New York Department of Environmental Conservation requires the installation of cooling towers, which Indian Point doesn't have. It operates under what is called an open-cycle cooling system, drawing water from the Hudson River. Using towers only is considered closed cycle.

Yankee has cooling towers and, depending on the time of the year and the ambient temperature of the river, can operate in either mode or a combination of the two.

"We haven't made a decision whether it makes sense to go to closed cycle," said Markowitz. "We need scientific input. If we decide (closed cycle) is the best way to insure a minimum impact on the habitat and the health of the Connecticut River, we will make that decision."

Recently, ANR received a letter from the Connecticut River Watershed Council asking it to begin the process of issuing the permit.

"The technique we think ANR should adopt is closed-cycle cooling," said Laura Murphy, a staff attorney at the Vermont Law School's Natural Resources Law Clinic, who wrote the petition for the watershed council.

Once the draft permit is issued, which might not happen until sometime after March 21, 2012, when the power plant's original license is due to expire, a public comment period will be started.

"We are asking that the state deny or act and issue a renewal permit so that the public process can begin," said Murphy.

Entergy has opposed closed-cycle cooling at Yankee because running the 22 fan cells that make up the two towers requires a significant portion of the energy produced by the plant.

How much it costs on a daily basis is proprietary information, said Larry Smith, Yankee's director of communications, but industry analysts have stated it costs up to \$1 million a day to run the cooling towers.

Three years ago, the Environmental Court held hearings to review the CRWC's contention that the thermal discharge limits of the previous permit issued by ANR were harmful to the river and its indigenous population.

Yankee's discharge is non-radioactive water that is withdrawn from the river, run through the plant's condenser to cool reactor coolant water and released into the river at temperatures around 100 degrees.

The Environmental Court issued a decision limiting the times in which Yankee can release heated water into the river and at which river temperature it had to cease to do so.

CRWC appealed the decision – because it felt it didn't go far enough in restricting the discharge – to the Vermont Supreme Court, which upheld the Environmental Court's decision.

Catherine Gjessing, Associate General Counsel for the Department of Environmental Conservation, a branch of ANR, said the issues that were brought up before the environmental court could be once again brought up during hearings about the new permit.

"The renewal does call for a fresh look at the issues," said Gjessing. "We will have new information that was not considered by the court because of ongoing monitoring associated with the permit."

It's conceivable that new information could be available, said Elise Zoli, Entergy's environmental legal counsel, but she is not aware of anything that would change the conclusions that were reached by the Environmental Court.

However, she said, if new legitimate information arises, which she said was "virtually impossible," Entergy would consider it relevant and would address it.

"But we don't expect that to occur," said Zoli.

"Our position is we're starting from scratch," said Murphy. "We've been through that debate and we might be going through that debate again."

The information the courts considered is seven years old at this point, she said.

"It's an old permit and it needs better limits," said Murphy.

But, according to Zoli, Entergy has been conducting ongoing analyses of the river and its aquatic population and that information will also be presented when ANR begins to consider whether Yankee's cooling system should be closed or open cycle or both.

"If they want to move forward and discuss intake issues, we welcome the discussion," said Zoli.

She said in the summer, when the river has the most fish in it, the cooling towers are used during, thus minimizing the plant's overall effect. Bob Audette can be reached at raudette@reformer.com, or at 802-254-2311, ext. 160.

Vigil At Vermont Yankee Sunday (RUTHER)

By Susan Smallheer

Rutland Herald, March 19, 2011

VERNON — Anti-nuclear activists have organized a vigil for Sunday afternoon at the gates of the Vermont Yankee nuclear plant in what they say is an expression of solidarity with Japanese workers and residents affected by the nuclear disaster in Fukushima.

Bob Bady of Brattleboro, a member of the Safe & Green Campaign, said Friday the event would be a solemn and peaceful vigil in front of Vermont Yankee's main gate on Governor Hunt Road.

The vigil starts at 1 p.m. and is being organized by the Safe & Green Campaign, Citizens Awareness Network and the New England Coalition.

"We were talking and we said, 'Let's do something, let's do something,'" said Bady, who was one of the organizers of the January 2010 walk from Brattleboro to the Vermont Legislature that raised awareness about the issues surrounding the 39-year-old reactor.

Bady said he had been getting a lot of telephone calls from people whom he usually doesn't hear from about the vigil, although he said he had no idea how many people would attend the event.

Bady said that in addition to expressing concern for the Japanese people whose lives are being disrupted by the unfolding nuclear disaster at Fukushima, organizers will call for the closure of Vermont Yankee.

Yankee is also a General Electric-designed boiling water reactor with a Mark 1 containment, the same as the troubled Fukushima reactors, and has had a variety of problems in the past four years. Its state and federal licenses to operate expire March 21, 2012, and so far it appears it will shut down since the Vermont Legislature has effectively blocked its continued operation.

Vigil organizers suggested that people attending the vigil wear black clothing and bring a sign or banner that is in keeping with the focus of the vigil.

People should park at the nearby Vernon Elementary School, which is across from Vermont Yankee.

"It will be a pretty quiet vigil. We have to show solidarity with the people," he said.

Vermont Yankee Neighbors Cite Concern, Need (KSENT)

By Steve Gilbert, Sentinel Staff

Keene Sentinel (NH), March 21, 2011

HINSDALE — The yellow perch and crappies were biting Thursday as Alfred Kempf and Chuck Inderieden ice-fished on the Connecticut River setback, a clear view of Vermont Yankee in the distance.

But their views on Vermont Yankee were quite different.

"I think this one's at its limit," said Kempf, 59, of Hinsdale. "It's showing its age. It's time to go."

"The plant doesn't bother me," said Inderieden, 77, of Wilmington, Vt., who was fishing about a quarter-mile from Kempf. "I know it's a big thing what happened in Japan, but what other options are there? It's something you have to live with."

The nuclear plant in Vernon, Vt., is again under intense scrutiny following last week's devastating earthquake in Japan. The quake and tsunami knocked out power to Japan's Fukushima Daiichi nuclear plant, disabling backup generators and shutting down its cooling systems. Many in Hinsdale say they are well aware Vermont Yankee is the same design as the plant in Japan

and was built by the same company, General Electric. They are following the events in Japan closely, as Vermont Yankee closes in on permission to operate for another 20 years.

Last week the Nuclear Regulatory Commission approved extending Vermont Yankee's license – the nearly 40-year-old plant's license expires in 2012 – by another 20 years, one day before the earthquake.

Still, the plant's future beyond 2012 remains cloudy. Under Vermont law, an extension of the plant's license has to be approved by the Legislature, and in February 2010 the Vermont Senate voted 26-4 to block the continued operation of the plant.

President Barack Obama on Thursday called for a safety review of all US nuclear plants.

Meanwhile, directly across the river from Vermont Yankee, life goes on in Hinsdale.

A sampling of townspeople Thursday showed the Japan disaster hasn't changed anyone's minds, pro or con. Opinions are fierce and free-flowing, though tinged with resignation that it really doesn't matter what they think.

"Get rid of every single one of them," said Sherwin Page, 54, who moved to Hinsdale from Greenfield, Mass., five years ago. "I think they're dangerous, but what's anybody going to do about it? There's one way to change things and that's to move – and I'm not moving."

Nafiz Khatib, 39, has owned the Hinsdale Convenience Store for seven years. He says a majority of customers tell him the plant makes them nervous, especially considering the numerous incidents over the last few years. Khatib rattled off cracks in the steam dryer, a collapsed tower and underground pipes leaking tritium as examples of Vermont Yankee showing its age.

"It's all those things adding up," Khatib said. "You're talking about leaks and leaks and leaks. People are saying, 'what if, what if, what if.' God forgive them if something happens to the plant."

Khatib says no matter how small the potential for disaster, the plant's safety has to be 100 percent assured because the repercussions would be so devastating. "What if it happened here? What would we do?" he said.

In contrast, Robert Butler, a maintenance worker at Hinsdale Elementary School, has lived in town for 14 years. He has no problems with Vermont Yankee as a neighbor.

"I think it's pretty safe," he said, pointing out the extraordinary natural disaster unfolding in Japan is highly unlikely to repeat itself in interior New England.

Robert Bird, 47, lives in subsidized housing just off Main Street. He is a former Army Ranger, horse trainer and construction worker who shattered his leg in a work accident and is disabled.

Bird said socioeconomics play a role in attitudes toward Vermont Yankee. Those who live paycheck to paycheck rely on the nuclear plant to keep electric costs down while those who are financially stable tend to be against it, he says.

He questions the intensity of media coverage toward the plant, wondering if the recent tritium leaks were played up too much.

And yet Bird says the disaster in Japan inevitably hovers over Vermont Yankee. "It makes you question a lot of things, certainly," Bird said. "I think it's horrific what happened there, absolutely horrific."

Charlie Nurse, 74, of Chesterfield has been fishing in the Connecticut River since he was a child. Looking across the river at the plant, he says he really doesn't think about it when he's fishing.

"It's been here long enough so I'm used to it, but the leaks do scare me," Nurse said.

Kempf said Vermont Yankee's age makes him nervous. A former machinist, he worked at Book Press in Brattleboro for 31 years, Georgia Pacific and Troy Mills. He says machines are assigned certain life spans for a reason and Vermont Yankee is at the end of its intended use.

"They're only made for a certain amount of time because then the metal starts breaking down," Kempf said. "You can't run anything like that. I've run machines my entire life and you can't push them past their limit." As he's talking, he pulls up a healthy-looking yellow perch. "I still eat them even though they say they might have tritium."

Sanders Asks President To Inspect Nuclear Sites (WCAX)

WCAX-TV Burlington, VT, March 21, 2011

Washington, D.C. – March 20, 2011

Vermont Senator Bernie Sanders is urging president Obama to take a closer look at the safety of this country's aging nuclear power infrastructure in light of recent event in Japan.

In a letter to the president, Sanders also asked for a moratorium on license renewals by the Nuclear Regulatory Commission.

The NRC authorized Vermont Yankee's 20-year license renewal a day before the devastating Japanese earthquake.

Japan Quake Could Shake Nuclear Plans Key To Region (CHTNGA)

By Dave Flessner

Chattanooga Times Free Press, March 21, 2011

Japan quake could shake nuclear plans key to region

The radioactive fallout from Japan's earthquake-damaged nuclear plant may be minimal in the United States, but America's nuclear power industry could be shaken from what its supporters hoped would be a renaissance in the next decade.

In the Tennessee Valley — a hub for the US nuclear industry and its potential rebound — the outcome of any quake-induced changes in nuclear standards, costs and attitudes could be key to thousands of jobs.

"I think the ongoing problems at the Fukushima plant in Japan clearly indicate it's not a wise long-term strategy for Tennessee or any other state to be betting on nuclear power," said Stephen Smith, a nuclear power opponent who heads the Southern Alliance for Clean Energy.

Nuclear proponents insist that new reactors should still be built to provide a cleaner alternative to burning fossil fuel. US Sen. Lamar Alexander, R-Tenn., who has called for the United States to build 100 new nuclear reactors in the next 20 years, said last week that the nuclear industry should learn from the Japanese disaster. But he insists America can't afford to give up on the technology America developed shortly after World War II.

"Without nuclear power, it is hard to imagine how the United States could produce enough cheap, reliable, clean electricity to keep our economy moving and keep our jobs from going overseas," Alexander said.

China and European countries last week put a temporary hold on nuclear construction as governments around the globe reassessed the safety of the world's 442 nuclear power reactors.

But officials for both TVA and the Southern Co. said they are proceeding with plans for new nuclear plants.

The Tennessee Valley Authority is building the only nuclear power plant under construction in the United States at its Watts Bar plant near Spring City, Tenn. The federal utility is spending \$2.5 billion over five years to finish the Unit 2 reactor that the utility mothballed at Watts Bar 1985 amid rising safety concerns and construction costs following the 1979 meltdown at the Three Mile Island nuclear plant — America's worst nuclear plant accident.

At the next TVA board meeting in Chattanooga on April 14, TVA directors will discuss the future of TVA's unfinished Bellefonte Nuclear Plant in Hollywood, Ala.

For now, TVA Chief Operating Officer Bill McCollum told employees last week that TVA has established a central response center in Chattanooga to monitor the Japanese nuclear accident and assess any lessons for TVA's six operating reactors and the utility's preliminary plans to build up to five more reactors by 2030.

"Because of inherent differences in the design, location and vulnerability of natural disasters between the damaged Japanese nuclear plant and American plants, I do not believe it would be appropriate to react before facts are known and propose changing our energy strategy," McCollum said.

Georgia Power Co., a subsidiary of the Southern Co., and its partners, including Dalton Utilities, are proceeding with plans to build the first new nuclear plant at Plant Vogtle near Waynesboro, Ga. The new reactors at Vogtle, if approved, will be built under the combined operating license standards adopted by the Nuclear Regulatory Commission to streamline new construction.

"We do not anticipate that events in Japan will impact our construction schedule or our ability to stay on budget," Southern Co. spokesman Todd Terrell said.

Thaw in the Nuclear winter

No new nuclear plants have been started since the 1979 accident at the Three Mile Island nuclear plant in Pennsylvania where fuel rods melted down in the reactor core and the unit was destroyed.

But amid growing concerns over carbon emissions from coal-fired plants, nuclear proponents are hoping for a revival in new nuclear construction and are counting on what designers say are simpler and safer designs for future plants.

The Nuclear Regulatory Commission has received applications for 25 new reactors using the next-generation designs, including the two new reactors planned at Vogtle and two new units being studied for Bellefonte.

Most of the new construction is in the Southeast and Chattanooga is trying to capitalize on its central location and nuclear fabrication history to capitalize on any nuclear renaissance. Chattanooga Mayor Ron Littlefield told an American Nuclear Society gathering last year that Chattanooga is "a nuclear friendly city" eager to become home to nuclear component manufacturers.

Oak Ridge, Tenn., which bills itself as the atomic city, is home to several nuclear power contractors as well as the government-funded research on new nuclear technologies and materials at the Oak Ridge National Laboratory.

In Chattanooga, Alstom Power recently completed a \$280 million facility on Riverfront Parkway capable of fabricating major reactor components. Westinghouse Electric Corp., built a \$21 million boiling-water reactor center in Chattanooga's riverport last year to train nuclear workers.

The facilities are now servicing many of the 104 operating nuclear reactors in the United States, but the businesses are hoping to expand if new plants are built.

The Nuclear Power Corridor

A new study of the corridor from Huntsville, Ala., to Oak Ridge counted 40 businesses supplying parts or labor to the US nuclear power industry and thousands of skilled workers trained for nuclear-related jobs. Chattanooga State provides radiation specialist training for nuclear plant workers and the University of Tennessee in Knoxville has the nation's third biggest nuclear engineering program.

"I don't think there is another region in the country that has this many educational programs, trained workers and utility customers and their support networks for the nuclear power industry," said Gary Gilmartin, president of Gilmartin Engineering Works and head of the newly formed Tennessee Valley Corridor Nuclear Energy Initiative. "We're the best situated area in the country to support the nuclear industry."

Gilmartin said the nuclear industry will have to assess the Japanese accident at the Fukushima nuclear plant and apply any lessons for making other plants safer.

"But at this point the industry is still moving forward," he said.

But others are far less sure.

"We should use this time for a pause and a time-out to make sure we learn some lessons from what happened in Japan," said New Mexico Gov. Bill Richardson, a former US Secretary of Energy.

Dr. Steven Chu, the current Secretary of Energy, told Congress last week that President Obama still supports nuclear power and the White House budget request for \$36 billion in loan guarantees for new reactors. But Chu said the government will "be looking very, very closely at the events in Japan" and he declined to speculate on what the Japanese accident may mean for continued construction of new plants.

Even before the Japanese accident, TVA and other utilities have pushed back plans for new reactors due to a slowdown in power demand.

That slowdown has pushed some nuclear suppliers to delay their planned investments.

In Marion County, Chicago Bridge & Iron bought 61 acres on the Tennessee River two years ago and obtained permits to construct a \$110 million fabrication facility to serve the nuclear industry. But the company has put those plans on hold until new orders start coming in.

"We're obviously very disappointed that this project and the jobs that it would bring to our county hasn't moved forward," Marion County Mayor John Graham said. "It is a hopeful sign that the company still owns the property and hopefully this facility will someday be built. But the events in Japan are certainly not a hopeful sign of that happening very soon."

AT LARGE: Remembering Browns Ferry, Almost Nuclear Catastrophe (TUSN)

By Tommy Stevenson

[Tuscaloosa News \(Alabama\)](#), March 21, 2011

AT LARGE: Remembering Browns Ferry, almost nuclear catastrophe

Remembering Browns Ferry, almost nuclear catastrophe

The two most well-known nuclear power plant accidents before now were at Three Mile Island in Pennsylvania in 1979 and the apocalyptic 1986 event at Chernobyl in what at the time was the Soviet Union.

Scary as it was, the partial meltdown of a reactor at Three Mile Island was contained and while some radioactive gases did escape and people were injured and died of cancer, it was not nearly as bad as it could have been.

Not so at Chernobyl, in what is now the Ukraine, where an explosion killed thousands, spread a radioactive cloud over much of Europe and is likely still causing cancer in that part of the world. Highly radioactive Chernobyl is and will be a ghost town for many generations.

But before either of these and, of course, the nuclear crisis in Japan, there was an accident at the Tennessee Valley's Browns Ferry Nuclear Plant on the Tennessee River near Athens, Ala. in March 1975 that could have been catastrophic in its own right.

Browns Ferry, whose two reactors went online in 1974, was at the time the most powerful nuclear plant in the world and the first to generate more than one gigawatt of power. I once got to tour the facility and even enter the control room, something no reporter can do today.

The incident on March 22 began at 12:20 p.m. and was a comedy of grim errors. It began with plant employees checking for air leaks in the room where cables that controlled the two units, which were running at 97 percent capacity at the time,

diverged. In one of the most high-tech facilities in the world, two workers were using ordinary house candles, whose flame they held up to seals in the wall to see if there was suction, and thus leaks.

It is easy to see in retrospect what was bound to happen: When they came upon a significant leak, the flame from the candle was sucked through the wall and into the labyrinth of electrical cables that controlled the incredibly complex facility.

The fire knocked out most of the plant's control systems, including the primary and backup emergency cooling systems, although it would be more than 15 minutes before a fire alarm was sounded, in part because those battling the fire didn't have the right telephone extension.

After the alarms sounded, it was five more minutes before the workers in the control room realized they might have a problem on their hands.

According to a post-mortem by the TVA, the decision to cut some systems came only when the Unit 1 operator noticed that "control board indicating lights were randomly glowing brightly, dimming, and going out; numerous alarms occurred" and smoke began to seep into the control room.

"The operator shut down equipment that he determined was not needed — but not the reactor itself — only to have them restart again," the report said.

An additional 10 minutes passed before "the reactor operators began to wonder whether it might be prudent to shut down the reactors," according to a lengthy report by the California chapter of Friends of the Earth.

By that time, it was almost too late, especially in Unit 1 where electric cooling pumps suddenly quit at 12:51 p.m. Four minutes later, the electrical supply was lost to the control systems and the emergency core cooling system.

"Beginning at 12:55, the electrical supply was lost" to Unit 1, the Friends of the Earth account reads. "The normal feedwater system was lost; the reactor core spray was lost; the low-pressure (emergency core cooling system) was lost; the reactor core isolation system was lost; and most of the instrumentation which tells the control room what is going on in the reactor was lost."

Then the same problems began in Unit 2, where the emergency system was lost at 1:45 p.m. The only thing keeping cooling water flowing into the containment rooms and over the incredibly hot nuclear rods to prevent a meltdown were the diesel backup pumps, which were barely adequate for the job.

Meanwhile, the fire started by that single candle began to spread throughout the plant, its toxic electrical smoke forcing workers from many key areas. It was also discovered that some of the firefighting equipment, including dry chemical extinguishers with the wrong nozzles and breathing tanks with only 18 minutes of air in them, didn't work.

As the diesel pumps began to run out of gas and break down, smoke prevented workers from getting to large valves near the reactor cores which could be manually opened to let water flow in naturally from the Tennessee River.

According to the Nuclear Regulatory Commission's official report, the electrical cables in the plant burned for six more hours, even though a team of firemen from the Athens Fire Department had arrived on the scene at 1:30 to offer assistance.

"I was aware that my effort was in support of, and under the direction of Browns Ferry plant personnel, but I did recommend, after I saw the first in the cable room spreading, to put water on it," the unnamed Athens fire chief was quoted by the NRC. "The Plant Superintendent was not receptive to my ideas."

As the chief watched Browns Ferry personnel continue unsuccessfully to fight the fire with chemicals, around 6 p.m. the superintendent finally decided to let the local firemen give it a try.

"The Plant Superintendent finally agreed, and his men put out the fire in about 20 minutes," the NRC report said.

That allowed workers to get back into the plant and turn the valves to flood the reactors with enough water to avoid what could have been a major catastrophe.

In other words, what started with a really dumb idea by highly trained nuclear workers — lighted candles, what could go wrong? — ended with the common sense of a small-town fire chief: "Put water on it."

My interest in the Browns Ferry incident is not just academic.

At the time, I was working for The Decatur Daily, and I lived about 25 miles, as the isotope radiates, from Browns Ferry.

The late Barrett Shelton Jr., the great "Old Man" of the family-run newspaper was very much in favor of all things TVA, just as he had been a champion of the New Deal when he nursed his paper through the Great Depression.

Accordingly, our next day report was about five inches long, basically said "nothing to see here folks, move along," and ran on page two or three, if I remember correctly.

We did, however, give extensive coverage to the various official reports and hearings over the next few years, a period of time in which we slowly became aware just how close we had come to... Well, I don't like to think about that.

A Fossil Fuel Renaissance? (WS)

By Steven F. Hayward

The Weekly Standard, March 20, 2011

The catastrophe at Japan's Fukushima Daiichi nuclear power plant is being regarded as the atomic power equivalent of the Deepwater Horizon oil spill in the Gulf of Mexico, which set back offshore oil drilling just as it appeared on the brink of a substantial expansion. This means we've now come full circle, as critics of offshore drilling compared the Gulf oil spill to Chernobyl. At the very least the events in Japan are going to reinforce the reluctance of Wall Street to invest in new nuclear power in the United States, deter insurance companies from covering nuclear plants, and increase resistance on Capitol Hill to extending the loan guarantees the nuclear industry says are essential to kick-starting more nuclear installations.

The big winner in the short and intermediate term will be fossil fuels—especially coal and natural gas—which will be used to fill the breach in Japan and elsewhere to generate electricity. Which means that the biggest loser is ironically the environmental community, which had been slowly abandoning its longtime opposition to nuclear power because it offered an important component in reducing greenhouse emissions linked to climate change. Although many environmentalists are enjoying an “I-told-you-so” moment, the new cloud over nuclear power means that global carbon dioxide emissions will go up faster. Germany, for example, is shutting down several of its nuclear reactors for several months as a precaution, even though they are not vulnerable to tsunamis. One early estimate is that German carbon dioxide emissions will rise by as much as 4 percent this year because of the nuke shutdown. Japanese CO2 emissions will surely rise by more than this as the country replaces its lost nuclear capacity with coal, gas, and even oil in a few old oil-fired power plants it will be forced to bring online. The Kyoto Protocol emissions targets for 2012, already doubtful, can be tossed on a nuclear waste pile.

But unlikely as it may seem at the moment, the final irony is that if we keep our heads, the aftermath of this disaster may give us a clear view of how a new generation of nuclear power might be possible. As of press time it is still difficult to know exactly what is happening at the reactors, as contradictory and tentative information pours forth on an hourly basis. It will be weeks or months before we have an accurate understanding of what has occurred. The Department of Energy, the Nuclear Regulatory Commission, and the private-sector Nuclear Energy Institute were reluctant to comment all week because of the fast-moving situation.

Two aspects seem certain as of now. First, the reactors themselves appear to have survived intact an earthquake 40 times the size they were designed to withstand. It was the failure of the backup diesel generators necessary to keep the cooling systems operating, swamped by the 33-foot tsunami, that touched off the crisis and subsequent explosions. But for this arguable lack of foresight, the reactors might have come through unscathed. Plainly the first task for operators of ocean-side reactors, such as California's San Onofre and Diablo Canyon plants, is to ensure their backup power systems are not similarly vulnerable, even though the tsunami risk to these plants is much lower than the Japanese plants. Second, the necessary decision to flood the reactors with corrosive seawater means the reactors will be a total loss, costing Japan billions in cleanup costs and lost power capacity. A third aspect is likely to become evident over time: The radiation risks—even in the worst-case scenario of a total breach of the containment structures—will turn out to be more modest than the media hype would have you believe.

This is not to make light of a very serious situation at the reactors or the health risks to the courageous workers on the site who may be exposed to dangerous levels of radiation when new explosions and breaches occur. But the media coverage of the whole episode is a textbook example of the inability to gauge risks, weigh trade-offs, and put a story in its proper perspective. Instead the media have done what they do best: generate panic.

The Real Cost Of Nuclear Power (TIME)

By Michael Grunwald

Time, March 17, 2011

The chaos at the Fukushima Daiichi nuclear plant — explosions, fires, ruptures — has not shaken the bipartisan support in partisan Washington for the US's so-called nuclear renaissance. Republicans have dismissed Japan's crisis as a once-in-a-lifetime fluke. President Obama has defended atomic energy as a carbon-free source of power, resisting calls to halt the renaissance and freeze construction of the US's first new reactors in over three decades.

But there is no renaissance.

Even before the earthquake-tsunami one-two punch, the endlessly hyped US nuclear revival was stumbling, pummeled by skyrocketing costs, stagnant demand and skittish investors, not to mention the defeat of restrictions on carbon that could have mitigated nuclear energy's economic insanity. Obama has offered unprecedented aid to an industry that already enjoyed cradle-to-grave subsidies, and the antispending GOP has clamored for even more largesse. But Wall Street hates nukes as much as K Street loves them, which is why there's no new reactor construction to freeze. Once hailed as “too cheap to meter,” nuclear fission turns out to be an outlandishly expensive method of generating juice for our Xboxes. (See pictures of an aging nuclear plant.)

Since 2008, proposed reactors have been quietly scrapped or suspended in at least nine states — not by safety concerns or hippie sit-ins but by financial realities. Other projects have been delayed as cost estimates have tripled toward \$10 billion a reactor, and ratings agencies have downgraded utilities with atomic ambitions. Nuclear Energy Institute vice president Richard Myers notes that the "unrealistic" renaissance hype has come from the industry's friends, not the industry itself. "Even before this happened, short-term market conditions were bleak," he tells TIME.

Around the world, governments (led by China, with Russia a distant second) are financing 65 new reactors through more explicit nuclear socialism. But private capital still considers atomic energy radioactive, gravitating instead toward natural gas and renewables, whose costs are dropping fast. Nuclear power is expanding only in places where taxpayers and ratepayers can be compelled to foot the bill. (See pictures of the worst nuclear disasters.)

In fact, the economic and safety problems associated with nuclear energy are not unrelated. Trying to avoid flukes like Fukushima Daiichi is remarkably costly. And trying to avoid those costs can lead to flukes.

The False Dawn

In 1972 a federal safety regulator, worried that GE's Mark 1 reactors would fail in an emergency, urged a ban on containment designs that used "pressure suppression." His boss was sympathetic but wrote in a memo that "reversal of this hallowed policy, particularly at this time, could well be the end of nuclear power" and "would generally create more turmoil than I can stand thinking about." Four decades after this bureaucratic pressure suppression, Fukushima Daiichi's Mark 1 reactors seem to have failed as predicted. And while newer reactors don't have those problems, 23 Mark 1 reactors still operate in the US, including a Vermont plant that was relicensed for 20 more years the day before the disaster in Japan. (Comment on this story.)

When Karl Marx, who would have appreciated nuclear economics, wrote that history unfolds first as tragedy, then as farce, he got US nuclear history backward. America's initial experiment was a cartoonish disaster, with construction timelines doubling and costs increasing as much as 1,000% even before the Three Mile Island meltdown. In the 1980s, the industry required bailouts before bailouts were cool. But the US industry has matured and learned from its mistakes. It still runs the world's largest nuclear portfolio, and it hasn't had a serious accident since 1979. Meanwhile, global-warming fears have positioned nuclear power as a proven alternative to fossil fuels that works even when the sun isn't shining and the wind isn't blowing, producing 20% of our electricity and 0% of our emissions. No-nukes outrage has burned out, with a recent poll registering 71% support.

See why Obama's nuclear bet won't pay off.

Read "Nuclear Batteries."

The result has been an extraordinary political coalition. Right-wingers who don't accept climate science and didn't even want the word french in their fries now wax lyrical about French reactors that reduce French emissions. Left-wingers who used to bemoan the industry's radioactive waste and corporate welfare now embrace it as an earth saver. So Congress has approved lucrative subsidies for construction, production, waste disposal, liability insurance and just about every other nuclear cost. It also approved "risk insurance" to compensate utilities for regulatory delays, even as the Nuclear Regulatory Commission (NRC) has worked closely with the industry to streamline its licensing process. And nuke-friendly states have required ratepayers to front the costs of any new construction — even if the reactors are never turned on.

Nevertheless, investors refuse to bet on nukes. The steady increases in electricity demand that were supposed to justify new reactors have been wiped out by the global recession, and energy-efficiency advances could keep demand flat. Natural gas prices have plummeted, Congress appears unlikely to put a price on carbon, and the US still lacks a plan for nuclear waste. It also turns out that building safe places to smash atoms is hard, especially after such a long hiatus. The US has lost most of its nuclear manufacturing capacity; it would have to import Japanese steel forgings and other massive components, while training a new generation of nuclear workers. And though industry lobbyists have persuaded the NRC to ease onerous regulations governing everything from fire safety to cooling systems, it's still incredibly tough to get a reactor built. (See top 20 green tech ideas.)

New nukes would still make sense if they were truly needed to save the planet. But as a Brattle Group paper noted last month, additional reactors "cannot be expected to contribute significantly to US carbon emission reduction goals prior to 2030." By contrast, investments in more-efficient buildings and factories can reduce demand now, at a tenth the cost of new nuclear supply. Replacing carbon-belching coal with cleaner gas, emissions-free wind and even utility-scale solar will also be cheaper and faster than new nukes. It's true that major infusions of intermittent wind and solar power would stress the grid, but that's a reason to upgrade the grid, not to waste time and money on reactors.

Anyway, there aren't many utilities that can carry a nuclear project on their balance sheets, which is why Obama's Energy Department, a year after awarding its first \$8 billion loan guarantee in Georgia, is still sitting on an additional \$10 billion. A Maryland project evaporated before closing, and a Texas project fell apart when costs spiraled and a local utility withdrew. The

deal was supposed to be salvaged with financing from a foreign utility, but that now seems unlikely. (See how fundraising helped shape Obama's green agenda.)

The utility was Tokyo Electric.

Another Perfect Storm

Pundits keep saying the mess in Japan will change the debate in the US, but the BP and Massey disasters didn't change the debates over oil drilling and coal mining. And the nuclear debate seems particularly impervious to facts. Obama wants to triple funding for the already undersubscribed loan guarantees, but Republicans still accuse him of insufficient nuclear fervor. So don't expect the US to copy German Chancellor Angela Merkel, who just shut down seven aging plants. GOP Senator James Inhofe of Oklahoma has already rejected the idea of "a nuclear problem," suggesting that "once in 300 years, a disaster occurs." That's true if you don't count Chernobyl and you're sure nothing will happen for the next 250 years.

The industry's defenders may ignore Fukushima Daiichi, but the industry will not. It's serious about public safety, and meltdowns are bad for business; no company wants to lose a \$10 billion reactor overnight. But additional safety measures cost money: in 2003 industry lobbyists beat back an NRC committee's recommendation for new backup-power rules that were designed to prevent the hydrogen explosions that are now all over the news. (Comment on this story.)

It may sound unrealistic to require plants to withstand a vicious earthquake and a 25-ft. tsunami, but nobody's forcing utilities to generate power with uranium. One lesson of the past decade, in finance as well as nature, is that perfect storms do happen. When nukes are involved, the fallout can be literal, not just political.

See TIME's complete Coverage of the Japan quake.

See TIME's cover story on the Three Mile Island nuclear disaster.

Nuclear Plant Vogtle Budget Burden Debated (AJC)

By Margaret Newkirk, The Atlanta Journal-Constitution

Atlanta Journal-Constitution, March 21, 2011

Two years ago, when state regulators approved Georgia Power's plans for two new nuclear reactors, they left a key question hanging.

Who pays if the multibillion project busts its budget?

To critics of the Plant Vogtle nuclear project in east Georgia, the question is more pressing than ever with the nuclear disaster unfolding in Japan. Utilities, including Georgia Power, blamed construction cost overruns at the nation's first generation of reactors on the regulatory climate after Three Mile Island.

Those critics -- and the state Public Service Commission staff -- want Georgia Power parent Southern Co., not just customers, to bear some of the overrun risk. Otherwise, said Stephen Smith, director of the Southern Alliance for Clean Energy, "Southern has no skin in the game."

Since 2009, the PSC has delayed voting on a staff proposal to require Southern and its shareholders to share the pain if the project runs too far over its target \$6.1 billion budget. The reactors will cost more than twice that, but electric co-ops and city power companies are funding the rest.

Georgia Power customers began paying for the project's financing costs as part of a billing increase that took effect in January. That levy will be replaced by another to pay for actual construction after the reactors are finished in 2017.

At issue, essentially, is whether the total cost should be rolled into the future rate hike to pay for construction -- no matter what the final bill -- or if some portion should be borne by Southern if it goes too far over budget.

The staff wants to cut Georgia Power's allowed profit margin on the reactors if cost overruns get too big, and to raise that margin if it spends less than anticipated. The staff says that would encourage the company to meet budget.

Under the plan, a 50 percent, \$3 billion cost overrun would cut the company's profits on the reactors from \$10 billion to \$8.8 billion over 30 years. Customers would pay \$1.2 billion less than they otherwise would have.

Georgia Power is pushing back. It says the proposal could punish Southern shareholders for costs that aren't the company's fault.

The company says its construction partners are responsible for some potential overruns. It also says regulators can bar the company now from charging customers for costs they rule were imprudently or fraudulently incurred.

The five PSC members have so far avoided a decision, repeatedly telling staff and the company to work out a risk-sharing agreement. Commissioner Lauren "Bubba" McDonald, who suggested the latest round of negotiations last month, said he has yet to make up his mind on the issue and hopes the two sides can make a deal by late March.

So far, Georgia Power has spent \$1.3 billion on what could be the first new US nuclear reactors in decades. The site has two, 40-foot-deep, 21-acre-wide holes and some concrete plants. The heaviest work won't begin until after the Nuclear Regulatory Commission approves a construction license, now expected in November.

The project is under budget, but PSC construction monitor Bill Jacobs recently said "several known issues" are on the horizon that "could have a significant cost impact on the project." They include several change orders with "potential high dollar costs."

Jacobs commended Georgia Power for aggressively tackling obstacles, but said the project has already consumed four months of the "float" built into its schedule, giving the team less flexibility when heavy construction begins.

With heavy construction getting closer, the PSC tried to speed up action on a risk-sharing plan last summer. It ordered its staff and the company to each submit a plan by Dec. 31. Georgia Power did not. Critics call it a deliberate strategy of delay, while the company says it misunderstood the directive.

"It's true, we don't have a plan yet," attorney Kevin Greene told the PSC in February. "I don't think that takes away any of the flaws in the staff's plan. ... We have done a very good job of shifting most of the risk of this project to other people, not customers. We're now down into the weeds of 'what more can we do?'"

"The company is willing to sit down with staff," Greene added. "But I'm not going to tell the commission that we're going to come up with something."

Crews Battle Blaze Near LANL (KOB)

KOB-TV Albuquerque, NM, March 18, 2011

Crews are battling a fire burning near Los Alamos National Laboratory Friday afternoon.

Forest officials say the fire started late Thursday evening and by Friday had spanned to cover 355 acres.

The blaze is said to be burning about half a mile from the Pajarito Mountain Ski Area. At this time it is not threatening the lab.

The cause of the fire is under investigation.

Rush Of Events Gives Foreign News A Top Priority (NYT)

By Brian Stelter

New York Times, March 21, 2011

Propelled by revolution in the Middle East and radiation in Japan, television news coverage of foreign events this year is at the highest level since the Sept. 11 terrorist attacks 10 years ago, news executives in the United States say.

The foreign press corps is working in exceptionally dangerous conditions in countries like Japan, where members carry radiation monitors on assignment, and in Libya, where crews of journalists have been detained. "We've had a year's worth of international breaking news, and we're only halfway through March," said Tony Maddox, the executive vice president and managing director at CNN International, where anchors spoke on Saturday of being "live on five continents."

The coverage exposes just how much reporting of foreign news has changed in the past decade, through cuts at news outlets and through the contributions of the Internet and other new technologies. Fewer journalists covering foreign news work full time for American broadcast networks than once did, and those who remain have had to hopscotch from one hot spot to another this year, sometimes creating lags in coverage.

But the networks are aided by a bounty of audio and video clips that would have been nonexistent a few years ago. Much of it comes from cellphone-equipped residents who are acting not just as camera operators, but as reporters, too.

In part because the networks were relatively short-staffed after the magnitude 9.0 earthquake near northern Japan on March 11, American tourists in Tokyo were interviewed live on television from their hotel rooms. Wired with webcams and Skype connections, they resembled reporters.

So did the anonymous man in Misrata, Libya, who called CNN on Friday to report that despite the Libyan government's claim that a cease-fire was in effect, his city was "under fire."

"Right now, as I speak to you, I can take the phone outside and you can hear the bombs," the man said.

"Only if it's safe to do that," the anchor answered.

In Libya, professional journalists have been repeatedly harassed and detained. On Sunday, the Agence France-Presse news agency said two of its reporters and a Getty Images photographer had been missing since Saturday. Also on Sunday, four journalists from The New York Times and four journalists from Al Jazeera remained in the custody of Libyan authorities in Tripoli, the capital. Last week, an Al Jazeera cameraman was killed by gunmen near Benghazi in eastern Libya.

The busy season for foreign news started in January in Tunisia and quickly spread to Egypt, where networks and newspapers deployed hundreds of journalists. According to the Project for Excellence in Journalism, which conducts a weekly accounting of news coverage by national outlets, foreign news added up to 45 percent of all coverage from mid-January through mid-March. In the four years that the accounting has been done, foreign news has averaged about 20 percent of coverage.

The high levels of coverage have put severe strains on journalists covering foreign news, who leap from crisis to crisis. "Lots of people did Tunisia, then did Cairo, had a bit of an excursion to Bahrain, and now they're in Libya," Jon Williams, the foreign editor for the BBC, said from London. "This begins to take a toll on people."

"These are pretty punishing conditions," Mr. Williams added. "There's not a Ritz Carlton in Benghazi. You're sleeping in pretty rough places."

Mr. Maddox of CNN called it "tough going," but said "the level of commitment shown by the people in the field and on the desk is just absolutely extraordinary." Similarly, Kate O'Brian, a senior vice president for ABC News, said, "I would hazard a guess to say that almost every correspondent has offered to go overseas."

The networks have promoted their globe-trotting troupes lately, and they are sensitive to suggestions that they are stretched too thin. NBC News, which is controlled by Comcast, declined interview requests. Just 12 months ago, ABC News, a unit of the Walt Disney Company, and CBS News, a unit of the CBS Corporation, were reeling from the latest round of buyouts and layoffs, but Ms. O'Brian said she did not think that the cuts at ABC, which resulted in a 25 percent smaller news division, had affected coverage of foreign events.

"I think we've done a really good job of covering all the stories," she said.

ABC has benefited from last year's hiring of Christiane Amanpour, the longtime CNN correspondent, who now hosts the Sunday public affairs program "This Week." Ms. Amanpour secured exclusive interviews last month with the Egyptian president, Hosni Mubarak, before he resigned, and with the Libyan leader Col. Muammar el-Qaddafi.

On Saturday, ABC was the only broadcast network to break away from sports programming when President Obama announced United States missile strikes in Libya. NBC telecast a special report minutes later, and CBS had special reports during some commercial breaks in March Madness basketball games.

Amid the missile strikes, all of the networks had at least one crew in Libya over the weekend. CNN and Fox News broadcast live audio of what they said were missile strikes early Sunday.

But despite extensive coverage of Libya and Japan, the television networks have had major blind spots. Last week, none of the broadcast networks had correspondents in Bahrain, where the United States Navy's Fifth Fleet is based, when security forces crushed the protest movement there, nor in Yemen when forces there killed dozens of protesters. The dearth of coverage of Yemen is largely because of its government's refusal to grant visas to journalists. Ms. O'Brian acknowledged that had a crisis not enveloped Japan, Libya and Bahrain "would have gotten a lot more play," but said that was not for budget reasons. "It's a matter of deciding where we're going to put our people," she said.

Similarly, David Rhodes, the new president of CBS News, said coverage of each country was determined on a "case-by-case basis."

"We have multiple teams in Libya," Mr. Rhodes said. "We don't have a team in Yemen." He noted that Toula Vlahou, a CBS radio reporter in Bahrain, came under fire from riot police officers last week when the crackdown occurred there but was not injured. CNN also had a correspondent in Bahrain.

Journalists also have encountered danger in Japan in the wake of the earthquake, tsunami and nuclear crisis there. Last week, news organizations tried to limit reporters' exposure to radiation by moving farther from the Fukushima nuclear plant. Mr. Williams said the BBC had scaled back to about 20 people in Tokyo, from more than 40 previously. NBC said in a statement that it had "downsized the number of folks on the ground, to limit exposure to the danger of the power plant," and that the people who stayed had done so voluntarily.

If there is any media beneficiary, it is CNN, a unit of Time Warner, which has the most robust international staff levels of any network based in the United States. CNN has paired its domestic and international channels for hours on end, and last week it scored several rare — though probably fleeting — ratings victories against Fox News.

"This is the time when the judicious investments we've made in a proper international infrastructure are paying off," Mr. Maddox said.

Security Firm Is Vague On Its Compromised Devices (NYT)

By John Markoff

New York Times, March 19, 2011

SAN FRANCISCO — More than a day after RSA security posted an “urgent” alert warning that a sophisticated intruder might be able to initiate a “broad attack” on a password device used by millions of customers, the announcement and its meaning remain shrouded in mystery.

RSA, a division of the data management company EMC Corporation, will not say how its system was compromised and what specific kinds of threats its customers are facing. But from its extremely limited disclosure on Thursday afternoon about what might have been taken, customers and computer security specialists are scratching their heads about what the risks may actually be.

There was wide bewilderment about the company’s claim that the intruder was “extremely sophisticated,” as it suggested that one of the nation’s premier security firms had no better security than dozens of companies that have fallen victim to a computer break-in that deceives employees and exploits unknown software vulnerabilities.

On Friday, a spokesman for RSA said it was briefing its customers individually but added that its executives were declining to speak publicly about the breach.

The announcement touched off intense speculation about whether RSA’s popular SecurID tokens, which are carried on key chains and in wallets of millions of corporate and government users, have been significantly compromised.

“It’s a weird situation,” said Dan Kaminsky, an independent Internet security specialist. Referring to the Tokyo Electric Power Company, he said, “It’s like the Tepco situation in Japan, but here everyone is freaking out” and “nobody has Geiger counters.”

The system is intended to provide additional security beyond a simple user name and password by requiring users to append a unique number generated by the token each time they connect to their corporate or government network.

A potential weakness that could be exploited involves a factory-installed key called a seed. Typically 16 characters, it is different for each token and is stored on a corresponding computer server program, which authenticates the session each time a user connects to a secure network.

If the database containing customers seeds was taken, the intruder might still not know which user had which seed, but cryptographers said it would be possible to use a reverse-engineered version of the RSA algorithm to determine that information by simply capturing a single log-in session. That would be a potentially serious vulnerability that could be exploited by a sophisticated attacker.

A technical expert in New York whose financial services firm uses the SecurID system said that even after listening to a telephone briefing on Thursday evening, he was uncertain about which potential threats he should be concerned about.

The company offered only extremely general “belt and suspenders” advice, the expert said. A copy of the company’s terse “RSA Securcare Online Note” posted on the Securities and Exchange Commission Web site on Thursday offers such advice as “Focus on security for social media applications” and “We recommend customers re-educate employees on the importance of avoiding suspicious e-mails.”

RSA notified the federal government, whose agencies widely use the tokens to guard access to its networks, some time before the public announcement was made. On Wednesday, the Computer Emergency Readiness Team in the Department of Homeland Security posted a “Technical Information Paper” on its Web site describing a set of security practices meant to limit vulnerability to attacks based on the stolen information, according to a person close to the organization.

“We have notified all of the federal agency chief information officers to take remediation steps,” said a government official who declined to be identified because he had not been authorized to speak about the breach.

What the actual risk is and what precautions a user of the key fobs and wallet-size cards depends on what was taken in the theft.

“I’m speculating, but I’m pretty confident that somebody has the root seed file,” said a former RSA employee, referring to the master file at the company, which is based in Bedford, Mass. He asked not to be identified because he still has a business relationship with the firm.

The worst case, many security consultants say, is that the vulnerability created by the theft might require companies to replace the secure tokens, which, according to analysts, cost \$15 a year or more to maintain. The vulnerability might also force RSA to rethink the design of its SecurID system.

“They may have to change their security model to one where a third party does not hold the keys to your devices,” said Paul Kocher, president of Cryptography Inc., a San Francisco computer security consulting firm.

Google Accuses Chinese Of Blocking Gmail Service (NYT)

By David Barboza And Claire Cain Miller

New York Times, March 21, 2011

SHANGHAI — Google has accused the Chinese government of disrupting Gmail in the country, making it difficult in the last few weeks for users here to gain access to the company's popular e-mail service.

Google said that it was not having any technical problems with Google's main Web site or Gmail service in China.

"There is no issue on our side; we have checked extensively," Google said in a statement released Sunday. "This is a government blockage, carefully designed to look like the problem is with Gmail."

Analysts who track Web developments say that the Chinese government may be intentionally disrupting access to Google and other Web services as part of a campaign to tighten Internet controls and censor material.

Calls to China's Foreign Ministry were not returned Sunday. Beijing has long had some of the world's strictest Internet controls. But after pro-democracy demonstrations broke out in the Middle East in January, the Chinese government seems to have intensified effort to censor Web content and disrupt Web searches related to calls for similar protests in China.

The controls come about a year after Google removed its Chinese language Internet search engine from China and relocated it to Hong Kong, where Beijing has few controls.

Google said its decision had been prompted by a series of major attacks on its Web site by Chinese hackers. Google suggested at the time that the sophisticated hacking attacks had the backing of the Chinese government.

The hackers stole some Google source code and also gained access to the private Gmail accounts of Chinese human rights advocates.

Last March, the government sharply criticized Google's decision to relocate its search engine. In a statement to the official Xinhua News Agency, the government said: "Google has violated its written promise it made when entering the Chinese market by stopping filtering its searching service and blaming in insinuation for alleged hacker attacks."

Google's search engines and Gmail are still accessible in China, but the government has the ability to block them. Many popular social media sites, including YouTube, which is owned by Google, as well as Twitter and Facebook, are blocked here.

David Barboza reported from Shanghai and Claire Cain Miller from San Francisco.

Google Says China Blocking Its Email Services (AP)

By Tini Tran, Associated Press

Associated Press, March 21, 2011

BEIJING — Google said Monday the Chinese government is interfering with its email services in China, making it difficult for users to gain access to its Gmail program, amid an intensified Internet crackdown following widespread unrest in the Middle East.

Google Inc. said its engineers have determined there are no technical problems with the email service or its main website.

"There is no technical issue on our side; we have checked extensively. This is a government blockage carefully designed to look like the problem is with Gmail," the company said in a brief statement.

China has some of the world's strictest Internet controls and blocks many popular social media sites, including Youtube, Facebook and Twitter. The government has intensified those efforts after pro-democracy protest erupted across the Middle East in January.

Around that time, anonymous calls for protesters to gather for a "Jasmine Revolution" in China triggered a crackdown by Chinese authorities, who stepped up Web censorship and deployed huge numbers of police to planned protest sites. No protests happened.

A Google spokesperson said users in China, the world's most populous Internet market, have reported having intermittent problems with the service since the end of January.

Problems include difficulty accessing the home page for Gmail and problems sending emails when logged into the service. The instant messaging function is often not working as well.

Google officials said the blocking appears to be more sophisticated than other problems experienced by users in the past because the disruption is not a complete block.

In addition, a March 11 blog post by Google about security said the company had "noticed some highly targeted and apparently politically motivated attacks against our users. We believe activists may have been a specific target." In the posting, Google declined to elaborate on which activists had been targeted or where the attacks had come from.

A company spokesperson refused to say if Google has raised the issue directly with Chinese government officials.

China's Foreign Ministry had no immediate comments on Google's accusation.

Google has had highly public run-ins with the Chinese government.

In January last year, Google announced that it would no longer cooperate with the government's requirement to censor search results for banned sites. It also complained about major attacks on its website by Chinese hackers, suggesting the government may have been instigated the attacks.

Attacks were also mounted against email accounts by activists working on human rights in China at that time.

Google moved its Chinese-language search engine to Hong Kong, which operates under separate rules from the rest of mainland China.

INTERNATIONAL NUCLEAR NEWS:

Progress At Japan Reactors; New Signs Of Food Radiation (NYT)

By Hiroko Tabuchi And Norimitsu Onishi

New York Times, March 21, 2011

TOKYO — Japan appeared to make moderate progress in stabilizing some of the nuclear reactors at the stricken Fukushima Daiichi power plant on Sunday, but at the same time it disclosed new signs of radioactive contamination in agricultural produce and livestock.

The government said it was barring all shipments of milk from Fukushima Prefecture and shipments of spinach from Ibaraki Prefecture, after finding new cases of above-normal levels of radioactive elements in milk and several vegetables.

Relatively high levels were also found in spinach from Tochigi and Gunma Prefectures to the west, canola from Gunma Prefecture and chrysanthemum greens from Chiba Prefecture, south of Ibaraki.

The emergency efforts to mitigate damage at the Fukushima Daiichi Nuclear Power Station, meanwhile, brought some notes of relief in the face of persistently dire conditions. The authorities said they had restored water pumps to two damaged reactors, Nos. 5 and 6, that were not of central concern, putting them under control in a state known as “cold shutdown.”

But another reactor that has proved more worrisome, No. 3, continued to bedevil engineers.

The Tokyo Electric Power Company, which runs the plant, appeared to have experienced a serious setback as officials said that pressure buildup at the ravaged No. 3 reactor would require the venting of more radioactive gases.

But at a news conference a few hours later, officials from the power company said that the pressure had stabilized and that they had decided they did not need to release the gases immediately, which would have heightened worries about wider contamination among the population. They said they were unsure what had caused the pressure to rise, highlighting the uncertainty engineers must still grapple with at Fukushima.

The power company also said that on Sunday workers injected 40 tons of water into the storage pool containing spent fuel rods at Unit No. 2, and that firefighters began spraying water into the pool at Unit No. 4. On Saturday, firefighters sprayed water at the storage pool of Unit No. 3 for more than 13 hours.

The reactors placed in cold shutdown were already shut down before the earthquake and the tsunami struck on March 11, posing less of a risk than the other reactors at the plant. But their cooling systems were knocked out, and the fuel rods left inside the reactors started to heat up, together with spent fuel rods in a separate storage pool.

“We are getting closer to bringing the situation under control,” Tetsuro Fukuyama, the deputy chief cabinet secretary of the Japanese government, said of the entire plant late Sunday.

After connecting a mile-long electrical transmission line on Saturday, workers made progress in starting to restore power to the plant, which may allow the operator to restart its cooling systems. The government said that power was returned to Reactor No. 2 at 3:46 p.m. Sunday, and that other reactors were also expected to gain power early in the week.

Even with electrical power extended to the reactors, there was no immediate indication from officials that the damaged pumping systems could be quickly restored.

“In general, our utmost efforts are producing definite results in preventing a worsening of the situation,” said Yukio Edano, the government’s chief cabinet secretary, who confirmed for the first time that the nuclear complex — with heavy damage to reactors and buildings and with radioactive contamination throughout — would be closed once the crisis was over.

Steven Chu, the United States secretary of energy, also conveyed optimism in an interview on “Fox News Sunday,” saying that “with each passing hour, each passing day, things are more under control.”

Japanese technicians who are trying to limit the spread of radiation “are making very good progress,” he said.

Despite the positive tone from officials, steep challenges persist. Workers were trying to avoid further damage to fuel rods in the reactor cores of Nos. 1, 2, and 3, and to prevent rods in the storage pools of Nos. 2, 3 and 4 from overheating.

Some experts project that the longer it takes to resolve the crisis fully, the greater the chances that one or more reactors or fuel storage pools will have to be abandoned, increasing the risk of a catastrophic release of radiation.

The plant remains a hazardous place for the emergency crews trying to stave off further damage. At least 25 workers and five members of the Japanese Self-Defense Force have been exposed to unsafe amounts of radiation, according to the power company. At least 20 workers and four self-defense soldiers have been injured, and two workers remain missing.

Radiation contamination, meanwhile, appears to be spreading rapidly. The substances detected in the food products were iodine 131 and cesium 137, two of the more dangerous byproducts of reactor operations that are feared to have been released from the plants in Fukushima. If absorbed through milk and milk products, iodine 131 can accumulate in the thyroid and cause cancer. Cesium 137 can damage cells and lead to an increased risk of cancer.

Mr. Fukuyama, the deputy chief cabinet secretary, stressed that although the readings were above levels deemed normal, they posed no immediate health risks.

"At current levels, I would let my children eat the spinach and drink the water" from Fukushima, he said. His children did not drink much milk, he added.

None of the produce found to be contaminated has been shipped to market, he said, while acknowledging that contaminated produce that had not been tested could have slipped through.

Spinach from a farm in Hitachi, about 45 miles from the plant, contained 27 times the amount of iodine that is generally considered safe, while cesium levels were about four times higher than is deemed safe by Japan. Meanwhile, raw milk from a dairy farm in Iitate, about 18 miles from the plant, contained iodine levels that were 17 times higher than those considered safe, and milk had cesium levels that were slightly above amounts considered safe.

While challenges with the nuclear facility and radiation contamination persist, stories of individual dramas continued to emerge in the wake of the earthquake and the tsunami that slammed into the country's northeastern coast on March 11.

On Sunday, two people were reported to have been found alive, nine days after the disaster. An 80-year-old woman and her 16-year-old grandson were found under the debris of their home in Ishinomaki, about 30 miles northeast of the city of Sendai, according to Miyagi Prefecture police officials and the public broadcaster NHK.

The boy, identified as Jin Abe, crawled out of the debris of the family home and was found by local police officers, who called rescuers to free his grandmother, Sumi Abe, NHK reported. Both were hospitalized, but details of their condition were not immediately available.

Meanwhile, the National Police Agency on Sunday raised the official death toll to more than 8,100 from the 9.0-magnitude earthquake and ensuing tsunami. The final toll is now expected to reach nearly 20,000. At a news conference, police officials in Miyagi, the prefecture hit hardest by the tsunami, said they expected the toll there alone to exceed 15,000.

Kantaro Suzuki contributed reporting from Tokyo.

Radiation Levels May Be Falling At Stricken Nuclear Plant (LAT)

The radiation levels are still high at the Fukushima Daiichi plant but appear to be coming down, says the head of the US Nuclear Regulatory Commission, cautioning that it is still hard to obtain accurate data.

By Karen Kaplan And Thomas H. Maugh II, Los Angeles Times

[Los Angeles Times](#), March 21, 2011

Radiation levels at the stricken Fukushima Daiichi nuclear power plant in Japan are still high but may be tapering off, a senior US nuclear official said Sunday.

Indications from the plant, which houses six nuclear reactors, were levels in the range of hundreds of millisieverts per hour, said Gregory Jaczko, chairman of the US Nuclear Regulatory Commission. The duration of those levels was unclear. The exposure limit for Japanese workers was recently raised to 250 millisieverts per year.

For the sake of comparison, the average American is exposed to 6.2 millisieverts of radiation per year, half of which come from natural sources, according to the commission.

Photos: Unrelenting crisis grips Japan

"We believe right now that the radiation levels at the site are high, but we have some indications that they may be coming down," Jaczko said on the C-Span program "Newsmakers."

The Nuclear Regulatory Commission is using "a variety of sources," including data from the Department of Energy, to assess radiation levels at the plant and in the surrounding area, Jaczko said. But power interruptions at the plant have knocked out some of the instruments that would normally provide reliable readings.

"It's difficult to obtain accurate information," Jaczko said.

On Monday, the five members of the commission will begin developing a plan to glean lessons from events in Fukushima that can be applied to nuclear plants in the United States.

"We want to take a very systematic and methodical look at all the information we're getting from Japan," Jaczko said. The first conclusions based on solid information about how the plant and its operator, Tokyo Electric Power Co., have performed could be made by late summer or early fall, he said.

"If that good information tells us we need to make changes to our licensing process, then we will do that," he said.

The commission has 11 experts stationed in Tokyo, where they are providing technical assistance. There are no plans to send any of them to Fukushima, Jaczko said. "I'm not sure it's really the appropriate role for NRC to send staff actually to the site," he said.

Although the restoration of electricity to two of the reactors at the Fukushima plant appears to have stabilized them, the situation in Japan "is still quite uncertain," said Edwin Lyman of the Union of Concerned Scientists in Washington.

"It's premature to make any assessment about the most severely affected reactors," he said.

Damage already incurred to the nuclear fuel rods in the plant's other four reactors may make it more difficult for workers to cool them to a safe temperature, even after electricity is fully restored, Lyman said.

Progress restoring power to the damaged plant has apparently stalled after a full day of work Sunday, although the situation has not deteriorated any further.

Officials at Tokyo Electric Power Co., which owns the plant 140 miles north of Tokyo, said they had managed to restore power to a switchboard at the No. 2 reactor at the plant, but have not yet been able to restore coolant flow in the reactor.

Meanwhile, Japanese health authorities have banned the sale of milk and vegetables from the prefecture in which the power plant is located because they have been contaminated by radioactive fallout, although officials claim the levels are not yet high enough to present a danger to human health.

After stringing a new power line to the plant from the electric grid, company officials reported on Saturday that they had reconnected coolant pumps in reactor Nos. 5 and 6 and restored the flow of water to the spent fuel cooling pools in those buildings. In the day since, temperatures in those pools have returned to near normal.

But those two pools had not been considered a significant threat. Authorities are much more concerned about reactors No. 2 and No. 3 and the spent fuel pool at No. 4. The reactor containment vessel at No. 2 may be cracked and venting some radioactive gases into the environment. Reactor No. 3 is the only reactor at the site that contains plutonium in the fuel rods and its escape would be extremely dangerous because it is carcinogenic in even minute doses.

And the spent fuel pool at reactor building No. 4 is thought to have boiled dry, allowing the fuel rods to heat up and become damaged, also releasing radioactivity into the environment.

The nuclear cores inside the reactors are usually covered in water, but the top halves of the cores in reactors 1, 2 and 3 were exposed to air for at least several days, according to reports from the International Atomic Energy Agency and other sources. Even if those cores are resubmerged, they may have experienced permanent damage that would make them more difficult to keep cool, Lyman said.

For instance, he said, if the exposed portions of the fuel rods have swelled due to heat, the gaps between them may now be too small to pass enough water to cool them.

In addition, when the zirconium cladding surrounding the cores was exposed to air, it may have oxidized and become so brittle that radioactive fuel particles could have escaped through cracks. If enough of the escaped fuel has collected at the bottom of the reactor vessel, it could become hot enough to melt through the steel container and escape into the environment, Lyman said. Even if the steel was not breached, the collection of fuel at the bottom of the container would also make it more difficult to cool.

"These cores may not be as easily cooled as if they were undamaged," Lyman said.

Workmen have been spraying all three with seawater for several days in an attempt to keep temperatures down, but the water has combined with the steam and radioactivity to make it difficult for workmen who are attempting to reconnect power.

Had there been no intervention at the stricken power plant, the nuclear fuel would have completely melted within six hours, Lyman said. That would have formed a "hot pool" of fuel that would have melted through the bottom of its stainless steel shell within two hours, he said. But neither of those scenarios has come to pass.

"If the seawater pumping had not been effective, this would have ended days ago," Lyman said. But as long as workers can continue to feed water into the plant, the situation could be stabilized indefinitely, he said.

"I actually think it's an amazing thing that they have been able to maintain the cores," he added. "It is truly heroic."

However, Lyman criticized the Japanese government for failing to expand its evacuation order to all people within 50 miles of the Fukushima plant, as recommended last week by the US Nuclear Regulatory Commission. Japanese officials have maintained that only those within about 12 miles of the reactor should evacuate, and that people within 18 miles should stay put but remain indoors.

"The Japanese are squandering the opportunity to be able to initiate an orderly evacuation," Lyman said. "Our concern is they are wasting valuable and precious moments."

Contamination of foodstuffs in the area surrounding the Fukushima plant is a growing concern, particularly in light of the shortages of food that are occurring in the wake of the magnitude 9 Tohoku quake that rocked the area 10 days ago. The government had already said that it had detected contaminated milk at 37 farms in the area.

Photos: Unrelenting crisis grips Japan

Now, authorities said they have also found contaminated spinach, canola and chrysanthemum greens. Monitors detected low levels of iodine-131 and cesium-137 on the leaves of the plants.

The biggest concern is not with food that is clearly too unsafe to eat, but rather with items that contain a small amount of radioactivity but still meet government safety guidelines, Lyman said.

"It certainly is going to pose a dilemma for people, to be able to trust the food they're eating," he said.

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US Officials See Progress In Japan, Questions Linger About Domestic Plans (HILL)

By Ben Geman

The Hill, March 21, 2011

Energy secretary and NRC chief say the US is monitoring Japan's struggle and reexamining nuclear facilities here.

Two senior US officials said Sunday that they see signs of improvement at the stricken Fukushima Daiichi nuclear plant in Japan while signaling that the Japanese catastrophe could affect domestic nuclear decisions in the future.

"I think with each passing hour, each passing day, things are more under control. And so, step by step, they are making very good progress," Energy Secretary Steven Chu said in the morning on "Fox News Sunday."

Asked on CNN if the worst is over, Chu said, "we believe so" but added: "I don't want to make a blanket statement."

Nuclear Regulatory Commission Chairman Gregory Jaczko said on C-SPAN Sunday morning that radiation levels appear to be dropping while acknowledging the challenge of receiving accurate information about conditions in Japan, where workers are trying to bring overheating reactors and spent fuel under control.

The Department of Energy has deployed equipment to the region, and Jaczko said his agency – which has also dispatched staff to Japan – is doing its best to stay informed.

"We are getting information from a variety of different sources, including from some of these Department of Energy assets, but those are not necessarily giving us the direct information at the site," Jaczko said.

"We believe that right now the radiation levels at the site are high, but we have some indications that they may be coming down," he later added.

US officials are reviewing the safety of the domestic reactor fleet, and Chu said that decisions about where future nuclear plants would be located may be affected by the Japanese crisis.

"Certainly where you site reactors and where we site reactors going forward will be different than where we might have sited them in the past, I would say," he said on Fox News Sunday.

Chu predicted there will be a fresh look at evacuation plans for the Indian Point nuclear plant about 35 miles from New York City. "I think . . . the evacuation plans of the Indian Point reactor will be looked at and studied in great detail. The Indian Point reactor is not in the situation like in Japan, but I think, again, we will be looking at whether those evacuation plans are adequate," he said.

"We're going to have to look at whether this reactor should remain," he added later.

But he cautioned that decisions about the plant are the NRC's jurisdiction. The license for one of the plant's units expires in 2013 and Entergy Corp. is seeking renewal, but New York Gov. Andrew Cuomo (D) has called for shutting the plant down.

"It's an NRC decision, but the NRC will be looking at that, I'm sure, based on events. But again, this is not to say that we believe that reactor is unsafe. We believe that reactor is safe," Chu said.

President Obama and Chu have emphasized that U.S. plants are safe and their support for a nuclear role in the country's future energy mix, while vowing to incorporate lessons from the Japanese crisis.

The NRC is undertaking a safety review and Jaczko said Sunday that he would not rule out changes to the licensing process as power companies seek renewals and permission to build the first fleet of new US reactors in decades.

"We certainly want to get good information and if that good information tells us that we need to make changes to our licensing process, then we will do that," Jaczko said, but also noted lauded the strength of existing US requirements prevent loss of cooling at plants if they lose electric power.

"We think we have a program in place that would deal with the kinds of situations that we are seeing in Japan, but I want to stress that what they are dealing with in Japan 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," he said.

Jaczko also said the NRC is not backing off its decision announced March 10 – the day before the devastating earthquake and tsunami struck Japan – to extend the license for the Vermont Yankee nuclear plant for another 20 years. The reactor has the same GE design as the stricken Japanese plant.

But Sunday brought fresh signs that the Obama administration's posture – committing to new safety reviews while supporting nuclear energy going forward – is going to draw continued attacks from some liberal lawmakers.

Rep. Ed Markey (D-Mass.), a longtime critic of the industry, said on CBS's "Face the Nation" Sunday that the Japanese crisis "is calling into question of the viability of nuclear power in this country."

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

Sanders wants a moratorium on any NRC relicensing or approval of new plants until the commission can conduct its own review and Congress can consider any legislative changes.

But Sen. Carl Levin (D-Mich.), speaking on NBC's "Meet the Press," cautioned against turning away from nuclear power.

"I think there ought to be a period here where all of our nuclear plants are tested very, very carefully to make sure that they are safe and to make sure that this cannot happen here. But I don't think that we can say that we're not going to continue to use nuclear power," he said, noting that unlike fossil fuels it does not contribute to global warming.

Japan Makes Gains In Nuclear Fight (WSJ)

By Norihiko Shirouzu, Yuka Hayashi And Peter Landers

Wall Street Journal, March 21, 2011

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

Japan Dead, Missing Tops 21,000 Amid Atomic Crisis (AFP)

By Olivia Hampton

AFP, March 21, 2011

KAMAISHI, Japan (AFP) – Workers were close to restoring power to a nuclear plant's overheating reactors as the toll of dead or missing from Japan's worst natural disaster in nearly a century passed 21,000.

Amid the devastation on the northeast coast left by a massive quake and tsunami, there was an astonishing tale Sunday of survival with the discovery of an 80-year-old woman and her 16-year-old grandson alive under the rubble.

"Their temperatures were quite low but they were conscious. Details of their condition are not immediately known. They have already been rescued and sent to hospital," a spokesman for the Ishinomaki police department said.

They were in the kitchen when their house collapsed but the teenager was able to reach food from the refrigerator, helping them survive for nine days, broadcaster NHK quoted rescuers as saying.

But with half a million tsunami survivors huddled in threadbare, chilly shelters and the threat of disaster at the Fukushima No. 1 nuclear plant stretching frayed nerves, the mood in the world's third-biggest economy remained grim.

Food contaminated with radiation was found for the first time outside Japan – where milk and spinach have already been tainted by a plume from Fukushima – as Taiwan detected radioactivity in a batch of imported Japanese fava beans.

The discovery of traces of radioactive iodine in Tokyo tap water, well to the southwest of the crippled atomic power plant on the Pacific coast, compounded public anxiety but authorities said there was no danger to health.

The Fukushima plant was struck on March 11 by the 9.0-magnitude earthquake and tsunami which, with 8,450 people confirmed killed, is Japan's deadliest natural disaster since the Great Kanto quake levelled much of Tokyo in 1923.

Another 12,931 are missing, feared swept out to sea by the 10-metre (33-foot) tsunami or buried in the wreckage of buildings.

In Miyagi prefecture on the northeast coast, where the tsunami reduced entire towns to splintered matchwood, the official death toll stood at 5,053, but the police chief warned that the number could eventually rise to 15,000.

Cooling systems that are meant to protect the Fukushima plant's six reactors from a potentially disastrous meltdown were knocked out by the massive waves, and engineers have since been battling to control rising temperatures.

Radiation-suited crews were striving to restore electricity to the ageing facility 250 kilometres (155 miles) northeast of Tokyo, after extending a high-voltage cable into the site from the national grid.

Engineers were checking the cooling and other systems at reactor No. 2 late Sunday, aiming to restore the power soon, operator Tokyo Electric Power Co (TEPCO) said.

An external electricity supply has been restored to the distributor but power at the reactor unit was not yet back, spokesman Naohiro Omura said.

"It will take more time. It's not clear when we can try to restore the systems," he said.

Fire engines earlier aimed their water jets at the reactors and fuel rod pools, where overheating is an equal concern, dumping thousands of tonnes of seawater from the Pacific.

"Our desperate efforts to prevent the situation worsening are making certain progress," said chief government spokesman Yukio Edano.

"But we must not underestimate this situation, and we are not being optimistic that things will suddenly improve," he told a news conference.

Defence Minister Toshimi Kitazawa said the temperature in all spent fuel-rod pools at the facility had dropped below 100 degrees Celsius (212 degrees Fahrenheit) – suggesting water cooling operations were having some effect.

Authorities said reactors five and six at the Fukushima complex meanwhile were in "stable condition", Kyodo News reported.

Six workers at the plant have been exposed to high levels of radiation but are continuing to work and have suffered no health problems, TEPCO said.

The UN's atomic watchdog Sunday noted "some positive developments" at the plant over the past 24 hours, but warned that the crisis there remained serious.

Prime Minister Naoto Kan was supposed to visit a staging ground for the Fukushima relief efforts on Monday, as well as the city of Ishinomaki, where the two survivors were found.

But he had to cancel his trip because of rain which threatened to pile more misery on thousands of homeless survivors – including many elderly and children – who have had to battle through biting cold in makeshift shelters.

According to the charity Save the Children, around 100,000 children were displaced by the quake and tsunami, and signs of trauma are evident among young survivors as the nuclear crisis and countless aftershocks fuel their terror.

"We found children in desperate conditions, huddling around kerosene lamps and wrapped in blankets," Save the Children spokesman Ian Woolverton said after visiting a number of evacuation centres in Japan's northeast.

"They told me about their anxieties, especially their fears about radiation," Woolverton said, adding that several youngsters had mentioned the US atom bomb attacks on Hiroshima and Nagasaki, which they know from school.

The government has insisted that there is no widespread threat of radiation. But the discovery of the tainted fava beans by Taiwanese customs officers will do nothing to calm public anxiety that has already spread far beyond Japan.

Several governments in Asia have begun systematic radiation checks on made-in-Japan goods, as well as of passengers arriving on flights from the country.

But Tsai Shu-chen of Taiwan's Food and Drug Administration stressed that the radioactive iodine and caesium-137 found on the fava beans were well below legal safety levels.

In the disaster epicentre, authorities have been battling to get more fuel and food to survivors enduring freezing temperatures.

At shelters, some grandparents are telling children stories of how they overcame hardships in their own childhood during and after World War II, which left Japan in ruins.

"We have to live at whatever cost," said Shigenori Kikuta, 72.

"We have to tell our young people to remember this and pass on our story to future generations, for when they become parents themselves."

Japan Atomic Crisis Eases As US Says Worst May Be Over (BLOOM)

By Yoshiaki Nohara And Tsuyoshi Inajima

Bloomberg News, March 21, 2011

Japan had some success cooling reactors at the crippled Fukushima Dai-Ichi plant, bringing two of the six reactors under control and connecting a second electric cable to the station, according to reports.

Tokyo Electric Power Co., the operator, declared Units 5 and 6 safe after cooling water pumped into them reduced temperatures, the Associated Press reported. An electric cable was hooked up to the No. 5 reactor, Kyodo News said, also citing Tepco.

US Energy Secretary Steven Chu said the Obama administration believes the worst of the crisis is over. Unit 2, where Tepco connected a 1.5-kilometer (1 mile) power cable March 18 as it tried to revive cooling systems knocked out by the magnitude-9 temblor and tsunami, is the main source of concern, Chu said on CNN's "State of the Union" program.

"Because of the higher levels of radiation there, we take that as evidence that there might be a breach in that containment vessel," he said. "But they're not extraordinarily high, so it appears if there is a breach, it would be a limited breach. But, again, we don't really know."

The International Atomic Energy Agency's 35-member board of governors will convene an extraordinary meeting today for the first time since Dec. 2009 when Director General Yukiya Amano was voted into his post. Amano will report on his March 19 meeting with Japanese Prime Minister Naoto Kan and senior nuclear officials.

Radiation measured in Tokyo, 220 kilometers (140 miles) south of Fukushima, declined marginally yesterday, to 0.0480 microgray per hour between 3 p.m. and 4 p.m. local time yesterday. In Kitaibaraki City, located between Tokyo and the damaged plant, radiation was at 0.783 at 3 p.m., down from readings above 1 microgray on March 18. An x-ray typically has 50 micrograys of radiation.

Shifting winds and rain will carry radiation released from the Fukushima complex inland and deposit radionuclides on the ground, Austria's Meteorological and Geophysics Center reported yesterday, citing United Nations data.

"From the point of view of the worst-case scenario, the largest emissions are behind us and they went out to the Pacific Ocean," Sergei Kiriyyenko, head of Russia's state nuclear power company, Rosatom Corp., said on Russian state TV Vesti. He said there may continue to be periodic emissions.

Japan's military sprayed water from fire engines to cool the Fukushima Dai-ichi No. 4 reactor, the site of two blazes last week. Pressure in No. 3, which spiked earlier, has stabilized, Chief Cabinet Secretary Yukio Edano said in Tokyo yesterday.

Tepco considered venting radioactive steam from the reactor yesterday before it stabilized, said Naoyuki Matsumoto, a company spokesman.

Tepco is still working on getting power fully restored after connecting the cable to Unit 2, Matsumoto said by phone late yesterday. Water pumps and controls may still fail to function once power is back if they've been damaged. A successful hook-up would advance efforts to prevent a meltdown.

If fuel rods in the plant have been damaged, the reactor cores may be more difficult to cool after power is restored, Edwin Lyman, a physicist with the Union of Concerned Scientists, said on a conference call.

Efforts to contain the crisis have been hampered by radiation that made it hazardous for workers to spend prolonged periods in the immediate vicinity of damaged buildings. Soldiers from Japan's Self Defense Force and firefighters from Tokyo have used water cannons, specialized fire equipment and helicopters to douse damaged reactor No. 3 for the past five days.

Temperatures at spent-fuel cooling pools at all six reactors measured below 100 degrees Celsius (212 degrees Fahrenheit), Kyodo News said.

"These readings are something that Japanese people can be relieved to hear," Kyodo quoted Defense Minister Toshimi Kitazawa as saying at a press conference yesterday.

The longer Tepco can prevent overheating of the reactor cores and water-filled pools used to store spent fuel, the smaller the supply becomes of the most dangerous, volatile elements, said Roger N. Blomquist, principal nuclear engineer at the Argonne National Laboratory, near Chicago.

The radioactive nature of the fuel means that it's in a constant state of decay, he said. Even if some of the nuclear material has started melting, restoring electrical systems will enable Tepco to bring temperatures down to a manageable level so corrective measures and a cleanup can begin, said Blomquist, who oversees the nuclear section at Argonne, an Energy Department research center managed by the University of Chicago, birthplace of the nuclear industry.

Edano, the chief cabinet secretary, said radiation above government limits was found in milk and spinach produced near the plant struck by the earthquake, Japan's strongest on record. Japan's Health Ministry asked residents of the town of Iitate in Fukushima prefecture to refrain from drinking tap water because of radioactive iodine, Kyodo News reported.

People living within 30 kilometers of the plant should wear masks and long sleeves and stay out of the rain, Japan's nuclear safety agency said.

Residents in an adjacent region that covers an area equivalent in size to Los Angeles were evacuated in the first few days after the disaster.

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Betting On Japan's Ability To Rebound (WP)

By E.J. Dionne Jr.

Washington Post, March 21, 2011

Your initial impression of a country is often hard to shake.

Late on my first night in Japan in the 1990s, I stared out the window of my room on a high floor of a downtown Tokyo hotel. What I saw was a vast, sprawling, modern city of twinkling lights that brimmed with human and technological energy.

And then I imagined the same scene in 1945. In his magnificent book "Embracing Defeat," about Japan in the wake of World War II, John W. Dower quotes the first foreign journalist to enter Tokyo after the armistice.

"Everything had been flattened," Russell Brines wrote. "Only thumbs stood up from the flatlands — the chimneys of bathhouses, heavy house safes and an occasional stout building with heavy iron shutters."

Dower picks it up from there: "The first photographs and newsreel footage from the conquered land captured these endless vistas of urban rubble for American audiences thousands of miles away who had never really grasped what it meant to incinerate great cities." Dower notes that nationwide, close to 9 million people were homeless.

What has stayed with me since that night is a sense of the extraordinary achievement of the Japanese people in the years since the war's end. Yes, Japan has been in the doldrums for quite a while. But if the country has hit stasis, it is stasis at a remarkably high level. Every time I read about Japanese decline, my reaction is, "Maybe, but . . ."

The next morning, I met up with a Japanese friend, an ardent advocate of reform in the country's politics and habits. I could not resist telling him that looking out that window, I had been struck by what the Japanese postwar system had made possible and that if I were a Japanese citizen, I'd probably be skeptical of the reformers. How could you not question whether the promises of reform would live up to the accomplishments of the previous half-century? In ribbing my reformer friend, I had stumbled upon one of Japan's core problems: It has, simultaneously, been clamoring for change and worried it would backfire.

It's thus not surprising that ever since Japan was hit by an earthquake, tsunami and nuclear disaster, I have identified completely with all the commentary about Japan's "resiliency." If ever there was a comeback-kid sort of country, this is surely it.

But there has been an undercurrent of doubt. Would this catastrophe really unleash the transformation Japan has sought for so long? Or would it instead symbolize the inevitable waning of a once powerful nation that finds itself the victim of a declining population and a political and economic system allergic to reform and transparency?

My bet is on a rebound, partly because I have always had trouble buying into a view popular among Japan's critics of a society made up of a mass of regimented conformists defined by an unease with outsiders and a smoldering nationalism.

This overlooks strong dissenting strains that have long animated Japanese life. They have produced cultural experimentation alongside political paralysis and a remarkable capacity for openness and adaptation in a society so often described as closed. A Foreign Policy magazine writer could speak in 2002 of Japan's "Gross National Cool" because of the country's gift for absorbing the influences of a globalized culture and influencing it in turn.

Without this capacity, Japan could not have reinvented itself so brilliantly after total defeat in war. It would not have been so hospitable to foreign influences, starting with baseball, jazz, rock and liberal democracy.

Of course this paradoxical society has always confounded outsiders. Seen in the early 1980s as potentially dominating the world, Japan, not long after, was widely thought of as broken. With Japan, it seems, there is always a whiplash in perceptions. It poses a special problem for prognosticators, optimistic and pessimistic alike.

And so far, Japan's political and corporate leaders have not risen to this crisis — witness the impatience of its own people and the rest of the world over the flaws in the official information about conditions at the Fukushima Daiichi reactors.

But political and social change come from below and not just from above. The spontaneous forms of solidarity and inventiveness that Japan's triple tragedy has called forth suggest a society that has lost neither its resourcefulness nor its organizational gifts. Looking out that window more than a decade ago, I found it hard to bet against Japan. I still do.

Radiation Found In Japan's Food, Water (WT)

By Christopher Johnson, The Washington Times

Washington Times, March 21, 2011

NARA, Japan | Fears of nuclear fallout grew during a wet Sunday after officials reported traces of radioactive elements in milk, spinach, water and rain across northern and central Japan and technicians continued to battle overheated reactors at the Fukushima power plant.

Crews from the Tokyo fire and police departments, using an unmanned vehicle, sprayed seawater for 13 hours onto the decimated reactor Unit 3, which contains plutonium and uranium, only to see pressure rise and then stabilize on Sunday, government officials said.

They also tried to top up pools holding potentially exposed spent fuel rods thought to be emitting radiation into the cold, rainy atmosphere around Fukushima prefecture.

Crews connected electrical cables to Unit 2 but continued to delay plans to restart vital cooling systems, possibly damaged by the March 11 earthquake and tsunami in northern Japan.

More than eight days after the quake, police rescued a teenage boy and an 80-year-old woman who survived on yogurt inside their collapsed home.

The efforts cheered some of the estimated 500,000 survivors in shelters who are still looking for loved ones in obliterated communities across northeastern Japan, where increasing numbers of volunteers are hoping to bring supplies to remote areas lacking electricity on freezing nights.

Consumers across Japan and neighboring countries grew increasingly wary of agricultural products from the crisis area. Taiwan found small, harmless traces of iodine in Japanese fava beans, and Japanese officials reported small traces of iodine and cesium in Spinach in Ibaraki province, far beyond the government's 18-mile danger zone and an 50-mile radius designated by the United States and other countries.

Japan's chief Cabinet secretary, Yukio Edano, said the low levels of radiation posed no public health risks.

"If you eat it once, or twice, or even for several days, it's not just that it's not an immediate threat to health. It's that even in the future, it is not a risk," he said. "Experts say there is no threat to human health."

No contamination has been reported in Japan's main food export, seafood, worth about \$1.6 billion a year and less than 0.3 percent of its total exports.

About 435 miles southwest of the smoldering nuclear power plant, people who fled Tokyo and the northeast filled hotels in Osaka, Kobe and the ancient capitals of Kyoto and Nara.

Etsuko Okamoto, a retiree from Tokyo staying at the Nikko hotel in Nara, said she was still afraid to go back to Tokyo, beset with a record number of aftershocks and fears of contamination.

"I am too old to escape from my old house by myself," she said. "I don't know how long I will have to stay here, and it is rather expensive. But at least I am safe."

Keith Paddington, an English teacher from Britain, said he has been camping in a park near Nara's ancient palace because he distrusts the government's assurances that radioactive elements found in the Tokyo water supply are safe.

"I've been to Nara four times now, and it's beautiful, but I really don't want to be here," he says, sitting near a mountain bike and a few small bags of clothing he brought on the train from Tokyo last week.

"I want to go home to Tokyo, but I just don't believe it's safe enough yet."

He said only three of his 33 Japanese students have fled Tokyo, where many are trying to live normal lives despite shortages.

"They're afraid of losing their jobs if they go when others are staying. It makes them look bad," he said.

"It's not right for Japanese companies to make their staff come to work. They should let them leave Tokyo if they want, for their own safety."

Fukushima residents are wondering whether they will ever be able to live again in areas around radiation leakages.

"I still have no idea what the numbers they are giving about radiation levels mean. It's all so confusing," said Tsugumi Hasegawa, who was sheltering with 1,400 people in a gym in Fukushima city, about 50 miles from his home in Futaba, the site of the plant. "And I wonder if they aren't playing down the dangers to keep us from panicking. I don't know whom to trust."

Kazuma Yokota, a nuclear safety official, said the government gave Fukushima residents anti-radiation pills three days too late.

"It is true that we had not foreseen a disaster of these proportions. We had not practiced or trained for something this bad," he said. "We must admit that we were not fully prepared."

Growing concerns about radiation add to the overwhelming chain of disasters Japan has endured since the magnitude 9.0 quake. It spawned a tsunami that ravaged the northeastern coast, killing 8,450 people, leaving more than 12,900 people missing, and displacing another 452,000, who are living in shelters.

Bodies are piling up in some of the devastated communities and badly decomposing even in the chilly rain and snow.

"The recent bodies — we can't show them to the families. The faces have been purple, which means they are starting to decompose," said Shuji Horaguchi, a disaster relief official setting up a center to process the dead in Natori, on the outskirts of the tsunami-flattened city of Sendai.

"Some we're finding now have been in the water for a long time; they're not in good shape."

• This article is based in part on wire service reports.

Officials: Pressure Rises Again In Japan Reactor (AP)

By Eric Talmadge, Mari Yamaguchi, Associated Press

Associated Press, March 20, 2011

FUKUSHIMA, Japan – Technicians prepared to vent radioactive gas into the air Sunday because of a new spike in pressure at Japan's crippled, leaking nuclear complex, while a safety official said protective iodine pills should have been distributed near the plant days earlier.

Radiation, a danger for days in areas around the plant, already has seeped into the food supply, with the government warning that tests of spinach and milk from areas as far as 75 miles (120 kilometers) away exceeded safety limits. Tap water farther away turned up tiny amounts of radioactive iodine in Tokyo and other areas.

Amid concerns of wider contamination, a nuclear safety official said the government was caught off-guard by the accident's severity and only belatedly realized the need to give potassium iodide to those living within 12 miles (20 kilometers) of the Fukushima Dai-ichi nuclear complex.

The pills help reduce the chances of thyroid cancer, one of the diseases that may develop from radiation exposure. The official, Kazuma Yokota, said an explosion at the plant's Unit 3 reactor last Sunday should have triggered the distribution. But the order only came three days later.

"We should have made this decision and announced it sooner," Yokota told reporters at the emergency command center in the city of Fukushima. "It is true that we had not foreseen a disaster of these proportions. We had not practiced or trained for something this bad. We must admit that we were not fully prepared."

While four of Fukushima's six nuclear reactors have been dangerously overheating since the March 11 earthquake and tsunami disrupted cooling systems, Unit 3 has proved particularly troublesome.

After the government said Saturday that the unit appeared to be stabilizing after being doused with water, nuclear safety officials said the efforts may not have worked. Pressure was rising again inside the reactor's containment vessel, requiring a release of radioactive gas to prevent a more dangerous buildup, said safety agency official Hidehiko Nishiyama.

The venting is an "unavoidable measure to protect the containment vessel," Nishiyama said. He warned that a larger amount of radiation would have to be released than when similar venting was done a week ago because more nuclear fuel have degraded since then.

While battling Unit 3, emergency teams used an unmanned vehicle to spray water at another at-risk reactor — Unit 4 — while preparing to switch power back on for the first time since a March 11 earthquake and tsunami knocked out the plant's crucial cooling systems.

However, there was no guarantee the cooling systems would still work, even once power was restored.

Japan has been struggling with an overwhelming chain of disasters prompted by the 9.0-magnitude quake. The quake spawned a tsunami that ravaged Japan's northeastern coast, killing more than 8,100 people and knocking out cooling systems at the plant, prompting overheated reactors and fuel to leak radiation.

More than 12,000 people are still missing, and more than 452,000 are living in shelters.

Japan Struggles To Restore Power To Nuclear Plant (AFP)

By Hiroshi Hiyama

AFP, March 20, 2011

KITAKAMI, Japan (AFP) – Crews fighting to cool reactors at Japan's stricken nuclear plant struggled Sunday to switch partial power back on after a natural disaster that has left nearly 20,000 people dead or missing.

The discovery of radiation in foodstuffs in regions around the plant, and of traces of radioactive iodine in Tokyo tap water well to the southwest, compounded public anxiety but authorities said there was no danger to health.

The Fukushima No. 1 plant was crippled on March 11 by a massive earthquake and tsunami which, with at least 7,653 people confirmed killed, is Japan's worst natural disaster since 1923.

Another 11,746 are missing, feared lost to the tsunami or buried in the wreckage of buildings. For half a million survivors, many huddled in poorly supplied and spartan shelters, conditions in the icy north are miserable.

According to the charity Save the Children, around 100,000 children were displaced by the disaster and signs of trauma are evident among survivors as the nuclear emergency and countless aftershocks heighten their terror.

"We found children in desperate conditions, huddling around kerosene lamps and wrapped in blankets," Save the Children spokesman Ian Woolverton said after visiting a number of evacuation centres in Japan's tsunami-hit northeast.

"They told me about their anxieties, especially their fears about radiation," Woolverton said, adding that several youngsters had mentioned the US atom bomb attacks on Hiroshima and Nagasaki, which they know from school.

Cooling systems that are meant to protect the Fukushima plant's six reactors from a potentially disastrous meltdown were knocked out by the tsunami, and engineers have been battling ever since to put a lid on rising temperatures.

The radiation-suited crews were battling to partially restore electricity to the ageing facility 250 kilometres (155 miles) northeast of Tokyo, after extending a high-voltage cable into the site from the national grid.

But plant operator TEPCO said it would be difficult by the end of Sunday to restart power to the cooling systems on two reactors that were badly damaged when a series of explosions tore away their outer buildings.

Spraying of water from high-pressure hoses – an operation meant to cool the reactors from afar – was complicating the reconnection of electricity, it said, according to Jiji Press.

However, a spokesman for Japan's Nuclear and Industrial Safety Agency said that workers were still striving to restore power on Sunday if possible.

Japanese and UN atomic officials cautioned there was no guarantee that cooling pumps would operate even with power back up, given the extent of damage from the towering tsunami, and TEPCO planned a series of tests first.

Fire engines again aimed their water jets at the reactors and fuel rod pools, where overheating is an equal concern, dumping in thousands of tonnes of seawater from the adjoining Pacific.

They focused much of their effort on a reactor pool storing plutonium-uranium mixed oxide (MOX) fuel, which is more volatile than normal uranium fuel rods.

Six workers at the Fukushima plant have been exposed to high levels of radiation but are continuing to work and have suffered no health problems, TEPCO said.

Japan's government has been insisting that there is no widespread threat of radiation but confirmed Saturday that tainted milk had been found in Fukushima prefecture, and contaminated spinach in neighbouring Ibaraki.

Abnormal levels of radioactive iodine were also found in the water supply in areas including Tokyo and Fukushima, officials said. But as with the milk and spinach, they stressed the levels were still far too lower to endanger health.

A plume heading eastwards from Fukushima has now reached the western Atlantic but its radioactivity is likely to be "extremely low" and have no impact on health or the environment, France's nuclear safety watchdog said.

In the disaster epicentre of northeast Japan, authorities have been battling to get more fuel and food to areas where the 10-metre (33-foot) tsunami reduced entire towns to splintered matchwood.

At shelters, some grandparents are telling children stories of how they overcame hardships in their own childhood during and after World War II, which left Japan in ruins.

"We have to live at whatever cost," said Shigenori Kikuta, 72.

"We have to tell our young people to remember this and pass on our story to future generations, for when they become parents themselves," he said.

Japan Finds Tainted Food Up To 90 Miles From Nuclear Sites (NYT)

By Ken Belson, Hiroko Tabuchi

New York Times, March 20, 2011

As Japan edged forward in its battle to contain the damage at its ravaged nuclear power plants on Saturday, the government said it had found higher than normal levels of radioactivity in spinach and milk at farms up to 90 miles away from the plants, the first confirmation that the unfolding nuclear crisis has affected the nation's food supply.

While officials played down the immediate risks to consumers, the findings further unsettled a nation worried about the long-term effects of the hobbled reactors.

The Tokyo Electric Power Company, with help from the Japan Self-Defense Forces, police officers and firefighters, continued efforts to cool the damaged reactors on Saturday to try to stave off a full-scale fuel meltdown and contain the fallout. The latest plan involved running a mile-long electrical transmission line to Reactor No. 2 at the Fukushima Daiichi Nuclear Power Station to try to restore power to its cooling system.

About 500 workers from the utility connected the power line on Saturday. They were checking the cooling system, which has been disabled since the earthquake and tsunami hit more than a week ago, and hoped to restart it on Sunday.

Rescue workers using fire hoses doused Reactor No. 3 for almost 14 hours, stretching into early Sunday morning, spraying about 2,400 tons of water. Radiation levels appeared to fall at the reactors, where a pool of spent fuel rods was feared to be overheating, a Tokyo Fire Department official said Sunday.

The spraying there resumed later Sunday, and 11 fire trucks began spraying Reactor No. 4 as well.

The apparent progress offered a glimmer of hope after days of increasingly dire news that now includes contaminated food.

Yukio Edano, the chief cabinet secretary, said that spinach and milk were the only products found to have abnormally high radiation levels. The level of radioactivity found in the spinach would, if consumed for a year, equal the radiation received in a single CAT scan, he said, while that detected in milk would amount to just a fraction of a CAT scan.

"These levels do not pose an immediate threat to your health," Mr. Edano said. "Please stay calm."

Still, Fukushima Prefecture asked all dairy farms within 18 miles of the nuclear plant on Saturday to halt all milk shipments. Officials also halted shipments of spinach from the entire prefecture.

The milk with the elevated radiation levels was found in Fukushima Prefecture on farms about 19 miles from the nuclear plants. The contaminated spinach was found one prefecture to the south, in Ibaraki Prefecture, on farms 60 to 90 miles from the plants.

Food safety inspectors said the iodine 131 in the tested milk was up to five times the level the government deems safe, and the spinach had levels more than seven times the safe level. The spinach also contained slightly higher than allowable amounts of cesium 137.

Minuscule amounts of radioactive iodine were also detected in the water supply in Tokyo and its five surrounding prefectures. In Tokyo, about 170 miles from the Fukushima Daiichi plant, the level was less than 1 percent of that considered dangerous by the government. In Fukushima city, about 50 miles from the power plant, the levels were still below half of the legal limit.

Iodine 131 and cesium 137 are two of the more dangerous elements that are feared to have been released from the plants in Fukushima. Iodine 131 can be dangerous to human health, especially if absorbed through milk and milk products, because it can accumulate in the thyroid and cause cancer. Cesium 137 can damage cells and lead to an increased risk of cancer.

The iodine levels are well beyond what the Food and Drug Administration in the United States considers a cause for concern. But experts say Japan's reassurances about food safety were probably accurate.

Dr. Harold M. Swartz, a professor of medicine at Dartmouth who studies radiation exposure in people, said that the contamination levels were low and that the government's advice was "probably reasonable." But, he added, because people are so afraid of radiation, they are likely to avoid these foods altogether.

Another expert, David J. Brenner, director of the Center for Radiological Research at Columbia University, said it "seems unnecessary to eat these" foods.

"I wouldn't," Dr. Brenner said.

That judgment was shared by Katsuko Sato, 76, who was shopping at a supermarket in central Tokyo on Saturday evening. She said she would stop buying spinach and, after watching Mr. Edano's news conference, she called her family and friends to urge them not to, either.

"I'm not going to believe the government because I don't think only spinach from Ibaraki will be affected," she said.

A handful of vegetable-shop owners in Tokyo said they were concerned about the report, but continued to sell vegetables from Fukushima and Ibaraki because they had not been told to stop.

Dr. Swartz said people consuming milk and produce, particularly children and pregnant women, should be taking potassium iodide, which saturates the thyroid gland with nonradioactive iodine, and prevents it from taking in the radioactive form. Children and fetuses have the highest risk of thyroid cancer from exposure to radioactive iodine.

The Japanese authorities recommended Wednesday that people fleeing the 12-mile-radius evacuation zone start taking iodine pills.

Dr. Swartz said the radiation levels detected so far were still much lower than those at Chernobyl, the nuclear plant that exploded in Ukraine in 1986 and is still the world's worst nuclear accident. He said that in the United States food with similar levels of radiation would probably be taken off the market, but more for political and public relations reasons than for scientific or medical ones.

The Japanese government is considering conducting more comprehensive tests of agricultural products from areas farther from the damaged reactors to address public anxiety about the food supply, Mr. Edano said.

Health inspectors are still trying to determine whether any spinach had been shipped from the six farms in Ibaraki Prefecture, where the contaminated produce was found, said Taku Ohara, an official in the food safety division of the Health, Labor and Welfare Ministry. The tests were conducted Saturday. No contaminated milk had been shipped from the farm where higher than normal radioactive levels were detected.

Mr. Ohara said Japan was particularly strict in determining what constituted safe radioactive levels. Leafy spinach is especially susceptible to absorbing radioactive material, he said.

Asparagus, cucumbers, radishes, tomatoes and other vegetables are also grown in Fukushima, but have not been found to be contaminated. But only a small number of farms have been tested because officials have been overwhelmed in the wake of the earthquake, the tsunami and the nuclear crisis that followed, Mr. Ohara said.

Though land-poor Japan imports much of its fruit, grain and soybeans, 79 percent of the vegetables eaten here are grown domestically. Japan is the largest net importer of food in the world.

There have been no reports of contaminated fish or meat.

Many of the ports, fleets and processing facilities in Tohoku, the area most affected by the tsunami and nuclear crisis, are so badly damaged that no fish or seafood from there has reached Tsukiji market in central Tokyo, according to the market's general manager, Tsutomu Kosaka. The market handles 90 percent of the seafood for about 40 million consumers in the greater Tokyo area.

Japan's leading producers of premium beef, including the world-famous Kobe brand, said Saturday that they had not yet tested their cattle or feed. But they were nervous about the possible spread of radiation from Fukushima, and just as concerned that fear of radiation, even if it is unfounded, could damage the market for high-quality beef.

While only spinach and milk were found to have elevated radiation levels, some countries have been testing food imports from Japan since the day after the quake and tsunami. In Hong Kong, for instance, 216 Japanese products passed food quality screenings, including meat, fish, fruits and vegetables.

In Japan, consumers were also grappling with rolling blackouts ordered after damage to the reactors reduced the electricity supply in the greater Tokyo region.

At the Fukushima plant, temperatures outside the four damaged reactors were lower than expected, Defense Minister Toshimi Kitazawa said Saturday, raising hopes that the nuclear fuel could be kept cool by spraying the reactors with water, while technicians worked on restoring power to the cooling systems.

But Mr. Kitazawa was unable to confirm how hot it was inside the buildings, leaving open the possibility that nuclear fuel may still be overheating.

Mr. Edano, the cabinet secretary, said, "Currently, we have a level of stabilization, but the situation remains volatile."

The National Police Agency said Sunday that there were 7,700 confirmed deaths so far because of the earthquake and tsunami on March 11, and more than 11,600 people remained missing. The authorities have said they expect the death toll to exceed 10,000.

Executives May Have Lost Valuable Time At Damaged Nuclear Plant (NYT)

By Ken Belson, Keith Bradsher, Matthew L. Wald

New York Times, March 20, 2011

New questions are arising about whether Tokyo Electric Power Company executives wasted precious time in the early hours of the nuclear crisis, either because of complacency or because they did not want to resort to emergency measures that could destroy the valuable plant.

The question of timing is critical. Because the earthquake and the tsunami knocked out the Fukushima Daiichi plant's ability to pump fresh water into either the reactors or the spent fuel pools — potent sources of radioactive material as they heated up — plant operators eventually had to improvise. And mounting radiation levels hampered workers' ability to enter the plant, gauge the damage and contain the crisis.

Nuclear experts said that executives thought they had enough time because the reactors had shut down automatically after the earthquake, and that they did not realize the risk posed by the spent fuel rods, which are highly radioactive and still emitting heat.

The question is whether they waited too long before pumping seawater into the plant, a measure that would ruin a valuable investment.

Kuni Yogo, a former atomic energy policy planner in Japan's Science and Technology Agency, said he believed that the executives at Tokyo Electric Power, or Tepco, did not recognize the risks soon enough. They failed to cool the reactors on the day of the earthquake, March 11, and even after a hydrogen explosion the following day, they waited more than four hours to start dousing the reactors with seawater. They did not even try to put water into the spent fuel pools for several days.

"On Friday afternoon, they weren't in a panic," Mr. Yogo said. "Their main concern was the reactors, and they had shut down automatically. They could have prepared earlier to deal with the spent fuel."

Michael Friedlander, a former senior operator at a Pennsylvania power plant with General Electric reactors similar to the troubled ones in Japan, said the crucial question is whether Japanese officials followed G.E.'s emergency operating procedures.

Those procedures are “crystal clear” on how to determine when reactors should be flooded, Mr. Friedlander said, and operators at the plant should have practiced many times over the years how to flood them with seawater.

The procedures prescribe specific actions based on variables like reactor temperature and pressure, data Tepco has not yet released.

A former Tepco executive told The Wall Street Journal on Saturday that the company had hesitated to ruin the plant with seawater. A Tepco spokesman told The Journal that the company, “taking the safety of the whole plant into consideration, was trying to judge the appropriate timing to use seawater.”

While Mr. Yogo said he did not know Tepco’s internal calculations, he said it would have been natural for the company not to want to ruin its plant, given the expense and the public opposition to new nuclear plants. “They could have reacted earlier, but this is a relative thing,” he said, pointing out that they were focused on the reactors rather than the spent fuel pools. “Economically, it is tough to decide to use seawater.”

Reactor operators calculate how long it would take, once cooling is lost, for the spent fuel to boil the water it sits in. The fuel assemblies usually lie under 20 to 30 feet of water, which would take days to boil away. Given the core damage in the reactors, the plant operators may have decided that the reactors were a higher priority than the pools.

Another possibility, though, is that fuel in the pools was being uncovered not through boiling, but because the earthquake had caused leaks. Among the questions that can probably be answered only through an independent investigation is what instrumentation the operators had available to find out the temperature and depth of the water, and whether that problem was overlooked.

Mr. Friedlander said that delays had costs. It would have been much easier to have used seawater earlier because the temperature and pressure of the reactors were lower then, making it easier to push water into them. And not enough time had passed for hydrogen to build up, so there would have been less risk of the explosions that occurred after the company began flooding reactors on the second night and third day of the crisis.

The power plant’s batteries were still working in the first hours after the quake as well, so more electricity would have been available for illumination and other power needs.

Experts continue to debate whether time is working for or against the workers and soldiers struggling to re-establish cooling at the crippled plant.

In the case of the reactors, the passage of time has helped. Fuel rods that were producing fission have cooled substantially since the reactors shut down. They now require much less water to keep them cool and under control, and produce less steam. If they are uncovered again, they will resume production of explosive hydrogen gas, but more slowly. Though partial fuel melting has already occurred in each reactor, the amount of water that needs to be added to prevent further damage and to avoid a full meltdown decreases by the day, and is now just one-twentieth what it was on the first day of the crisis.

Each passing day also brings engineers at the site closer to restoring electrical power, and executives said Saturday that they had extended a hastily built high-power line from the national grid, although they were still testing whether it would work. Electricity may make it possible to turn on the power plant’s extensive cooling systems.

On the other hand, the radioactive fallout at the plant keeps mounting.

Each day that passes without a resolution increases the risk that one or more reactors or fuel storage pools may have to be abandoned, leaving fuel to burn unattended, some experts argue.

“I don’t think time is on their side,” said Brian DeBruin, a former Navy nuclear engineer who is now the Asia director for power and infrastructure at Aon Risk Solutions, a large insurance and risk consultancy.

Other engineers are becoming more optimistic about the progress that Japanese engineers are making.

Mr. Friedlander said emergency cooling pumps in the Fukushima reactors were safely located a floor below where hydrogen gas had been vented from reactor cores, setting off explosions. The pumps are designed to withstand quakes, and the reactor buildings have watertight doors that should have protected the pumps from tsunami waves, he said.

Hidehiko Nishiyama, a Japanese nuclear regulator, said Saturday that faulty planning had played a role in the power plant’s vulnerability, with switchboards and motors outside the protection of the reactor buildings destroyed by the tsunami.

Richard T. Lahey Jr., G.E.’s former head of safety research for the type of boiling-water reactors installed at Daiichi, said restoring the emergency cooling pumps was crucial. Spraying water on storage pools full of overheating spent uranium fuel rods is not very effective because rising steam dissipates much of the incoming water.

But much repair work to the emergency cooling systems must be done near the reactor buildings, where contamination is highest. So the most promising long-term solution may require the highest short-term risk to workers. The authorities must decide whether to evacuate workers each time there is a surge in radiation, protecting them from immediate harm but delaying the restoration of emergency cooling.

The fuel rods that were in active use and the spent fuel stored at the facility will take years to completely cool and will require watering for years to stay under control. The entire plant could be contaminated if a meltdown were to occur at any one of 12 sites with fuel rods: three reactors that were operating at the time of the earthquake, two reactors that were shut down for maintenance at the time but still had fuel rods in them, and seven storage pools. A major contamination would make it hard to keep the remaining sites under control, nuclear experts said.

The initial Japanese response to overheating fuel was cautious. The crew of a helicopter was told Wednesday to stop dumping water and chemicals on a boiling pool of high-level radioactive waste because of elevated levels of radiation. Technicians and firefighters, many of them drawn from the military, have been evacuated or told to take refuge when the escape of radioactive vapor from the power plant makes it more hazardous to be outside.

Helicopter crews are taking more risks since the United States warned Wednesday about the gravity of the plant's problems, and the defense minister, Toshimi Kitazawa, said Saturday that military firefighters would spray water around the clock on an overheated storage pool at Reactor No. 3.

Though plant operators have been struggling to reduce workers' risk, a senior nuclear executive who insisted on anonymity but has many contacts in Japan said such caution had increased the risk of a serious accident. He suggested that Japan's military assume primary responsibility.

"It's the same trade-off you have to make in war, and that is the sacrifice of a few for the safety of many," he said. "But a corporation just cannot do that."

New Progress, Worries In Japan Nuclear Crisis (LAT)

As electricity is partially restored at the Fukushima nuclear plant, a new pressure buildup is seen in one reactor. Meanwhile, above-normal levels of radiation are found in food and water. The number of dead or missing in Japan's disaster now exceeds 20,0

By Don Lee, Kenji Hall, Mark Magnier

Los Angeles Times, March 20, 2011

Japan took a step toward possibly getting its nuclear disaster under control Sunday as electricity to power some reactor cooling systems was restored and previous efforts to lower reactor temperatures with seawater at the battered Fukushima atomic energy plant appeared to have had an effect.

But the increased optimism by Japanese officials and Western scientists alike was tempered by a pressure buildup at one of the plant's six reactors and a newly emerging crisis — radiation contamination was found in some food and water supplies in a nation already suffering from a cascade of troubles.

Although Japan's Health Ministry said the contamination levels were not immediately harmful to humans, the discovery of higher-than-normal radioactivity in batches of milk and spinach — and of traces of radioactive iodine in tap water in Tokyo and elsewhere — stirred new angst in a public already weary from earthquake aftershocks, blackouts and the threat of a full-fledged nuclear meltdown.

Early Sunday, consumers at some central Tokyo markets were lining up to buy milk, which already had been in short supply after milk-carton factories were knocked out by the quake and tsunami.

"The government keeps urging people to stay calm, but there's a sense of growing anxiety," said Hiroaki Nakajima, an employee at the Kimuraya supermarket.

Even before news of the tainted foods, he said, people were hoarding things that they wouldn't normally buy, like instant noodles, water and rice. Now, he said, customers ask where the milk and spinach come from.

A series of disasters have been battering Japan since a record-setting earthquake struck March 11 and a tsunami slammed into the northeastern coast. At least 8,130 people were killed, and 12,272 are unaccounted for, according to police.

The tsunami also knocked out cooling systems at the Fukushima Daiichi nuclear power plant about 150 miles north of Tokyo, causing the complex to leak radiation.

The concerns about contaminated food over the weekend arose even as more supplies reached some tsunami-stricken areas on the northeast coast and as officials of the Tokyo Electric Power Co., the operator of the Fukushima plant, indicated that connecting electrical cables had helped cool reactor Nos. 5 and 6.

The company said it was hopeful of restoring electricity to the No. 1 and 2 units as early as Sunday, but it remained to be seen whether that would restart the cooling system for those reactors, given the extent of their damage.

"I don't think it is a sure thing at all. All the reactors were exposed to shock, so who knows if the piping is still intact?" said Edwin Lyman of the Union of Concerned Scientists in Washington.

Lyman and other experts nonetheless took the restoration of power as an optimistic sign. It "is absolutely a turning point" in the battle to cool the reactors, USC nuclear physicist Najmedin Meshkati said.

But later Sunday, Hidehiko Nishiyama, an official with Japan's Nuclear and Industrial Safety Agency, said pressure inside the No. 3 reactor was rising despite tons of water sprayed over the weekend. He said that pressure had to be released to prevent the vessel containment chamber from cracking. Nishiyama didn't offer a reason for the pressure buildup.

It's not the first time that Tokyo Electric has had to release pressure from reactors at the site, said nuclear safety agency spokesman Ryohei Shiomi, but he didn't know how many times it had been done.

"We're trying to get things under control, but we're still in an unpredictable situation," Chief Cabinet Secretary Yukio Edano said.

In one potentially hopeful development, officials said they planned to test high voltage power lines as early as Sunday afternoon that would restore operations to cooling equipment at damaged reactors Nos. 1 and 2.

Experts were not surprised that inspectors found contaminated food. After the Chernobyl nuclear power plant disaster in 1986, a major cause of the thyroid disease suffered by children came from consumption of tainted foods, said Dr. Glenn D. Braunstein, chairman of the department of medicine at Cedars-Sinai Medical Center in Los Angeles.

Japanese health officials have dismissed such fears, saying that the amount of radiation detected away from the Fukushima plant is minor. Even so, traces of radiation in the food supply are a matter of concern.

The amount of radiation found in the milk, if consumed for a year, is equivalent to levels found in one CT scan. The spinach contamination is equal to one-fifth the radioactivity in a CT scan. And those levels could be harmful to children, Braunstein said.

"Children are growing and their organs are growing, so they're very susceptible to radiation effects," he said. "They really need to discard the milk from around the reactor disaster."

Dr. Daniel Zurosky, director of radiation safety at the University of South Carolina School of Medicine, said contamination could also turn up in fish — a staple of the Japanese diet — from radioactive material that has entered the water, become part of the food chain and is consumed by fish.

He said it would be vital for Japanese health authorities to monitor food. After Chernobyl, "they weren't very forthcoming about radiation. They had a lot of farmland around there."

Yet there is widespread public perception that Japan hasn't issued timely and complete information since the outbreak of the nuclear disaster. And the news of food contamination brought a flood of new complaints and worries.

"The biggest problem is that we're not getting the whole picture from the government, from the media," said Takamasa Edogawa, 76, standing with his hands thrust into his jacket pockets, the first in a line of about 40 people waiting to get into Tokyo supermarket Yoshiya on Sunday. "We generally know where the spinach and milk were from. But we don't know exactly where. And if the wind changes, other areas could be affected by radiation."

Similar feelings of helplessness were echoed in Japan's northeast coast.

In Miyako, Souichiro Tachibana, a teacher who watched his house burn down after the tsunami hit his town, said officials haven't offered a lot of options. "Nowhere is safe," he said. "Teach me what I can do. I'm listening. Where can we run away to?"

Yet at the gymnasium of the Miyako Elementary School, the last day or two has seen things go from famine to feast as more supplies have arrived. "Please take some food," volunteer Kiyohiko Sasaki said to visitors.

"We've been here eight days," said Rikuko Tachibana, 61, sitting on blankets provided by the city, amid neat piles of clothing and belongings on the floor and evacuees sitting about, bored.

"At the beginning, there wasn't enough food, and it was always rice balls," Tachibana said. "Now there's too much food. And it's got more variety. We had cream soup today, boiled eggs, soba noodles, strawberry jam. And I have some fruit bread here."

A local company has donated thick tatami mats for the evacuees to sit and sleep on, lending a little civility to the basketball courts. Evacuees carefully remove their slippers before stepping on the woven grass mats.

Shoichi Nakamura, 58, an evacuee sleeping in the Miyako Elementary School, said she stayed in the shelter because there's no heat or power at home, and she feels more secure with other people nearby during aftershocks, such as the magnitude 5.7 temblor that struck off the coast of Fukushima prefecture just after 10 a.m. Sunday.

Rikuko Tachibana said she knew about the problems at the Fukushima nuclear complex but often preferred to talk and gossip rather than watch the news. "All I can say is, we're cheering the nuclear workers on," she said. "I want them to please do their best. And foreign governments and experts, please, please help us."

Amid Challenges At Plant, Nuclear Official Urges Japan To Be More Forthcoming (WP)

By Chico Harlan, Joel Achenbach

Washington Post, March 19, 2011

One week after the historic earthquake and tsunami, Japanese authorities struggled Saturday to deal with a humanitarian crisis, a still-untamed nuclear power plant and emerging doubts about the government's credibility and competency.

Across the Pacific, trace amounts of the radioactive isotope xenon-133 lit up a sensitive detector in Sacramento, and scientists said it was likely from the crippled Fukushima Daiichi nuclear plant, but the amount was not nearly enough to affect human health. US officials said the dose rate was about one-millionth of what a person "normally receives from rocks, bricks, the sun and other natural background sources."

Japan, however, continues to suffer from the lethal combination of natural and technological disasters. The death toll from the March 11 quake and tsunami reached 7,197, with 10,905 missing, according to the National Police Agency. On Saturday, eight days after the temblor, a survivor was pulled from the rubble in Miyagi prefecture, NHK television reported.

Prime Minister Naoto Kan sought to assure his countrymen that Japan will rebuild. But his words came amid doubt that the nation's leaders have a firm grip on the nuclear crisis. The government and the Tokyo Electric Power Co. have issued a thin and fitful stream of information about the radiation-spewing plant.

In recent days, officials in Tokyo and Washington have sent different signals about the level of hazard posed by the damaged nuclear reactors. US officials have advised Americans to evacuate from a much broader region of Japan. Japanese authorities implicitly acknowledged Friday that they had underestimated the severity of the nuclear crisis, as they re-categorized the emergency as a level-5 event, up from level 4, on the International Nuclear Event Scale. That is still shy of a level 7 catastrophe, which would be akin to the 1986 Chernobyl event in Ukraine.

After so many days of dire bulletins from the nuclear plant, Saturday arrived in Japan with what passed for good news: There were no new explosions, no new fires. Radiation levels within the Fukushima Daiichi plant remain dangerously high, limiting the amount of time workers can be exposed before they run the risk of radiation poisoning. Still, intrepid workers braved the invisible atomic storm in relay teams and managed to attach a new electrical line to the blacked-out facility.

That doesn't mean power is restored. It is an incremental step, and a statement released by TEPCO early Saturday indicated that many more steps are necessary before the plant has electricity. Even once it does, the company does not know whether the cooling system that circulates water can be made operable.

US officials want their own eyes on the situation. The Nuclear Regulatory Commission has dispatched 11 of its own technical experts to Japan in order to "shorten the information chain," said NRC spokesman Scott Burnell.

Relying on the data the NRC's experts collected, Commission Chair Gregory Jaczko stunned lawmakers on Capitol Hill this week when he said a pool at unit 4 of the Fukushima Daiichi plant no longer contained water to cool spent fuel, making it more likely that it would emit radiation. His comments contradicted those of Japanese and TEPCO officials, who continue to maintain that there is water left in the pool.

Other nuclear experts expressed frustration with the amount of information the Japanese government and TEPCO officials have released. "I think the Japanese government is sometimes not as forthright as they should be," said Mark Pierson, a nuclear engineering professor at Virginia Tech. Pierson speculated that US officials have access to information via military satellites that enable them to collect information the Japanese don't have.

"The international community's view is that they want more volume of accurate information more quickly," Yukiya Amano, chief of the International Atomic Energy Agency (IAEA), said after meeting Kan and other Cabinet ministers.

Asked about public doubts that the government is telling the whole truth about the nuclear crisis, Kan said later: "We have been disclosing all facts that I and the cabinet secretary are able to get hold of regarding the power plant accident."

Japanese officials acknowledged that they had failed to anticipate so great an earthquake and so destructive a tsunami. They also faulted themselves for a slow and disorganized response to the natural disaster.

"The unprecedented scale of the earthquake and tsunami that struck Japan, frankly speaking, were among many things that happened that had not been anticipated under our disaster management contingency plans," Chief Cabinet Secretary Yukio Edano said. "In hindsight, we could have moved a little quicker in assessing the situation and coordinating all that information and provided it faster."

The fight to cool the overheated reactors and spent fuel rods remained a primitive one, with firetrucks shooting streams of water from a distance. The trucks, including one lent to Japan by the US military, took aim at the unit 3 reactor building, which is emitting the most radiation and is the only unit that contains the deadly element plutonium. Each truck, equipped with a high-powered hose, stayed close to the plant for only a few minutes to limit radiation exposure.

Nuclear experts point out the Fukushima plant — damaged by the earthquake, the tsunami, and then a series of still-mysterious explosions — could have structural damage that makes the power reconnection difficult. The lack of electricity has limited the options for the electric company. "They can only take symptomatic measures," said Hiroshi Kimura, a nuclear expert at

the University of Tokyo. "For now, we have to depend on the spent fuel to cool itself from vapor evaporation by showering water into the pool."

Water plays two key roles here. It cools the fuel rods, which, despite no longer undergoing nuclear fission, still throw off heat due to the natural decay of radioactive elements. It also provides shielding from radiation that has made the site an extraordinarily dangerous place to operate.

The nuclear industry has a limit for radiation doses during normal operations and a higher limit that can be imposed in an emergency, said Kim Kearfott, a professor of nuclear engineering at the University of Michigan. She said 46 workers died from radiation poisoning within weeks after the Chernobyl accident. So far, she said, Japanese authorities appear to be carefully managing the exposure of workers to radiation.

"If they have good radiation safety practices, they could avoid the deaths of workers from acute radiation syndrome," Kearfott said.

With many Americans, especially those living on the West Coast, rushing to stock up on potassium iodide pills that protect, the US Environmental Protection Agency on Friday announced that it has created a new Web site to keep the public updated on data collected by its RadNet system, which has been bolstered to better monitor air samples, especially from Western states, for any signs of radiation arriving from Japan.

In Japan, radiation-related fears have prompted foreigners to flee, and broadcaster NHK reported that about 10,000 Japanese people have already abandoned their homes to get farther away from Fukushima.

For millions more — especially those who do not live in the areas hit hardest by the earthquake and tsunami — watching grainy television footage of dangerous efforts at Fukushima Daiichi has become a daily routine.

At 2:46 p.m. Friday, the country observed a moment of silence to mark the tragedy of seven days earlier.

There were scattered reports of survivors being rescued, including a young man pulled Saturday morning from the rubble of a collapsed house in Kesenuma.

NHK reported that Japan's Self Defense Forces freed Katsuharu Moriya from the second floor of the house after he was found wrapped in a blanket on the second floor.

Moriya, who is in his 20s, was taken to a local hospital, reportedly weak and in shock, but with no major outward injuries.

Almost 11,000 buildings have partially collapsed, and roughly 500,000 people are displaced. Tokyo's busiest streets are quiet, and its supermarkets are out of milk. Thousands of people in the hardest-hit areas are still without heat and basic supplies, and concerns about Fukushima's radiation have left at least some survivors in a zone where aid workers are fearful of going.

Some disaster modeling companies have estimated the total insured loss at between \$15 billion and \$35 billion, with reconstruction costs in the range of \$180 billion. That is about 3 percent of the country's economic output, making this a costlier disaster than the 1995 earthquake in Kobe.

The crisis at the six-reactor nuclear plant most damaged by the disasters has added a terrifying volatility to Japan's grief, Prime Minister Kan said in a nationally televised address Friday. The Japanese people "are being tested . . . We must not be discouraged by this earthquake and tsunami," Kan said. "Let us confront this crisis together, with determination that we will once again rebuild Japan."

He vowed: "We will rebuild Japan from scratch."

Japan Still Struggling To Restore Power To Cool Down Reactors (LAT)

In Fukushima, earthquake survivors and rescue workers observe a moment of silence to mark the week since the temblor and tsunami. The death toll tops 7,000, surpassing that of the 1995 Kobe quake.

By Laura King, Kenji Hall, Mark Magnier

Los Angeles Times, March 19, 2011

Fighting exhaustion and radiation fears, engineers struggled anew Saturday to complete the crucial task of hooking a crippled nuclear plant to the electricity grid to help cool down damaged reactors. The official count of dead and missing in the quake and tsunami soared above 18,000, making this Japan's worst disaster since World War II.

In the earthquake zone, tears trickled down the cheeks of some survivors and rescue workers who observed a solemn moment of silence at 2:46 p.m. Friday, marking a week since the magnitude 9 temblor slammed Japan's northeastern coast.

The quake set off a chain of events culminating in the nuclear accident now ranked at 5 on a 7-point international scale. Still unknown is whether restoring power to the damaged reactors will significantly aid cooling efforts. The full extent of damage to cooling pumps from hydrogen explosions and corrosion from seawater that has been pumped in has not been assessed.

In what many considered an inevitable, and perhaps tardy, move, Japan's nuclear regulatory agency Friday upgraded the severity of the still-unfolding disaster at Fukushima, 150 miles north of Tokyo, from 4 to 5 on the international nuclear and

radiological event scale, meaning it is "an accident with wider consequences." The 1979 Three Mile Island incident, previously considered the second-worst accident in recent decades, was rated a 5 — and it did not cause injuries or a significant release of radiation. The Chernobyl nuclear accident was a 7 — "a major accident" as defined by the scale.

In the earthquake and tsunami zone, hundreds of thousands of people remained displaced. Although the government pledged to accelerate relief efforts, hardship from hunger and cold remained rife. In the quake-shattered city of Miyako, City Hall official Tatsuyuki Kumagai said many of the sheltering survivors were suffering from deep anxiety that frayed customary Japanese fortitude.

"Some cry, others say they're sick of the food. Or they really want to take a bath," he said. The stress, he said, "comes out in different ways."

Establishing a final toll will probably take weeks, but the National Police Agency said the official death count had reached 7,197, surpassing that of the 1995 Kobe earthquake, and the number of those unaccounted for stood at 10,905. Recovery crews have yet to comb through enormous piles of tsunami-deposited debris in some remote areas.

As of Saturday, about 300 workers were operating inside the 12-mile evacuation zone surrounding the battered nuclear plant. A few dozen were in the complex itself, government and utility officials said. A nuclear safety official said their main objective was to attach power lines to two of the worst-hit reactors.

Other last-ditch measures were under discussion, however, including the drastic option of entombing the complex in cement to stave off a large-scale leak of radiation.

Emergency workers sprayed water toward the reactors for about an hour after midnight, said Kenji Kawasaki, an official from Japan's Nuclear and Industrial Safety Agency, and more dousing could occur later Saturday. Workers also managed to restart a diesel-powered backup pump that would be used for cooling reactors No. 5 and 6, the public broadcaster NHK said.

Both the government and the plant's operator, the Tokyo Electric Power Co., are on the defensive amid rising public anger over what many regard as an incomplete picture of events at the nuclear complex, coupled with what has been seen as a feeble relief effort.

In a possible sign of growing sensitivity to public criticism, the Health Ministry announced that it would ask the army for help in moving hospital patients who were trapped inside the 12-mile evacuation zone surrounding the Fukushima Daiichi plant. That word came shortly after NHK aired a segment portraying harrowing conditions at a hospital in the city of Minamisoma, part of which falls within the evacuation zone.

Seeking to deflect accusations of secrecy, Prime Minister Naoto Kan said Friday that the government has told the public everything it knows about the accident at the plant. "[Chief Cabinet Secretary Yukio] Edano and I have been disclosing all of the information that we had," he said.

Earlier, Kan pledged in a meeting with the head of the International Atomic Energy Agency, Yukiya Amano, to disclose as much information as possible about the unfolding nuclear crisis.

"The situation at the nuclear plant remains unpredictable," Kan said in the nationally broadcast news conference. "We will definitely overcome this crisis. I want people of this country to feel safe again."

Amano has described the situation as "very grave and serious" but pointed out that, until now, an uncontrolled release of large amounts of radiation had been avoided and that there was little danger to public health outside the evacuation zone.

Reassurances were not enough to halt an exodus of foreigners from the country, who continued to pack international airports and flights out. Many Japanese also are leaving the country or seeking shelter with friends and relatives in southern cities considered safe.

Adding to Japan's growing sense of isolation, the Food and Drug Administration in Washington said it would monitor foods imported from Japan for radiation exposure.

Nearly 1 million homes remained without electricity in the quake zone, and rolling blackouts have been taking place elsewhere. As the threat of blackouts has intensified, one activist called on Japan to unplug millions of vending machines that dispense everything from hot corn soup to bouquets of flowers.

Japan has 5.5 million vending machines, each using as much power as an average household, said Canadian speechwriter and publicist John Harris, who is based in Japan's Chiba prefecture. Add that up, and it requires as much power as the entire capacity of the troubled Fukushima nuclear plant at a time when Japanese are being asked to conserve electricity, he said.

The nearly 1 million machines operated by Coca-Cola, which because they use both refrigeration and heating are the "biggest power hogs," are still running even as train service is curtailed, he said.

Japan Raises Danger Level At Power Plant (NYT)

By Henry Fountain

New York Times, March 19, 2011

By raising the level of the crisis at the Fukushima nuclear power station to 5 on a scale of 1 to 7, Japan's nuclear safety agency on Friday gave it a ranking equal to that of the Three Mile Island accident of 1979. Only two events rank higher, including the 1986 Chernobyl disaster, the only accident to be rated a 7.

Yet the consensus among nuclear safety experts outside Japan is that the situation there is already worse than Three Mile Island, where a partial fuel meltdown at one reactor was contained with a relatively small release of radioactivity.

The International Atomic Energy Agency, which developed the ratings, says it is not meant to be used to compare events in different countries and at different times. Still, the Fukushima event has involved a significant release of radiation, along with damage in several reactors and spent-fuel storage pools. How could it be given the same rating as Three Mile Island?

The answer lies in the nature of the ranking system and in who is doing the ranking.

Unlike scales for events like hurricanes, which are based on measurements of a single factor like wind speed, the nuclear event scale is based on many criteria — some having to do with exposure of the public to radiation, some with the condition of the reactor fuel and still others with whether safety provisions fail. The formula is so complex that the agency publishes a 218-page "user's manual."

Nor are the criteria as precise as those used with some other scales. One measure of a nuclear event rated Level 5, for example, is the melting of more than the equivalent of "a few percent" of reactor fuel, the manual says. With spent-fuel storage pools, a Level 3 event involves "substantial" uncovering of the fuel rods. Those criteria are a far cry from ranking a hurricane as a Category 3 because it has sustained winds of 111 to 130 miles an hour.

Moreover, the rating is calculated by the agency where the event is occurring. This means that a government can use the number to play down a crisis if it wishes. The French nuclear agency, for instance, has said that the events in Fukushima are at Level 6. But Japan's rating is the only one that counts.

The scale is meant to be logarithmic, meaning each level is considered 10 times as severe as the one below it. So it could be that the Japanese also believe the situation at their power plant is worse than Three Mile Island — just not 10 times worse, not yet.

Disaster-Hit Japan Hopes To Cool Reactors Soon (AFP)

By Hiroshi Hiyama

AFP, March 19, 2011

KITAKAMI, Japan (AFP) — Japanese engineers fighting to cool overheating reactors laid a power line into a stricken nuclear power plant on Saturday as hundreds of thousands of quake-tsunami survivors endured desperate conditions in the frozen north.

In an updated toll, national police said at least 18,000 were dead or missing in Japan's worst natural disaster in 88 years. Just under 7,200 were confirmed killed, lost to the tsunami or interred in the wreckage of buildings.

Amid the sea of carnage on Japan's northeast coast, one tiny drop of good news seemed to have emerged with the military announcing the rescue of a young man who it said had survived after eight days trapped in his mangled house.

But a spokesman for the Self-Defense Forces later clarified that the man in his 20s was in fact a disaster evacuee who had returned to his house.

Half a million homeless people are struggling to stay warm in freezing temperatures and with scant supplies of food and fuel, after the tsunami reduced whole towns and villages to splintered matchwood.

Further south at the crippled Fukushima No. 1 nuclear plant, crews were locked in what the UN's atomic watchdog said was a "race against time" to cool overheating reactors and prevent radiation spewing into the atmosphere.

After an epic week-long tussle to tame the ageing facility, where the tsunami knocked out all-important backup generators, the crews were expecting Saturday to restore electricity to four of its six reactors, officials said.

The nuclear safety agency said workers had got a power line into the plant after the 9.0-magnitude earthquake — the biggest in Japan's recorded history — felled electricity pylons in the area.

With power back up, the radiation-suited Fukushima engineers hope they can get vital cooling systems online. In the meantime, they have been dumping water by hose and by air on the reactors to avert a feared meltdown.

But given the extent of damage at the plant, it was not yet clear whether the cooling system would work properly even if power is restored.

The lack of power has sent the temperatures of fuel rods — both in the reactors and in separate containment pools — soaring as fast-evaporating coolant water leaves them exposed to the air.

The natural disaster on March 11 led to a series of hydrogen explosions and fires at buildings housing the reactor units, stoking anxiety among governments and the public worldwide and contributing to turmoil on financial markets.

But in a televised address Friday evening, Prime Minister Naoto Kan promised the traumatised nation: "We will overcome this tragedy and recover... We will once more rebuild Japan."

Recalling Japan's recovery from the ashes of World War II, Kan promised "firm control" of the disaster and said: "We are in a situation in which this crisis is truly testing us as a people."

Japan and its G7 economic allies on Friday intervened jointly in world currency markets for the first time in a decade to calm the turmoil, pushing down the yen as intended and helping to lift battered Tokyo shares.

Japan's nuclear agency has hiked the Fukushima accident level to five from four on an international scale measuring up to seven, an admission the crisis now at least equals the 1979 Three Mile Island accident in Pennsylvania.

Japanese and foreign experts are stressing that there is only a very low risk of radiation contamination beyond a 20-kilometre exclusion zone, and say the accident does not compare to the Chernobyl disaster in 1986.

However, fears of radiation hold a terrifying grip in the only country to have suffered a nuclear attack, when US atom bombs in 1945 finally brought Japan to surrender in World War II.

The threat of a nuclear disaster carries a particular resonance for Ayako Ito, who at 84 is old enough to recall the dropping of the US bombs on the cities of Hiroshima and Nagasaki.

"The most difficult part is that you can't see it but people can just disappear like that," she told AFP at her hillside home in Kamaishi, one of the towns that bore the full force of the towering 10-metre (33-foot) tsunami.

"We're already not eating or drinking, and now this is happening to us? It's very difficult," she said.

A major international relief operation is under way for the homeless and millions left without water, electricity, fuel or enough food in Japan's northeast.

But thick snow has covered the wreckage littering obliterated towns and villages, all but extinguishing hopes of finding anyone else alive in the debris and deepening danger and misery for survivors.

The absence of electricity in the affected areas means little access to television news and newspapers are very hard to come by. So news about the nuclear crisis is often turning into exaggerated and alarming rumour.

Many nations have shifted embassies out of Tokyo, and the mood grew jittery far afield from Japan, with panic-buying of iodine pills in the United States and Asian airports scanning passengers from Japan for radiation contamination.

The vast capital's usually teeming streets have been quiet, although some residents headed to work as usual. The city's neon glare is dimmed at night, in line with a power-saving drive forced by shutdowns at other atomic plants.

A moment of silence was observed at 2:46 pm on Friday, exactly one week after the earthquake struck.

At one emergency shelter in the town of Yamada, in ravaged Iwate prefecture, hundreds of elderly survivors quietly stood and bowed their heads. Many of them wore face masks and overcoats. Some wiped away tears.

The confirmed dead from the disaster makes it Japan's worst natural catastrophe since the 1923 Great Kanto Earthquake, which killed over 142,000 people in the Tokyo region.

Workers Miss Deadline To Reconnect Power At Japan's Stricken Nuclear Plant (BLOOM)

By Yuji Okada, Sachiko Sakamaki

Bloomberg News, March 19, 2011

Engineers missed a deadline to restore power to the crippled Fukushima Dai-ichi atomic plant, prolonging efforts to prevent more radiation leaks as Japan's government told people nearby to cover up and avoid the rain.

Tokyo Electric Power Co. pushed back its target to reconnect a power cable to the No. 2 reactor to later today after working through the night. Power may be restored to all six reactors by tomorrow, Hikaru Kuroda, chief of the utility's nuclear facility management department, told a briefing in Tokyo.

Troops and firefighters again started pumping seawater on the plant today in an attempt to prevent fuel rods from overheating, as Tepco cautioned the tsunami-damaged cooling systems may not work even after electricity is restored. Weather forecasts indicated changing winds could start moving radiation closer to Tokyo this weekend.

"The power-line connection to the No. 2 unit didn't go smoothly," Kuroda said. "The work was done at night, and it took longer than we expected. We are trying to complete the connection by the end of today."

People living within 30 kilometers (19 miles) of the Fukushima plant along the northeastern coast should wear masks and long sleeves and stay out of the rain, Japan's nuclear safety agency said.

Reconnecting the No. 2 unit also will restore power to reactor No. 1, while reactor Nos. 3, 4, 5 and 6 may be connected by tomorrow, Kuroda said.

There's a "possibility" that the water pumps, damaged in the March 11 earthquake and tsunami, may not work once power is restored and the situation "does not allow optimism," Kuroda said yesterday. The magnitude-9 earthquake was Japan's strongest on record.

Engineers worked overnight at the Fukushima plant in a bid to get the cooling systems running again. By tomorrow, the weather may take emissions toward the capital, 135 miles (220 kilometers) south of the station, Austria's meteorological center said, using data from the Comprehensive Test-Ban Treaty Organization. At current levels, the radiation isn't dangerous beyond the immediate vicinity of the plant, the center said.

"The situation at the power plant is still unpredictable," Prime Minister Naoto Kan, who described the crisis as "very grave," said in Tokyo yesterday. "But we're making our utmost effort to control it, and we'll surely overcome this crisis."

Japan faces a "battle with time," International Atomic Energy Agency Director General Yukiya Amano said after meeting ministers in Tokyo. The earthquake and tsunami knocked out Fukushima's backup generators, pitching workers into a battle to keep the plant cool and stem radiation from the worst nuclear accident since Chernobyl 25 years ago.

A backup generator at the No. 6 reactor was fixed, Tepco said in a press release today. The unit was idle for maintenance before the earthquake.

"We must avoid being overly optimistic," Philippe Jamet, a commissioner at the Autorite de Surete Nucleaire, France's nuclear regulator, said at a briefing in Paris yesterday. "This will likely take human intervention like going into control rooms to reconnect valves."

Japanese soldiers used fire engines yesterday to dump seawater on reactor No. 3, site of an explosion earlier this week. The dousing was stopped in the afternoon as the effort replenished some water to the spent-fuel pools at the reactor, Air Self Defense Force Chief of Staff Shigeru Iwasaki said.

"On Sunday, a frontal system is crossing the region with heavy rain," Austria's Meteorological and Geophysics Center said in a statement. "Behind the front, northerly winds are predicted, increasing the risk for the region around Tokyo."

Radiation has been detected in eastern Russia at levels that pose no risk to human health, said the center, set up in 1996 to detect nuclear-test explosions. A "minuscule" amount of radiation that probably came from the damaged Japanese reactors was picked up at a California monitoring station yesterday, the US government said.

Images posted on the Austrian center's website show intense radionuclide concentrations around the reactors. Wind currents take the plume in a winding pattern over the Pacific Ocean, setting the particles adrift in north- and south-easterly patterns.

"I can't see members of the general public exposed to dangerous levels of radiation," Don Higson, a fellow at the Australasian Radiation Protection Society and former adviser to the International Atomic Energy Agency, said by phone today.

The failure of backup generators used to pump cooling water forced the venting of gas that caused explosions in at least three of the buildings surrounding Fukushima's six reactors. A fire also started in a pond containing spent fuel rods from reactor No. 4.

Kan said the government is being as transparent as possible about the crisis, rebutting criticism that it held back information.

"Everything has been disclosed to the Japanese public," Kan said. "We have shared what we know with the international community."

Japan upgraded its warning for some parts of the plant from a four to a five on an international scale of seven, the IAEA said yesterday. The five rating is for accidents with wider consequences. The Chernobyl disaster in 1986 rated seven.

Tepco, Asia's biggest utility, acknowledged its No. 1, 2 and 3 reactors at the site had been changed to a level five rating, according to a statement on the company's website.

If the power cable can be linked successfully, power may be restored to reactor Nos. 3 and 4 tomorrow, Kaoru Yoshida, a utility spokesman, said in a briefing to reporters. Still, there is a potential risk of an explosion if the power is reconnected to the reactor, Japan's Nuclear and Industrial Safety Agency said. The agency didn't provide details.

The greatest risks at Fukushima may still come from the spent fuel pools sitting atop the six reactors.

The nuclear agency said March 17 there is a possibility of no water at the No. 4 reactor's spent-fuel cooling pool. If exposed to air, the fuel rods could decay, catch fire and spew radioactive materials into the air.

In Japan's Danger Zone, The Stranded Await The Merciful (NYT)

By Martin Fackler

New York Times, March 19, 2011

YAMAGATA, Japan — Some are stuck in their homes, fearful of radiation, heeding government warnings to stay indoors, cut off without electricity or phone service. Others want to leave but have no gasoline. Still more, those whose homes were ruined, wait helplessly for evacuation at crowded shelters. All face dwindling supplies of heating fuel, food and water.

A week after an earthquake and tsunami devastated their communities and set off the worst nuclear accident since Chernobyl, the plight of the thousands still stranded in areas near the stricken reactors — many too old or infirm to move — has underscored what residents say is a striking lack of help from the national government to assist with the evacuation of danger zones or the ferrying of supplies to those it has urged to stay inside.

“Those who can leave have already left,” Nanae Takeshima, 40, a resident of Minamisoma, a city of 70,000 about 16 miles from the nuclear plant that lies within the area covered by the advisory to stay indoors, said by phone from her home. “Those here are the ones who cannot escape.”

Instead, the task has fallen to some local governments and even private companies and organizations that have made limited but heroic efforts to help those left behind, adding to the burden of coastal communities already overwhelmed by tens of thousands of people left homeless and the search for bodies, which the nuclear evacuations have now made impossible.

Residents reached by telephone said the order by the government to evacuate a 12-mile radius around the Fukushima Daiichi Nuclear Power Station, as well as the request for those who live 12 to 18 miles away to stay indoors, has turned communities like Minamisoma into virtual ghost towns, populated mostly by the unwilling and the unlucky.

One is Masahiro Sakashita, who had prepared for the worst from the very beginning, but knew he could not leave. The director of the Fukujuen elderly care center, just 15 miles from one reactor, he sent his younger employees home as Japan's battle to prevent nuclear catastrophe started, telling them to flee.

He and 19 other senior staff members stayed behind to keep caring for the center's 100 or so mostly bedridden residents, the oldest of whom is 102. He said they were cut off from the outside world, with electricity and delivery of food and other supplies disrupted. “I figured that at most we had enough food and water to last five, maybe six days,” said Mr. Sakashita, who spoke by phone from Minamisoma. “We were going to stay with them to the end.”

The end came Friday, when a similar care center in distant Yokohama, near Tokyo, volunteered to take in Fukujuen's residents after seeing their plight reported on television and sent six buses to rescue them.

Minamisoma has been using buses to begin evacuating the tsunami survivors and other residents to areas farther away from the nuclear plant. Other cities have helped by sending buses, as have some local companies.

One is the Shima Company, an auto-scraping business in Minamisoma, which hired buses to take more than 170 of its employees and their families to the city of Yamagata, 55 miles away, the company's vice president, Kazuki Shima, said on Twitter.

With the help of other cities and the Fukushima prefectural government, Minamisoma has also moved all the tsunami survivors in 8 of its 29 shelters to other areas. At Haramachi No. 1 Elementary School, buses came Thursday to take about 300 survivors and other nearby residents to Gunma Prefecture, outside Tokyo.

The principal, Atsuo Takano, who runs the school's shelter, said that the school had begun to fill again with new refugees, those driven from their homes because they ran out of food and fuel. While he has sent his own family to an inland city for safety, he said he would keep working until the last person in the school's shelter was safely evacuated.

“Of course I'm worried, but I am responsible for this school,” he said. “They told us that nuclear power was 100 percent safe, but we see now that nothing can ever be 100 percent safe.”

Many of those left behind are elderly people whose houses survived the earthquake, but who feel abandoned as other residents flee the nuclear crisis. They say city officials and the police are nowhere to be seen, while stores and offices are closed and streets are empty.

Hatsuko Arakawa, 78, said that despite the fact that her city, Iwaki, was outside the area covered by the government order to stay indoors, delivery trucks refused to enter. As a result, she said, she felt marooned in her home, with no more propane for her heater and dwindling supplies of rice and water. She endures the winter cold by spending the entire day wrapped in a futon.

“Unlike those in the refugee centers, I have no contact with the outside,” she said. “My supplies are reaching their limits.”

Misao Saito, 59, said he stayed in Soma, a small port city 27 miles north of the nuclear plant, because of his parents, who are too old and infirm to flee. He said his 80-year-old father had a bad leg, while his mother, 85, suffered from mild dementia. They now live together in an elementary school that was turned into a shelter after the tsunami damaged their home.

Mr. Saito, a fisherman, said he had no way to make a living because the waves destroyed Soma's fishing harbor.

“It's scary, but when it comes to the nuclear accident, I have no choice but to die here,” he said. “I think this is the government's fault. The prime minister should have had a better grip on what was happening at that nuclear plant.”

Some of those who remained said they did so by choice. One, who asked that she be only partly identified as Misako W., seemed proudly defiant in her desire to remain in Minamisoma with her husband, a banker. She was also angry about her community's fate. "Minamisoma is defunct," she said.

She asked that her full name not be used because she feared discrimination in the future because of the nuclear crisis, just as survivors of the 1945 atomic bombings were ostracized out of a misplaced fear that they could spread radiation sickness.

"Many here have lost their homes, and now they have to fight the fear of the nuclear plant," she said. "An earthquake, tsunami and now nuclear fears — there is no other place in the world as unfortunate as here."

Makiko Inoue contributed reporting.

This article has been revised to reflect the following correction:

Correction: March 18, 2011

An earlier version of this article misspelled the name of a small port city in Japan in one reference. It is Soma, not Souma.

Try-Anything Strategy In Nuclear Crisis Draws Criticism, And Sympathy (NYT)

By Ken Belson

New York Times, March 19, 2011

For a country that is known for its industrial robots, advanced cellphones and hybrid vehicles, Japan's efforts to cool the hobbled nuclear reactors in Fukushima Prefecture have seemed, at least to a world watching on television, to be decidedly low-tech.

In the days after the earthquake and tsunami damaged the power plants, employees from Tokyo Electric Power Company, which owns them, struggled largely out of the cameras' view. But after high levels of radiation made it too dangerous for workers to get near some of the reactors, the power company, which is known as Tepco, and the government resorted to a series of increasingly desperate and dramatic steps.

The company tried flooding the stricken reactors with seawater. The police sprayed them with hoses. Then military helicopters used big buckets to drop water on them. On Friday, fire trucks with high-powered water cannon arrived. There are efforts to run a giant extension cord to the plant to power a cooling system.

With all of Japan's technological prowess, was this the best it could do? Were these Rube Goldberg remedies, cobbled together because everything else failed? Or were they canny solutions to an increasingly dire problem? Just as important, can the measures cool not only the reactors but also the anxiety of Japanese who suspect that they are in harm's way?

The answers depend on where you sit.

A number of nuclear power and crisis management experts say that Tepco and the government were woefully unprepared to deal with the explosions at the plants. They were caught off guard by the impact of the earthquake and tsunami, the experts say, and the ad hoc nature of the response is a result.

"They are attacking the problem in a piecemeal fashion," said Atsuyuki Sassa, the former director general of the Cabinet Security Affairs Office in Japan. "This isn't crisis management, but a management crisis."

More sympathetic observers, including some Japanese, take the government at its word: no one could have adequately planned for the twin blows of one of the biggest earthquakes on record and the tsunami it created. The response may seem scattershot, they say, but that is a function of the unpredictable nature of nuclear reactors when disaster strikes.

Appearances count, too, they say. The Japanese government has tried to reassure its jittery citizens that though the problems are severe, every resource possible is being thrown at them. In that light, the helicopters and water cannon do not appear to be ham-handed actions in the face of a runaway disaster, but signs that no effort is being spared.

Politicians have tried to underscore their determination to tackle the crisis by discarding their blue suits and neckties and donning the jackets favored by police officers and engineers. Even the governor of the Bank of Japan, Masaaki Shirakawa, whose role in the crisis has largely been limited to pumping money into the economy, has worn one at a news conference.

"The government would like to show it is doing whatever it can do," said Masahiro Horie, the dean of international affairs at Japan's National Graduate Institute for Policy Studies, who worked for 35 years in the government. "It's natural that they try to keep people calm, do everything possible and not give any information that might cause a panic."

The Japanese are not alone, of course, in having to improvise on the run. Last summer, Americans could only watch as BP and a host of oil industry experts tried — and repeatedly failed — to get control of a gushing well on the floor of the Gulf of Mexico. BP officials initially thought they could seal the well in a way that would let them save it. When that proved impossible, they resorted to more drastic steps, including pumping in cement to seal the well — nearly five months after the rig explosion that created the spill.

A solution to the Fukushima catastrophe remains elusive. After failing on their own, Tepco officials have been forced to seek help outside the company. Having the police, firefighters and the Self-Defense Force join the effort has reassured some people, but others consider those moves as signs that the emergency is spiraling out of control.

On Friday, the Japanese nuclear safety agency raised its assessment of the problem's severity — ranked on a 7-level international scale — to 5 from 4. Level 4 denotes incidents with local consequences; Level 5 indicates broader consequences. For comparison, the partial meltdown of the reactor at Three Mile Island near Harrisburg, Pa., in 1979 was rated a 5.

"Some people might think the arrival of the Self-Defense Forces and helicopters mean that strong measures are being applied, but I think it's the opposite," said Tadae Takubo, who taught international politics and national security at Kyorin University in Tokyo. "They seem like desperate measures to me. It's all too late."

Some of the Tepco workers, police officers and others who have fought to cool the reactors may have been exposed to high levels of radiation. In a nation that values selflessness and determination, it is not surprising that they have been praised in Japanese news reports as heroes for their willingness to sacrifice their health for the sake of the nation.

Though their efforts have yet to succeed, the fact that someone is doing something — anything — is reassuring to some.

"I don't know — I'm a little skeptical about dropping water out of a helicopter," said Akiko Sato, 28, an office worker who was shopping in Tokyo's Ginza district. "But I like to think what they're doing with the water cannons might be useful. I think they're really trying."

State Department Expands Voluntary Evacuation Area (AP)

Associated Press, March 19, 2011

WASHINGTON — The State Department is expanding the area for voluntary evacuations for family members of US personnel in Japan.

The department issued a travel warning late Wednesday warning Americans to avoid travel to Japan and authorizing evacuations for family members of its personnel out of Tokyo, Nagoya and Yokohama.

The department issued an updated warning Friday night that expanded the evacuation area to 13 other prefectures. The warning also authorized departure for family members at Misawa Air Base in northern Japan because of damage from the earthquake and the resulting tsunami a week ago.

The warning gave no details on why the evacuation area was expanded.

More Foreigners Are Seeking To Flee Japan (NYT)

By Mark McDonald, Sharon LaFraniere

New York Times, March 19, 2011

The exodus from Japan grew Friday as foreigners sought to flee the threat of radiation from the stricken Fukushima Daiichi nuclear power plant.

About 20,000 resident foreigners have indicated their intent to leave the country by requesting re-entry permits from the Tokyo Immigration Bureau, according to Kyodo news agency. Tokyo is about 140 miles south of the plant.

Ticket agents said flights out of Tokyo to South Korea and China were booking up quickly. A representative of China Southern Airlines, which flies from Tokyo to the Chinese coastal city of Dalian, said its flights were sold out until April. A representative of China Eastern Airlines, which flies from Tokyo to Beijing and Shanghai, also said seats "are in short supply." An Air China agent said that the airline added two flights from Tokyo to China on Thursday and that some seats remained on its flights from Tokyo to Beijing.

Xiao Er, a Chinese businessman temporarily working in Inner Mongolia, said he had tried for three days to secure airline tickets to China for his Japanese wife and daughter, who live less than 170 miles from the crippled nuclear plant.

"Right now, my family is extremely panicked," he said in a telephone interview on Friday. "Nobody is going outside. Everyone is hiding in their rooms, afraid of coming into contact with the radiation."

He said that neither he nor his wife had been able to buy tickets to China for her and their daughter. Finally, a relative of his wife secured two tickets for about \$1,500 each. An air ticket out of Japan at the moment is almost "something that money can't buy," he said.

The South Korean government said that Korean Airlines and Asiana Airlines had added 4 to 11 flights a day from Tokyo to South Korea and had switched to bigger aircraft. Should an emergency evacuation become necessary, a Foreign Ministry official in Seoul said, South Korea is prepared to send military planes and warships to rescue its citizens.

"The government will mobilize all means, such as charter planes, vessels, military transport planes, Coast Guard patrol ships and warships to help evacuate our people," the second vice foreign minister, Min Dong-seok told reporters.

Foreign governments have taken varying approaches toward the evacuation of their citizens. Some countries recommended evacuation for those anywhere near the danger zone around the crippled reactors at the Fukushima nuclear plant. Other countries made arrangements to get their citizens out of Japan altogether.

France, Germany and Hong Kong, among many others, arranged charter flights for people wishing to pull back from Tokyo to Osaka — or to leave the country. Britain said that it was chartering jets to fly between Tokyo and Hong Kong, and that Britons directly affected by the tsunami would not be charged for the flight.

The United States approved plans for voluntary evacuations of families and dependents of its military personnel and embassy employees in Japan, including those at air and naval bases 200 miles or more from the plant.

The American military presence in Japan includes about 38,000 troops plus nearly 50,000 dependents, civilian employees and American contractors.

But not all foreigners were fleeing. One Briton said he was not about to leave.

Michael Tonge, a schoolteacher in Sendai, the closest major city to the quake's epicenter, said that many of the expatriates in his area were "forming groups using things like Facebook to try to get aid and help to the people who need it."

"Sendai has been my home for over five years," Mr. Tonge said, "and the people of this area have taken me in and made me feel very welcome. I can't leave them now, after this. I think that's how a lot of the foreigners here feel, too."

Mr. Min, the South Korean Foreign Ministry official, also said that South Korea had moved its team of rescue workers in Japan farther from the reactors out of concern for their safety. The team moved from the city of Sendai, in the tsunami-hit region, to the western coastal town of Niigata, he said. South Korea and Taiwan both continued to expand radiation checks of passengers arriving on airplanes from Japan.

Since Tuesday, more than 11,000 people have voluntarily submitted to checks at airports in Taiwan, said a spokeswoman for the Department of Radiation Prevention of Taiwan's Atomic Energy Council. Radiation residue has been detected on just 37 of them, said the spokeswoman, who identified herself only as Ms. Xu. She said the highest level was about three times above normal, not enough to cause any health concern. Those with higher levels were given plastic coveralls and shoe covers. All were advised to wash their clothing and shoes when they reached their destination.

Seoul's Incheon international airport has established two voluntary checkpoints for radiation. Anyone who does not pass the first one is checked again to see if the levels of radioactive residue are high enough to be considered contamination. So far, according to the Nuclear Emergency Response Team at the Ministry of Education, Science and Technology, three people have been checked at the second gate. Two were cleared and sent home. A third person was checked again without shoes and coat after a small amount of residue was found on them, and was then cleared as well and sent home. The contaminated clothing was kept by the inspectors.

Japan Cites Radiation In Milk, Spinach Near Plant (AP)

Associated Press, March 19, 2011

TOKYO – Spinach and milk taken from farms near Japan's crippled nuclear plant exceeded government-set safety limits for radiation, the government said Saturday, in the first report of food contamination from the accident.

The tainted milk was found 20 miles (30 kilometers) from the plant while the spinach came from a neighboring prefecture, Chief Cabinet Secretary Yukio Edano told reporters.

While the radiation levels exceeded the limits allowed by the government, Edano said that the products "pose no immediate health risk" and that further monitoring was being conducted on other foods. If tests show further contamination, Edano said food shipments would be halted from the area.

"It's not like if you ate it right away you would be harmed," Edano said. "It would not be good to continue to eat it for some time."

The spinach radiation level is about one-fifth of one CT scan, he said.

"We are doing our utmost efforts to ensure the health of our people," Edano said.

Nuclear reactors at the Fukushima Dai-ichi plant began overheating and leaking radiation into the atmosphere in the days after the March 11 earthquake and tsunami overwhelmed its cooling systems. The government admitted it was slow to respond to the nuclear troubles, which added another crisis on top of natural disasters which left an estimated more than 10,000 dead and displaced more than 400,000 others.

Emergency crews worked Saturday to cool the reactors and fuel storage pools by spraying water and to restore electricity. Edano said the situation while bad was not growing worse.

"The situation at the nuclear complex still remains unpredictable. But at least we are preventing things from deteriorating," Edano said.

A Tale Of Two Cultures (NSWK)

The earthquake in Japan reveals a divide of culture, philosophy and geology between East and West.

By Michio Kaku

Newsweek, March 21, 2011

Rudyard Kipling famously said, "East is East, West is West, and never the twain shall meet."

Yet since Japan's devastating earthquake, the entire world has been riveted by heart-breaking images in the East revealing the horror of a nation whose northern coastline was reduced to rubble. Several nations have rallied behind Japan, sending in badly needed aid and other offers of help. The resounding support and generosity offered by the world community reveals the common bond, the humanity, that East and West share, contradicting Kipling.

But a closer look at the human dimensions of this historic crisis reveals subtle differences of culture, similarities of geography and lessons for both sides of the world.

The sharpest link connecting East and West is simple geography. Like two Siamese twins joined at the hip, the Pacific Ring of Fire forges a common destiny between East and West. Ninety percent of all earthquakes take place along this deadly ring, which extends from the Philippines, Japan, Alaska, and South America. Tsunamis, tidal waves caused by earthquakes under the oceans, span the Pacific as if it were a pond, traveling like a jetliner at 500-700 miles per hour. For example, the Cascadia fault off the coast of Washington once erupted with a 9.0 earthquake; however, scientists had difficulty dating it. But realizing that a giant tsunami must have slammed into Japan, they were able to give the precise date and time of the earthquake by examining Japanese accounts of the tsunami of January 26, 1700.

But there are also subtle, revealing cultural differences between East and West in their reaction to tragedy.

In spite of monumental collapse and ruin, the Japanese politely wait in long lines for hours, without once complaining. Law and order are respected at every step. The Shinto-Buddhist tradition, which stresses social harmony and cohesiveness and looking out for your neighbor, is deeply ingrained in the culture.

This stands in sharp contrast to some of the spontaneous reactions that have flared in the West. In the US, for example, a simple blackout back in 1977 unleashed an embarrassing wave of looting and mayhem, with marauding bands of thieves making off with anything they could carry.

When Hurricane Katrina hit New Orleans in 2005, there was a rapid collapse of civil authority as society disintegrated into an orgy of chaos. Louisiana Governor Kathleen Blanco's comments summarized the city's descent into lawlessness: "These troops know how to shoot and kill and I expect they will."

The origin for this difference probably has deep historical roots. Japan is ethically and socially quite homogeneous, in part because of its 300 years of isolation during the Tokugawa Era, before opening to the West in the 1860s. This extraordinary long period of peace and stability created a strong sense of community and consensus. The US, by contrast, is quite diverse, a country of immigrants patched together from all corners of the world, seeking a new life based on individual initiative and drive."

The strong cohesiveness of Japanese society is also a mixed blessing. It helps Japan to recover from extreme hardship, but it also tends to slow down the development of new off-beat ideas and technology, where the key is to be nimble and creative. The Japanese economy is like a huge ocean liner; it performs miracles when headed in the right direction, but can stagnate for over a decade if it is not.

The difference between the East and West is also illuminated in comparing the reactions to twin earthquakes on each side of the globe, which provoked two very different responses and helped to shape national character.

In the US, it was the San Francisco earthquake of 1906, which set off raging fires that incinerated much of the city and did more damage than the quake itself. (My grandfather was actually in this earthquake and participated in the clean-up operation.) In Japan, it was the Great Kanto Earthquake of 1923, which leveled Tokyo and caused 140,000 in casualties.

These twin earthquakes sparked two different responses. In Japan, there has been an almost obsessive attention paid to earthquakes. Earthquake drills are part of life in Japan, instilled in the memory of every child. The thousands of tiny earthquakes one experiences in Japan is a gentle reminder of the big one to come. And building codes are among the toughest in the world.

In the US, outside of California, there is relatively little focus placed on earthquake preparedness. The memory of the 1906 earthquake has faded over time. It is especially hard for politicians to get worked up over an event that didn't happen in their voter's lifetime. For example, the New Madrid fault (near Memphis) erupted in 1811-12 with a series of near 8.0 earthquakes with a force so great it seemed to reverse the Mississippi river for a short time. But since much of the US was farmland back then, most Americans have never heard of this earthquake, and it is only an obscure footnote in dusty history books (or on Wikipedia pages).

But there are also important geopolitical forces which have separated East and West. Although Japan has a “nuclear allergy” (stemming from the horrific bombing of Hiroshima and Nagasaki), she also suffers from a curse: the world’s third largest economy has almost no energy resources of its own. The bottom line is that almost all of its energy is imported. So Japan is perhaps the most energy conscious nation on earth, where recycling and energy conservation are almost a religious duty. The US, blessed with resources of its own and cheap oil, has the luxury of canceling all orders for nuclear power plants even before the Three Mile Island accident of 1979.

So Japan has embraced the “Faustian Bargain”: Faust was mythical figure who sold his soul to the devil for unlimited power.

And what also binds the East and the West is the grim shadow of The Big One, the mother of all earthquakes which might reduce Tokyo or LA to rubble. Ironically, in spite of the historic damage done by this earthquake, it is not The Big One. This earthquake mercifully struck mainly farmland in northern Japan. Some geologists fear that we might be overdue for another earthquake which shakes Tokyo to its foundations. The Big One which levels a city with 13 million people has yet to hit Tokyo.

In the US, according to some simulations done by the US Geologic survey, a hypothetical 9.0 earthquake off Alaska or Washington might unleash a tidal wave which would plow into LA with a 15 foot tall wave, flooding everything inland for 2 to 3 miles. Malibu and Orange Country would be especially hit hard.

And if a 8.0 earthquake on the San Andreas fault hit LA, it could topple about 15 percent of buildings in downtown LA, and spark 6,000 to 7,000 raging fires across the city. And our nuclear power plants might be in harms way: the San Onofre reactor near San Diego, and the Diablo Canyon between San Francisco and LA.

What is unsettling is that professor Yuri Fialko of University of California San Diego did an exhaustive study of the stresses along the San Andreas Fault, and found that it has already been stressed to a level sufficient to set off The Big One. In 2005, he concluded, “It could be tomorrow or it could be in the next 10 years or more from now.”

And lastly, the final link between East and West is that this tragedy is sparking an international debate about the future of nuclear energy, precisely at a time when the great powers are looking at the energy problem. Germany put all nuclear extensions on hold. Decisions now made in the shadow of this crisis could determine energy policy for a generation.

Maybe it is time to revisit the Faustian Bargain.

Michio Kaku is a Professor of Physics at CUNY, author of Physics of the Future, and Science Channel Host

Aftermath: How Japan Will Recover From The Quake (TIME)

By Hannah Beech / Akaushi

Time, March 17, 2011

Koji Haga wasn't just near the tsunami that devastated northern Japan on March 11. He was on top of it. Somehow the fishing-boat captain kept his pitching vessel upright as the churning force of the wave attacked the shore, turning his coastal community of Akaushi into a graveyard of rubble and probably killing upwards of 10,000 people in the country's north. I met him barely 24 hours after he'd returned to the spot where his house once stood. Aside from the roof, which landed not far from his building's foundations, there was nothing recognizable that remained of his home. A few mementos were scattered in the kaleidoscopic wreckage: his waterlogged family albums were lodged in the axle of an upturned car, while his daughter's pink stuffed animal lay facedown in the mud.

Haga ignored most of these keepsakes. His first priority was scooping up sodden rice to take back to his hungry family and neighbors, who had escaped the wave by scrambling to higher ground. Yet even as the fisherman packed the ruined grain into a sack, he displayed the fortitude and generosity that have so defined this devastated region of Japan. Haga was embarrassed that the rice was spoiled, but he invited me to take some. A neighbor had found a bottle of grain alcohol bobbing in a fetid pool. Would I like a fortifying gulp? The next day, Haga would join Akaushi's other survivors to begin the slow clearing and reconstruction of a village virtually wiped off the map. "We'll all try our best to do this together," he said, not a note of pity in his voice. "That's the Japanese way, isn't it?" (See exclusive photos of the devastation in Japan.)

Natural disasters lay bare the best and worst in people, stripping away hubris and artifice. The tragedy in Japan — a 9.0-magnitude earthquake followed by a killer tsunami and compounded by a nuclear accident at a tremor-and-tidal-wave-damaged power plant — brought into relief the remarkable resilience of the Japanese people. Defining a national psyche can be a tricky undertaking. But the dignified stoicism with which the Japanese have faced this tragedy is extraordinary to see.

Japan's resilience, however, is not solely to be explained in terms of some innate psychological trait that its people possess. It is also manifested in the nation's preparedness. As high as the official death toll will climb in the coming days, there is little doubt that the complex tsunami and earthquake early-warning systems that Japan has in place saved tens of thousands of lives. Now as Japan struggles to overcome one of the worst natural disasters in its history — though the earthquake on March 11 was

the most severe in modern times, far fewer died than in the Great Kanto Earthquake of 1923 — it will need even more reserves of fortitude to remake a nation that is all too familiar with losing everything and starting anew.

Marooned on the edge of a continent and perched on one of the most seismically active spots on earth, Japan, for all its modern comforts and luxuries, is a country that lives on the brink of disaster. Even its language is a testament to how this sense of precariousness has shaped the national consciousness. I say this as someone who is half Japanese and should know how to articulate a nation's mind-set. But even I find it hard to define *gaman*, a unique mix of endurance and self-abnegation that practically all people I spoke to in the disaster zone used to describe their situations. Or what about *shoganai*, which is often translated too simply as "There's nothing you can do"? (See how Japan became a leader in disaster preparation.)

That's not quite right. The fatalism implied in the phrase denotes not just a helplessness at life's vagaries but also a calm determination to overcome what cannot be controlled. Even those who never lived through Japan's last days of privation during World War II know what is required of them as Japanese citizens. "We, the young generation, will unite and work hard to get over this tragedy," says Mamiko Shimizu, a 24-year-old graduate student. "It's now our time to rebuild Japan."

This earthquake and tsunami may turn out to be the costliest natural disaster in history, outpacing even Hurricane Katrina in 2005. The gravity of the situation was underscored when Emperor Akihito appeared on March 16 for his first-ever televised address to say he was "praying for the safety of as many people as possible," a sentiment repeated by a grim-faced Prime Minister Naoto Kan in daily public appearances. Nevertheless, despite the cost and loss of life, Japan's ultra-sophisticated earthquake-and-tsunami-alert system increased the odds for everyone. Survivors I met told versions of the same story. The earthquake unleashed its fury. Then because of radio broadcasts, text messages, sirens, firemen's door-to-door calls and just plain instinct honed by years of disaster drills at school, people from towns and villages along the coast — Japan's population is concentrated in an often narrow coastal plain — immediately fled to higher ground. (Comment on this story.)

Japan is the only country on the planet with an earthquake early-warning system in place. It is also the only one with a truly successful tsunami-alert scheme — 300 earthquake sensors scattered in territorial waters that can predict the likelihood of a tsunami in minutes. Tsunami evacuation routes are posted up and down the coast. When the government says to evacuate, the Japanese people listen.

See TIME's complete coverage of the crises in Japan.

See how to help earthquake, tsunami victims.

A sense of order, moreover, is not confined just to government manuals. In the wake of the disaster, there has been no looting, no rioting. Even as people hoping for food, water and fuel wait in kilometer-long lines in freezing weather — sometimes without success — tempers have not flared. Rationing of basic supplies has been accepted with few complaints. The assumption is that everybody has to share the pain equally. At Masuda Middle School, one of hundreds of emergency centers housing some 450,000 homeless people, the loudspeaker emitted a crescendo of friendly announcements. "Please come enjoy your piping hot rice now," went one. "Please be alert to the fact that the fish roe is a bit spicy, so it may not be suitable for small children," went another. In the emergency shelter at Koizumi Middle School, people not used to wearing shoes indoors constructed origami boxes made of newspaper in which to nestle their footwear.

Even the expressions of grief in Japan's worst affected zone have been restrained. For foreigners used to the keening anguish of natural disasters, the hushed sorrow must be mystifying. In Japan, tears do fall, but less noisily. When Masahira Kasamatsu, 76, found out after three harrowing days that his missing daughter was safe, he merely nodded and repeated slowly, "She's O.K., she's O.K." That might sound overly subdued, but I understand it. When I would see my Japanese grandmother after a long absence, we would never hug, merely exchange a quick squeeze of the hand. My affection for her was no less for the lack of an embrace. (See "After Disaster: What Defines a Country's Resilience?")

I thought of my grandmother as I walked the apocalyptic wastelands that had been tidy seaports just days before. Wheelchairs were some of the few recognizable jumbles of metal in the miles upon miles of detritus. Japan is the most rapidly aging society on earth. Because of a low fertility rate, the country's population is expected to shrink one-quarter by 2050. Many of those who perished in the quake and tsunami were simply too old to escape. Nursing homes are among the places that most urgently require aid. Elderly Japanese who evacuated to emergency shelters relied on the younger generation for help. This is a nation where Confucian respect for the aged holds. "If it wasn't for the young people in our family, we wouldn't have known anything," says 84-year-old Kimi Sakawaki, whose son surfed the Internet at home to find the evacuation center at Yonezawa gymnasium.

Still, the elderly who survived the March 11 catastrophe know better than any other Japanese how quickly their homeland can revive itself. My grandmother used to recall the US firebombing of Tokyo during World War II, which reduced half the capital to rubble. The pictures of that era bear a haunting resemblance to the images coming out of northeastern Japan today. Yet within

two generations, Japan had transformed itself from a defeated land into the world's second largest economy. Incomes were spread relatively equally, with little poverty to speak of. Japan took on a contented, comfortable air.

Perhaps too much so. For while there are lessons to be learned by other nations from both Japan's postwar success and its resilience in the face of disaster, rigid hewing to the rules and the suppression of individual creativity for the common good can go too far. They may, indeed, have undermined Japan's economic miracle. (Just try to order a salad with the dressing on the side in Japan and watch the consternation of the waiter at such an unorthodox request.) After the bubble economy of the 1980s collapsed in 1991, Japan entered a long economic slumber, from which it has yet to fully wake. Last year, China surpassed Japan to take the spot as the world's No. 2 economy. (See pictures of Japan's six days of chaos.)

Similarly, in the earthquake and tsunami zone, adherence to reams of regulations unquestionably saved lives. But it also hampered rescue efforts, as each tsunami warning or earthquake alert — as of March 16, about 50 major aftershocks and several small tsunamis had been recorded — forced some official crews and convoys to halt work for far longer than needed. More fundamentally, an inability to respond spontaneously and creatively to uncharted events has prevented aid from getting to survivors quickly enough. Radio stations broadcast urgent calls for emergency supplies of infant formula, adult diapers — even seaweed, which is rich in radiation-fighting iodine. But four days after the quake, highways were mostly devoid of the kind of aid convoys that usually converge on a disaster zone, in part because of the colossal scale of the catastrophe and central-government weakness. It's hard to avoid the awkward question, What does Japan do when the sheer magnitude of tragedy overwhelms its plans?

Of equal importance is the cone of silence around the damaged Fukushima Daiichi nuclear power plant. Even as overheated fuel rods caused radiation to leak in what scientists called the worst nuclear accident since Chernobyl, information from the government and power-plant officials was piecemeal and tardy. The head of the International Atomic Energy Agency, himself Japanese, complained publicly about the authorities' slow response. "I would like to receive both more timely and more detailed information from our Japanese counterparts," said the official, Yukiya Amano. Locals agree. "The nuclear-power-plant disaster reminds me of World War II, when we didn't get enough information about what was really going on," says 79-year-old Noriko Wada. "The government only gave the information it wanted to, and people needed more details." (Comment on this story.)

But even as a country waited anxiously to see what would happen at the crippled reactor site, ordinary Japanese quietly came to one another's rescue. Just hours after a fire at the Daiichi complex, Kichi Ishikawa drove deserted roads not far from the plant to deliver noodles to the needy. "I'm just doing what needs to be done," he said. "It's nothing special." For Kenichi Numata, there was little time to even explain his actions, much less process his own sorrow. After the earthquake, he and 1,600 others dashed to the airport in Sendai, the region's largest city, and watched as dozens perished in the surrounding tide of mud and debris. Numata knew that his house had been swept away by the tidal wave. But he had a self-imposed task: organizing dazed locals trying to figure out whether their missing family members might be alive. Just in the past few hours, he had told several people their kin had died. It was not an easy job. "I'm sorry," he said, bowing deeply in apology. "But I had better go back to work." — With reporting by Lucy Birmingham / Tokyo, Tai Dirkse / Sendai and Krista Mahr / Yonezawa

See "Is Japan's Nuclear Disaster Out of Control?"

Read about Japan's psychological scars.

Policy In Ashes (NSWK)

Capitals around the world are taking pause on nuclear power. Except Washington.

By Henry Sokolski

Newsweek, March 21, 2011

Suddenly, watching Japan's desperate water-cannon attempts to stave off successive nuclear meltdowns at the Fukushima Daiichi nuclear-power plant, we are all supposed to be tech-savvy atomic engineers. Out of nowhere, our job as John Q. Public now involves sorting through a blizzard of contradictory headlines about what is—and just as much, what is not—happening inside a hugely complex nuclear-power plant halfway around the world.

At once, news reports and public officials told us the reactor smoke, fire, and explosions were in no way comparable to the 1986 nuclear disaster at Chernobyl, the worst in history. Yet, in seeming contradiction, we also have been told that these same flare-ups may well end up salting large swaths of Japan with long-lasting radiation producing—as experts put it—potential “Chernobyl-like” results.

If you have been listening at all—and really, it's been nearly impossible not to—the nuclear world we had before Fukushima is radically different from the one we have now. Clearly the disaster response has not gone well. The many experts who initially insisted that Japan's nuclear-safety systems were working because the reactors' containment vessels had not yet been breached

now have gone silent. Why? A week into the crisis, two reactors' containment vessels sprang serious leaks. There is more than a chance that radioactivity might also spew from one or more improperly cooled spent-fuel-reactor ponds. That's bad news.

So bad that the focus has turned to casualties. The safety systems, at least as NEWSWEEK went to press, had kept the worst of the radiation from spreading far. Some have seized the fact, and the news that no one has yet died, to argue that nuclear power is safe. Stay tuned.

Most world leaders didn't wait to act. Germany announced it would shut down (temporarily, at least) seven of its oldest reactors. Major safety reviews and licensing breathers have also been announced by France, the European Union, Thailand, Switzerland, the Philippines, India, and even China.

The collective pause is striking given that countries like India and China serve as the poster children for the nuclear industry's much-heralded global renaissance. According to the International Atomic Energy Agency, of the 65 reactors currently under construction around the world, just about half of them (32, to be exact) are found in these rapidly emerging countries.

In the US, however, President Obama and Secretary of Energy Steven Chu repeatedly tried to reassure the American public. But at best they have been playing catch-up to the rest of the world.

When asked early on if the US should put on the brakes, both the president and Chu insisted no. Instead, they proceeded to promote US nuclear power as if the catastrophe at Fukushima hadn't even happened. Regarding the president's imminent trip to Latin America, the White House announced that it would sign a memorandum of understanding on nuclear-power cooperation with earthquake-prone Chile. Meanwhile, the administration is still pushing Congress to approve \$36 billion more in federal loan guarantees for the construction of new reactors. Obama and his nuclear team finally did announce a formal safety review on March 17, but that came a full week after congressional pleas from both pro- and anti-nuke lawmakers making noise on Capitol Hill.

They were adamant and far more sensitive to something the president and his nuclear advisers seemed reluctant to discuss: the fretful fact that nearly a third of the reactors operating in the US are of a similar design as those that have gone so wrong in Japan. More than 20 are nearly identical and are roughly as old. Some are located near earthquake faults; others are on the coast. Where the Japanese are retiring their machines after 40 years of service, though, the US government has decided to extend operating licenses to allow some of these reactors to run for 60 years.

So what, exactly, is going to happen? In announcing the review, Obama said that American nuclear-power plants "have been declared safe for any number of extreme contingencies," which leads one to ask, if you think the hard work has already been done, what's really going to change? Assuming, then, that any real change is going to come from Congress, what questions should be asked?

First, if the US's Nuclear Regulatory Commission has been extending operating licenses on reactors similar to those in Japan for an additional 20 years, what should the US government and the reactor operators be doing differently to assure they run safely over their projected 60-year lifetime?

Second, the Japanese assumed that the multiple emergency safety-backup systems would all work independently of one another. Instead, they were swamped with water and failed in block. What other fallacious assumptions are underlying nuclear safety?

Tokyo's bungled response has sparked the question of which US agency should be responsible for dealing with a nuclear incident? Currently, it's the Department of Homeland Security. But after Hurricane Katrina, that should be a cause for pause.

Finally, Congress has plans to revise the export control and nonproliferation provisions of the US Atomic Energy Act. They are sure to ask how much sense it makes for the US to offer nuclear cooperation to states that have little or no reactor-operating experience and lack liability insurance that can protect US vendors in the case of an accident. Also, after Iran's peaceful nuclear program (which was based originally on US nuclear cooperation), shouldn't the US be insisting on the toughest nonproliferation conditions not just of prospective customers, but of other nuclear suppliers?

In the wake of Japan's disaster, much of the world has paused to make sure their nuclear house is in order. If Obama and his nuclear team can't see the need to get answers before pushing more nuclear subsidies domestically and orchestrating more deals abroad, we can only hope that the US Congress, with a closer ear to a public that now is trying to make sense of the news from Japan, will.

Sokolski is the executive director of the Nonproliferation Policy Education Center and the editor of Nuclear Power's Global Expansion: Weighing Its Costs and Risks.

The Day The Earth Moved (TIME)

By Nancy Gibbs

Time, March 20, 2011

The 9.0 quake that hit Japan on March 11 was powerful enough to shift the earth on its axis and make it spin a little faster, shortening the day by 1.8 millionths of a second. It shoved the island nation one parking space to the east. But what felt like the end was just the beginning.

The sturdy buildings that survived the quake were ravaged by the wave that followed. The three-story wall of water dissolved coastal towns, dry-docked boats on the roofs of buildings and shuffled houses like playing cards. There were so many aftershocks that people stopped diving under tables. Those who made it safely to higher ground waited in the dark, in the cold, in lines that stretched for hours for water and food. In a society seen as the most stoic on earth, the closest thing to chaos was a man cutting in line. (See James Nachtwey's pictures of Japan's devastation.)

But still it was not over; only the earth and sea had spoken. The next danger came from the sky. Officials warned people to stay inside and seal whatever was left of their homes because the new threat was silent, invisible — and airborne. A rich country perched on four fault lines and with no oil reserves embraces nuclear power with the caution born of long memory and scars. But no one calculated what would happen if the fail-safes failed.

When the quake hit, the reactors at the Fukushima Daiichi complex did exactly what they were supposed to do: they shut down. But then the wave came, breached the seawall, drowned the backup generators needed to cool the reactors and took out the spare batteries. It was left to a skeleton crew of 50 to jury-rig fire hoses to keep the temperatures down.

One by one, the outer buildings exploded. This is also what they were designed to do, to release pressure and protect the core. The best nuclear scientists on the planet raced to avert a total meltdown even as radioactivity levels as far south as Tokyo spiked to 23 times as high as normal. With the menace growing by the hour, the most fateful calculation came down to the most fickle: Which way is the wind blowing? (See exclusive photos of the devastation in Japan.)

It only started as a natural disaster; the next waves were all man-made, as money fled to higher ground. Fear and uncertainty sheared \$700 billion off the Toyko Stock Exchange in three days. Japan makes nearly a quarter of the world's semiconductors and most of its gadgets. Sony suspended production at seven plants; carmakers slowed output, fearful of gaps in the supply chain; power companies scheduled rolling blackouts. How can a global recovery take hold if the world's third largest economy is out of business, even temporarily? Meanwhile, Switzerland announced a freeze on new nuclear plants, Germany shut down all its facilities built before 1980, and the US Congress called for hearings on nuclear safety. The flooded Japanese plants will never reopen. But demand for power only grows.

We sleep easy in the soft arms of clichés: hope for the best, prepare for the worst; risk varies inversely with knowledge; it's a waste of time to think about the unthinkable. But Japan shook those soothing assumptions. No amount of planning, no skills or specs or spreadsheets, can stop a force that moves the planet.

See TIME's complete coverage of the Japan earthquake.

See how to help earthquake and tsunami victims in Japan.

Chile Protests Seek Obama Apology For CIA Meddling (AP)

Associated Press, March 21, 2011

SANTIAGO, Chile – Several hundred people have protested in the Chilean capital ahead of Monday's visit by President Barack Obama.

Communist Party leader Guillermo Teillier says political, cultural and social representatives have signed a letter to Obama. It asks him to apologize for US intervention that destabilized Salvador Allende's socialist government in Chile before the 1973 coup that began Gen. Augusto Pinochet's dictatorship.

Protesters are also criticizing a new nuclear energy accord between the US and Chile that focuses on US training of Chilean nuclear engineers.

Senate opposition leader Carolina Toha said Sunday that the deal makes no sense in light of Japan's ongoing nuclear crisis.

Obama Voices Stronger Support For Iranian Opposition (WSJ)

By Jay Solomon

Wall Street Journal, March 21, 2011

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

Obama: Iran's Government Leading Campaign Of Abuse (AP)

Associated Press, March 21, 2011

WASHINGTON – President Barack Obama says the Iranian government cares more about preserving its own power than respecting the rights of its people.

Obama delivered that message in taped remarks to the Iranian people on Nowruz, the Persian new year. Obama says Iran has engaged in a two-year campaign of intimidation and abuse that shows fear on the part of the government, not strength.

Obama singled out the young people in Iran, saying they are the ones who can break that cycle and determine their country's future. Young people have been the driving force in many of the political uprisings that have sprung up across the Arab world this year, including Tunisia and Egypt.

Obama says those uprisings represent a season of promise in the Middle East.

Obama Denounces Iran's "Campaign Of Intimidation" (AFP)

AFP, March 21, 2011

RIO DE JANEIRO (AFP) – US President Barack Obama on Sunday denounced the Iranian government's "campaign of intimidation and abuse" of regime opponents as he told the country's young people, "I am with you."

In a message marking Nowruz, the Persian new year, Obama said in a statement, "I believe that there are certain values that are universal – the freedom of peaceful assembly and association; the ability to speak your mind and choose your leaders."

Obama's statement, issued by the White House with the president traveling in Brazil, said that the Iranian government has responded to protests "by demonstrating that it cares far more about preserving its own power than respecting the rights of the Iranian people."

"For nearly two years, there has been a campaign of intimidation and abuse. Young and old; men and women; rich and poor – the Iranian people have been persecuted... The world has watched these unjust actions with alarm."

Obama's comments came amid a wave of uprisings in the Arab world and Middle East seeking to oust authoritarian regimes, and he equated the Azadi Square protests in Iran in 2009 to the Tahrir Square events this year in Egypt.

He said that "this is a season of hope and renewal," and added that "we know that this is also a season of promise across the Middle East and North Africa, even as there are also enormous challenges."

The US leader said that Iran's harsh response to dissidents and protests "do not demonstrate strength, they show fear."

"For it is telling when a government is so afraid of its own citizens that it won't even allow them the freedom to access information or to communicate with each other," he added.

"But the future of Iran will not be shaped by fear. The future of Iran belongs to the young people – the youth who will determine their own destiny... And though times may seem dark, I want you to know that I am with you."

From: Ousley, Elizabeth
To: Harrington, Holly; Montgomery, Jack
Subject: RE: Laptops are no longer needed.
Date: Monday, March 21, 2011 5:31:47 PM

Jack's in tomorrow and can coordinate the return for you.

Liz Ousley
Branch Chief, Enterprise Architecture & Standards Branch (EASB)
Business Process Improvement and Applications Division (BPIAD)
301-415-8378

From: Harrington, Holly
Sent: Monday, March 21, 2011 12:54 PM
To: Montgomery, Jack; Ousley, Elizabeth
Subject: Laptops are no longer needed.

They are in my office. Can someone come get them or tell me where to return them. Thanks!!

RRRR-216

From: RST06 Hoc
Sent: Tuesday, April 05, 2011 5:10 PM
To: Ruland, William
Subject: FW: Link: Fukushima Daiichi Nuclear Plant Hi-Res Photos

-----Original Message-----

From: RST01 Hoc
Sent: Tuesday, April 05, 2011 7:24 AM
To: RST06 Hoc
Subject: FW: Link: Fukushima Daiichi Nuclear Plant Hi-Res Photos

-----Original Message-----

From: LIA02 Hoc
Sent: Tuesday, April 05, 2011 7:19 AM
To: RST01 Hoc
Subject: FW: Link: Fukushima Daiichi Nuclear Plant Hi-Res Photos

Forwarded for information.

Skip Young

-----Original Message-----

From: Mamish, Nader
Sent: Tuesday, April 05, 2011 7:04 AM
To: LIA03 Hoc; LIA02 Hoc
Subject: FW: Link: Fukushima Daiichi Nuclear Plant Hi-Res Photos

Could you please send these to the RST?

Thanks

-----Original Message-----

From: English, Lance
Sent: Tuesday, April 05, 2011 6:51 AM
To: OIP Distribution
Subject: FW: Link: Fukushima Daiichi Nuclear Plant Hi-Res Photos

FYI

-----Original Message-----

From: aaronad@nctc.gov [mailto:aaronad@nctc.gov]
Sent: Monday, April 04, 2011 12:28 PM
To: Rutz, Wayne; English, Lance; Whitney, James; Warren, Roberta
Subject: Link: Fukushima Daiichi Nuclear Plant Hi-Res Photos

RRL/217

This is better than commercial imagery, and in color.

Fukushima Daiichi Nuclear Plant Hi-Res Photos

<http://cryptome.org/eyeball/daiichi-npp/daiichi-photos.htm>

Nuclear News Flashes

Monday, Mar 21, 2011

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*** Fukushima I electric supply not yet stable, ASN says

Electricity supply to Japan's Fukushima I nuclear power plant "is not stabilized," French nuclear safety officials said March 21, despite the success of Tokyo Electric Power Co. in bringing a new power cable to the site and hooking it to a temporary transformer.

Andre-Claude Lacoste, chairman of nuclear safety authority ASN, said at a press briefing that it would take Tepco "surely several days, and possibly more," for the Japanese utility to verify the state of each piece of equipment that needs to be reconnected to the power supply.

He said it was important not to connect pumps that were still wet in the reactor buildings, as that might cause a short-circuit that could trigger a hydrogen explosion.

Lacoste said the situation was more complicated at Fukushima I units 3 and 4, which had been doused

with dozens of tons of water over the past two days to restore the margin of safety in their spent fuel pools. Those spraying operations had left water in the reactor building that may have damaged pumps and other equipment, he said.

In an update on the Fukushima I situation at 3 pm local time on March 21, France's Institute of Radiological Protection and Nuclear Safety, ASN's technical support organization, said that unit 1 had been reconnected to the grid it shares with unit 2, "but no equipment was put into operation."

IRSN said that Tepco was giving "priority to putting the control room and the cooling system" of unit 1 into service.

Japan's Nuclear and Industrial Safety Agency said March 21 that smoke was seen coming from unit 2 that evening, local time. Similar smoke seen at unit 3 a little earlier that day died down, NISA said.

Units 5 and 6 are now receiving power from the grid in addition to that from two diesel generators, IRSN said. Tepco said over the weekend that those two units had reached cold shutdown after power was restored and cooling systems were turned back on.

*** EC might review EU nuclear safety rules in 2012

The European Commission could review EU nuclear safety legislation as early as next year, EU energy commissioner Guenther Oettinger said March 21 after an emergency meeting during which EU energy ministers discussed energy security in light of the ongoing Fukushima nuclear accident in Japan.

"We certainly have to speed up the safety review" foreseen for 2014 in the EU's 2009 nuclear safety directive," Oettinger told reporters in Brussels.

EU governments have to transpose the 2009 directive into national law by July 22.

Last week the EC, high-ranking government officials, nuclear regulators and industry executives backed the idea of voluntary safety "stress tests" for EU nuclear power plants based on common criteria expected to be agreed on by mid-2011.

Oettinger said that with the results of stress tests in by the end of this year, the EC next year can propose "an early revision of EU nuclear legislation and perhaps recommend measures to increase nuclear safety."

Hungarian minister Tamas Fellegi, speaking for the Hungarian EU presidency, said the results of the tests "will give us a new foundation to base energy policy on." But he added ministers were keen to avoid "any over-hasty decisions or actions" until it was clear what exactly had happened at Fukushima.

The European Nuclear Safety Regulators Group is to define the tests' scope and key criteria, focusing on risks associated with earthquakes, floods, cooling systems, backup power, age and reactor design.

*** EC approved high-seismic risk reactors in Romania

The European Commission last year approved plans for construction of two nuclear reactors "close to a zone with high seismic risk" in Romania, according to a document released to Platts March 21.

In an opinion under Article 43 of the Euratom Treaty, the EC approved plans for two Candu-6 reactors to be built at Cernavoda, to be known as Cernavoda-3 and -4, while noting that seismic hazard analyses on existing units at the same site show that seismic damage is "the dominant contributor to nuclear power plant risk."

Release of the EC opinion comes 10 days after a massive earthquake and tsunami at the six-reactor Fukushima I nuclear power station.

In light of events in Japan, the EC has promised to require national governments to conduct "stress tests" on their reactors, but details remain to be determined.

The EC opinion, released March 21, but signed November 26, 2010, "strongly recommended" that Romania and the Cernavoda-3 and -4 investors fix the "shortcomings" in the seismic analysis on the existing site which lead to "large uncertainties in the hazard evaluation" as identified by an IAEA International Probabilistic Risk Analysis Review Team.

The EC opinion, requested by Platts on January 11, was released March 21 after the EC obtained the permission of Romanian officials and project investors, Massimo Garribba, of the commission's nuclear energy directorate said in a letter.

*** French experts see 'no consequences' of Fukushima fallout for France

There will be "no consequences whatsoever" in France from fallout from the Fukushima nuclear power plant accident in Japan, the head of French nuclear safety authority ASN told a press briefing March 21. Andre-Claude Lacoste said the level of radioactivity in the Fukushima plume will be "extremely low" when it reaches metropolitan France March 23, "1,000 or 10,000 times less" than fallout from the 1986 Chernobyl accident.

He said that was true even in a worst-case scenario of how the ongoing accident develops, because of the distance between the two countries.

The predictions of the plume's movements were made by the Institute of Radiological Protection and Nuclear Safety, IRSN, and made public late last week. IRSN worked with France's meteorological service to produce the models on the basis of its knowledge of what has been happening at the Japanese plant. The predictions can be accessed at www.irsn.org.

ASN's director of ionizing radiation, Jean-Luc Godet, said radioactive releases from the Fukushima site "have been and remain large" and that although the French experts don't have maps of the contamination, soil and plant contamination will probably occur more than 100 kilometers (about 62 miles) from the site, which is about 250 km north of Tokyo.

Japanese authorities have banned sale and consumption of leafy vegetables from an area about that far from the plant site.

Lacoste said that given past and present releases from Fukushima, "the Japanese will have to manage contaminated territories for decades."

*** Japanese decline French offer of robots for Fukushima: ASN

Japanese authorities declined the French offer to send robotic equipment to help in managing the Fukushima I nuclear power plant accident, Andre-Claude Lacoste, chairman of France's nuclear safety authority ASN, said March 21.

"Up to now, the Japanese have asked for very little help" for Fukushima, Lacoste told a press briefing in Paris. For example, he said, "the Japanese did not follow through on the offer of robots" made by France's nuclear industry last week, because they considered the equipment "ill-adapted" to the job at hand.

EDF announced March 18 that an Antonov 225 was scheduled to leave France over the weekend for Tokyo's Narita airport, carrying 130 tons of remote-controlled machines designed by Intra, a joint venture of EDF, Areva and the CEA, to operate instead of deploying humans in and around buildings in radiologically hostile environments.

*** Spot uranium price makes turnaround

The spot price of uranium took a U-turn over the weekend and is now back to around \$60 a pound U3O8, after falling to \$50/lb last week.

TradeTech, which is now publishing a daily price, said the price March 21 was \$60/lb, up \$10/lb from its March 17 price and up \$7/lb from its weekly price published late March 18. Ux Consulting's broker average price, or BAP, was \$59.50/lb today, up \$3.75/lb from March 18. After about 4 million lb were sold last week "with the news being dominated by the events at Japan's Fukushima I nuclear plant" supply became scarcer late in the week, analysts said.

But it is unclear if the price will continue to rise in the near term, said one analyst. At \$60/lb or higher, there will be fewer buyers, at least until it is clear that the situation at Fukushima I has been stabilized, the analyst said.

*** ARMZ, Mantra amend option agreement

Australia-based Mantra Resources and Russia's Atomredmetzoloto have revised the terms of an agreement they entered into in December for ARMZ to buy Mantra, Canada's Uranium One said March 21.

ARMZ is Uranium One's majority shareholder.

Uranium One said March 16 that a deal by ARMZ to buy Mantra could not go forward under the existing agreement because events in Japan had altered the conditions of the deal.

Under the revised agreement, Mantra shareholders will receive A\$7.02 comprising \$6.87 in cash to be paid by ARMZ and a cash dividend of \$0.15 to be paid by Mantra instead of \$8.00 in cash.

The directors of Mantra have agreed unanimously to recommend ARMZ's revised offer and will vote in favor of the agreement "in the absence of a superior proposal and subject to receipt of an updated recommendation from an independent expert that the revised transaction is in the best interests of Mantra shareholders," Uranium One said.

Highland Park SA, which owns 13.5% of the outstanding fully diluted share capital in Mantra, also supports the revised transaction, Uranium One said.

*** Finnish minister presses for EU plans for waste, spent fuel disposal

It is "vital" that plans for nuclear waste and spent fuel disposal be developed as quickly as possible by European Union states if the EU is to continue using nuclear power following the crisis at Fukushima I, Finnish Minister of Economic Affairs Mauri Pekkarinen said in a statement March 21.

Pekkarinen said that establishing plans, as required under the EU directive on nuclear waste management, will help reassure the public that nuclear power is safe. Pekkarinen said he also would like to see all EU states adopt unlimited liability for nuclear plant operators in the case of accidents with third-party consequences, as Finland has done. Pekkarinen has responsibility for energy issues.

*** NRC says review of Fukushima I lessons could bring orders, new rules

NRC will conduct short- and long-term reviews of the Fukushima I accident's implications for US reactors that could lead to new orders or rules for nuclear plants, William Borchardt, the agency's executive director for operations, said March 21.

The NRC will soon begin a 90-day review of the accident at Tokyo Electric Power Co.'s Fukushima I, where three units have experienced damage to their reactor cores after an earthquake and tsunami cut power, he said during a briefing for commissioners. Tepco has said it is close to restoring power to reactors at the site, and the containment structures that enclose three of the reactors at the stricken plant "appear to be functional," Borchardt said.

The agency believes US reactors are safe, and in the past two decades has increased requirements that are designed to help prevent or mitigate severe accidents, Borchardt said.

As part of the short-term review, NRC staff will produce a report within 30 days for commissioners. The report will cover any concerns about existing rules for coping with power loss, severe accidents and spent fuel accident progression, Borchardt said. The short-term review could lead to communications to help US plant operators understand the Japanese events or an NRC order that requires licensees to make changes, Borchardt said.

The longer-term review could lead to changes in the way NRC oversees reactors or new rules for the industry, he said. It is unclear when the longer review will begin, he said, adding that it will involve other federal agencies and input from the industry.

*** South Texas Project expansion project slowed, NINA says

Nuclear Innovation North America, the joint venture of NRG Energy and Toshiba, said it is reducing spending on its planned two-unit expansion project at the South Texas Project nuclear station to allow the NRC and others to "assess the lessons that can be learned from the events in Japan."

NINA said in a statement March 21 that continuing work on South Texas Project units 3 and 4 will be limited to "work related to licensing and securing the federal loan guarantee upon which the project depends."

NINA Chairman and NRG President and CEO David Crane said the company is waiting "until there is more information upon which we can base our long-term decisions."

Tokyo Electric Power Co., the owner and operator of the Fukushima I and II nuclear units, said last year it plans to purchase up to 20% of NINA's 92.375% stake in the expansion project. NINA is a joint venture 88% owned by NRG and 22% owned by Toshiba.

In a related development, CPS Energy said March 21 that it is "indefinitely suspending all discussions" with NRG regarding a possible agreement to purchase additional power from the two planned South Texas units.

The San Antonio municipal utility said last week that its talks with NRG about a possible power purchase agreement were only "on hold." CPS said in a statement March 21 it suspended talks after NINA's decision to slow the project's development.

CPS holds a 7.625% ownership interest in the South Texas expansion project.

*** Japan earthquake impact on Vogtle licensing unclear: Oglethorpe

The Japanese earthquake and tsunami have not affected the construction schedule for the expansion of the Vogtle nuclear power plant in the US, but the regulatory impact is still unclear, Oglethorpe Power COO Michael Price said March 21.

The earthquake and tsunami March 11 did not appear to affect major manufacturing plants in Japan making components for the planned two-unit Vogtle expansion, in which Oglethorpe has a 30% stake, Price said in an earnings conference call with analysts. Containment vessel ring plates made in Japan have been manufactured and are ready to be loaded on a ship at Yokohama harbor, which is operating normally, Price said. The longer-term impact on the supply chain must be reviewed, he said.

The effect of a regulatory review launched by NRC and of possible new regulatory requirements is unknown, he said. "It's unclear what will be required and what it might cost," Price said.

Oglethorpe still expects the amended Westinghouse AP1000 reactor design to be certified by NRC in September, with a combined construction permit-operating license for Vogtle-3 and -4 around the end of the year, he said. "Some risk does exist that the licensing schedule could be impacted," he said.

Oglethorpe has a stake in the two existing Vogtle units and the two-reactor Hatch plant, both in Georgia, and those units are in an area with low seismic risk, he said.

Oglethorpe's partners in the Vogtle expansion project are Georgia Power, MEAG Power and the city of Dalton.

*** NRC issues renewed license for Entergy's Vermont Yankee

The NRC on March 21 issued a 20-year license renewal to Entergy's Vermont Yankee, agency spokesman Neil Sheehan said.

The NRC action culminates more than six years of reviews by the agency during which local opponents, led by the New England Coalition, challenged the adequacy of Entergy's safety and emergency evacuation plans for the plant. The NRC dismissed a final challenge by the coalition on March 10.

Laurence Smith, a spokesman for Vermont Yankee, said in a statement that the NRC decision "confirms that Vermont Yankee is a safe, reliable source of electricity and capable of operating for another 20 years."

Operation of the 650-MW nuclear power plant beyond March 2012, when its 40-year license expires, is not guaranteed, however. Vermont is the only state where approval by the legislature is needed for state regulators to approve a nuclear power plant's license renewal. Such approval was a condition for sale of the unit to Entergy from a consortium of utilities in 2002.

Both houses of its legislature must vote affirmatively to permit Vermont's Public Service Board to consider the plant's extended operation. The state Senate last year voted to prohibit the board from acting on the plant's license renewal. Vermont Governor Peter Shumlin in a statement March 21 reiterated his determination to see the plant shut next March.

*** Reactor report

â€” Florida Power & Light's Turkey Point-4 was shut early March 21 for a scheduled refueling outage, plant spokeswoman Veronica Swanson said that same day. No major component replacements or repairs are planned for the outage, she said. The company does not provide information on when reactors will return to the grid.

â€” Constellation's Nine Mile Point-1 shut for refueling 12:01 am March 21, spokeswoman Jill Lyon said in an interview March 21. Lyon declined to say how long the outage would last.

â€” Exelon Nuclear's Limerick-1 in Pennsylvania reduced power over the weekend for maintenance, spokesman Joseph Szafran said in an interview March 21. The reactor was operating at 57% power early that morning, according to the NRC's daily reactor status report. Work is being performed on one of the unit's three main transformers and on the main condenser system, Szafran said. He declined to say when Limerick-1 is expected to return to full power.

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From: [NRC Announcement](#)
To: [NRC Announcement](#)
Subject: Daily: 1 New Item from Monday, March 21, 2011
Date: Monday, March 21, 2011 10:02:57 PM

NRC Daily Announcements

Highlighted Information and Messages



Monday March 21, 2011 -- Headquarters Edition

Event: NSPD Presentation Postponed

Event: NSPD Presentation Postponed

The Office of Federal and State Materials and Environmental Management Programs (FSME) is postponing the Nuclear Safety Professional Development Program (NSPDP) Brown Bag Lunch & Meet and Greet scheduled for Monday, April 4, 2011, from 11:30 a.m. to 2:00 p.m. (Eastern Time), in the TWFN auditorium. Many FSME Managers have been assisting in monitoring the ongoing situation at the Fukushima Nuclear Reactor site in Japan, and will not be available for this presentation. You will be notified when a new date has been selected.



(2011-03-21 00:00:00.0)

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RRRR-219

David Decker

From: David Decker
Sent: Friday, March 11, 2011 1:48 PM
To: 'Haynes, Laura (Carper)'
Subject: FW: Japan Update: Water levels at Fukushima; Onagawa fire extinguished

Laura,
Here's what I have heard about the reactor in Japan that may be having a cooling water issue. I'll send along anything else I get on this.

David

From: Shane, Raeann
Sent: Friday, March 11, 2011 12:37 PM
To: Schmidt, Rebecca; Powell, Amy; Quesenberry, Jeannette; Weil, Jenny; Decker, David; Belmore, Nancy
Subject: FW: Japan Update: Water levels at Fukushima; Onagawa fire extinguished

fyi

From: LIA12 Hoc
Sent: Friday, March 11, 2011 12:35 PM
To: Shane, Raeann
Subject: FW: Japan Update: Water levels at Fukushima; Onagawa fire extinguished

From: HOO Hoc
Sent: Friday, March 11, 2011 12:31 PM
To: LIA04 Hoc; LIA02 Hoc; LIA12 Hoc; LIA01 Hoc; LIA11 Hoc
Subject: FW: Japan Update: Water levels at Fukushima; Onagawa fire extinguished

From: Breskovic, Clarence
Sent: Friday, March 11, 2011 12:26 PM
To: Breskovic, Clarence
Subject: Japan Update: Water levels at Fukushima; Onagawa fire extinguished

Update9: 3,000 Ordered To Evacuate Near Quake-hit Fukushima Nuclear Plant

Tokyo, March 12 Kyodo -- (EDS: ADDING FIRE EXTINGUISHED AT ONAGAWA PLANT) Japan declared a state of atomic power emergency Friday after the country, which has about 50 nuclear power reactors, was hit by a magnitude 8.8 earthquake, instructing around 3,000 residents near the Fukushima No. 1 plant to evacuate.

Top government spokesman Yukio Edano told an evening press conference, "We have a situation where one of the reactors (of the plant) cannot be cooled down." But the chief Cabinet secretary said the evacuation instruction was only precautionary.

Edano said, "No radiation has leaked outside the reactor. The incident poses no danger to the environment at the moment." He also said early Saturday in Tokyo the incident was under control.

The post-quake situation prompted the Vienna-based International Atomic Energy Agency to scramble for details from

ERRA-220

contacts in Japan's industry ministry, while saying in a statement that at least four nuclear power plants "closest to the quake have been safely shut down" after the 2:46 p.m. quake.

Tokyo Electric Power Co., the operator of the Fukushima plant, reported that the water level around fuel rods was falling in the reactor. Radioactive materials could be emitted if part of a fuel rod is exposed to the air.

But officials of the prefectural government dismissed the view that the plant is in a critical situation, saying the top of the water is 3.4 meters above the fuel rods at the troubled No. 2 reactor.

The evacuation advisory was issued for people living within a 3-kilometer radius of the plant, while those living within a 10-kilometer radius were asked to stay home, Edano said.

Prime Minister Naoto Kan declared the emergency, the first in the quake-prone country, so that authorities can easily implement emergency relief measures, Edano said. Defense Minister Toshimi Kitazawa ordered the Self-Defense Forces to act in response to the declaration.

The Defense Ministry dispatched a chemical corps of the Ground Self-Defense Force to the plant and Motohisa Ikeda, senior vice industry minister, also left for Fukushima by an SDF helicopter.

According to the industry ministry, a total of 11 nuclear reactors automatically shut down at the Onagawa plant, the Fukushima No. 1 and No. 2 plants and the Tokai No. 2 plant after the strongest recorded earthquake in the country's history.

A fire started at a building housing the turbine of the Onagawa plant in Miyagi at 3:30 p.m. but was put out before 11 p.m., the operator, Tohoku Electric Power Co., said, denying it had detected any signs of radiation leaks.

Water spilled from pools containing fuel rods at the Kashiwazaki-Kariwa plant on the Sea of Japan coast in Niigata Prefecture and the Onagawa plant, the operators said, saying they saw no signs suggesting radiation leaks.

David Decker

From: Schmidt, Rebecca
Sent: Saturday, March 12, 2011 6:27 PM
To: Droggitis, Spiros; Powell, Amy; Decker, David; Riley (OCA), Timothy; Shane, Raeann; Dacus, Eugene
Subject: Fw: Fwd: NEI has just posted the following fact sheet

From: FLINT, Alex <af@nei.org>
To: Schmidt, Rebecca
Sent: Sat Mar 12 18:12:39 2011
Subject: Fwd: NEI has just posted the following fact sheet

Begin forwarded message:

Date: March 12, 2011 5:04:48 PM EST
Subject: NEI has just posted the following fact sheet

Events at the Fukushima Daiichi Nuclear Power Plant in Japan

March 12, 2011 (posted at 4:40 p.m. EST, Saturday, March 12)

Key Facts

The Incident

Unit 1 of the Fukushima Daiichi nuclear power plant was damaged in a magnitude 8.9 earthquake and subsequent tsunami on March 11. The plant is centered along the shore of the Sendai region, which contains the capital Tokyo.

The plant is a General Electric boiling water reactor 3 Mark 1 design, operated by Tokyo Electric Power Company (TEPCO).

Eleven of Japan's 55 nuclear reactors automatically shut down, as they are designed to do, when the earthquake hit.

After the earthquake and tsunami, there were difficulties powering the cooling system for unit 1 of the Fukushima Daiichi plant. After a buildup of hydrogen gas in the secondary containment structure at the plant, there was an explosion at that reactor on March 12.

The explosion caused a breach in the secondary containment. However, the primary containment that houses and protects the reactor vessel and fuel remains intact and is safe. This structure is made of steel and is extremely robust. The primary and secondary

RRR-201

containment are designed to prevent radiation from being released into the environment in the case of an accident. However, TEPCO intentionally vented steam from the secondary containment building in an effort to reduce pressure in that building. For a diagram of the reactor type used at Fukushima Daiichi, [click here](#).

It appears that as the level of coolant in the reactor vessel lowered, a portion of the top of the uranium fuel rods was exposed. This may have caused zirconium cladding of the fuel rods to react with water to create hydrogen. This hydrogen was vented, then somehow ignited, causing the explosion.

As the explosion did not occur inside the reactor core—and the primary containment was not breached—there has not been a significant public health impact from the release of radiation from the containment structure.

Reactors 2 and 3 at Fukushima Daiichi were shut down in response to the earthquake. Units 4, 5 and 6 had been shut down prior to the earthquake for inspections and scheduled outages.

The Response

TEPCO has been pumping seawater, laced with boron, into the reactor core of Unit 1 of the Fukushima-Daiichi plant to cool the fuel.

Backup diesel generators and batteries have arrived at the Fukushima Daiichi plant. They will be used as an emergency source of electric power to pump water into the reactor core or containment of units 2 and 3 to continue cooling the reactor cores.

The Japanese government has expanded the evacuation zone around the facility to 20 kilometers, or about 12 miles.

TEPCO also is preparing to vent the containment structures at Fukushima Daiichi Units 2 and 3 to reduce the pressure inside primary containment in these reactors and maintain the structural integrity of the containment. Venting reduces pressure in the containment, but can be done in a safe manner.

Similar Reactors in the United States

The General Electric BWR 3 Mark 1 reactor design is used in six of 104 reactors in the United States. Every nuclear power plant is designed, built and managed to prevent radioactive releases, even in the event of natural disasters, operational accidents or security threats.

A variety of measures work together to protect public safety: the design and safety features built into nuclear power plants; the multiple layers of physical barriers that protect the reactor; and highly trained, federally certified professionals who operate the plant safely and know how to respond in the event of emergencies.

More information

To learn about boiling water reactors in general, click [here](#).

For more on nuclear reactors and seismic events, click [here](#).

To stay up to date:

See these resources:

- NEI
- TEPCO
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- International Atomic Energy Agency

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Sent through mail.messaging.microsoft.com

David Decker

From: David Decker
Sent: Friday, March 11, 2011 1:56 PM
To: Rebecca Schmidt; Raeann Shane
Subject: RE: japan info

Just spoke with Laura and gave her what we knew, and the general preparations that Diablo Canyon (in particular) is taking to prepare for storm surge conditions. Promised to keep her informed with any useful info we get.

From: Schmidt, Rebecca
Sent: Friday, March 11, 2011 1:49 PM
To: Haynes, Laura (Carper)
Cc: Decker, David
Subject: japan info

Laura,

Raeann is in the Ops center and David just came back from a meeting on it. He will call you Becky

RRR-222

David Decker

From: OPA Resource
Sent: Sunday, March 13, 2011 2:24 PM
To: Ash, Darren; Barkley, Richard; Batkin, Joshua; Bell, Hubert; Belmore, Nancy; Bergman, Thomas; Bollwerk, Paul; Bonaccorso, Amy; Borchardt, Bill; Bozin, Sunny; Brenner, Eliot; Brock, Terry; Brown, Boris; Bubar, Patrice; Burnell, Scott; Burns, Stephen; Carpenter, Cynthia; Chandrathil, Prema; Clark, Theresa; Collins, Elmo; Couret, Ivonne; Crawford, Carrie; Cutler, Iris; Dacus, Eugene; Dapas, Marc; Davis, Roger; Dean, Bill; Decker, David; Dricks, Victor; Droggitis, Spiros; Flory, Shirley; Franovich, Mike; Gibbs, Catina; Haney, Catherine; Hannah, Roger; Harbuck, Craig; Harrington, Holly; Hasan, Nasreen; Hayden, Elizabeth; Holahan, Gary; Holahan, Patricia; Holian, Brian; Jacobsen, Patricia; Jaczko, Gregory; Jasinski, Robert; Jenkins, Verlyn; Johnson, Michael; Jones, Andrea; Kock, Andrea; Kotzalas, Margie; Ledford, Joey; Lee, Samson; Leeds, Eric; Lepre, Janet; Lew, David; Lewis, Antoinette; Loyd, Susan; Magwood, William; McCrary, Cheryl; McGrady-Finneran, Patricia; McIntyre, David; Mensah, Tanya; Mitlyng, Viktoria; Monninger, John; Montes, David; Nieh, Ho; Ordaz, Vonna; Ostendorff, William; Owen, Lucy; Powell, Amy; Quesenberry, Jeannette; Reddick, Darani; Regan, Christopher; Reyes, Luis; Riddick, Nicole; RidsSecyMailCenter Resource; Riley (OCA), Timothy; Rohrer, Shirley; Samuel, Olive; Satorius, Mark; Schaaf, Robert; Schmidt, Rebecca; Scott, Catherine; Screnci, Diane; Shaffer, Vered; Shane, Raeann; Sharkey, Jeffrey; Sheehan, Neil; Sheron, Brian; Siurano-Perez, Osiris; Steger (Tucci), Christine; Svinicki, Kristine; Tabatabai, Omid; Tannenbaum, Anita; Taylor, Renee; Temp, WDM; Thomas, Ann; Uhle, Jennifer; Uselding, Lara; Vietti-Cook, Annette; Virgilio, Martin; Virgilio, Rosetta; Walker-Smith, Antoinette; Weaver, Doug; Weber, Michael; Weil, Jenny; Werner, Greg; Wiggins, Jim; Williams, Evelyn; Zimmerman, Roy; Zorn, Jason
Subject: Press Release Being Published Shortly
Attachments: 11-046.docx

Press Release – NRC Sees No Radiation At Harmful Levels Reaching U.S.

11-046-203

David Decker

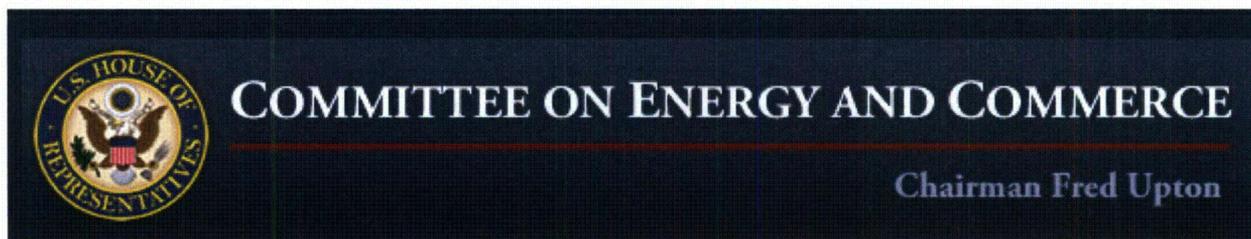
From: Powell, Amy
Sent: Sunday, March 13, 2011 1:03 PM
To: Batkin, Joshua; Schmidt, Rebecca
Cc: Coggins, Angela; Decker, David
Subject: FW: Upton Statement on Status of Nuclear Reactors in Japan After Earthquake Damage
Attachments: image001.jpg; image002.png; image003.png; image004.png; image005.png

Here is the press release from Mr. Upton that generated The Hill's article.

From: McCarthy, David [<mailto:David.McCarthy@mail.house.gov>]
Sent: Sunday, March 13, 2011 12:59 PM
To: Powell, Amy
Subject: Fw: Upton Statement on Status of Nuclear Reactors in Japan After Earthquake Damage

Sent using BlackBerry

From: Energy and Commerce News
Sent: Sat Mar 12 21:40:07 2011
Subject: Upton Statement on Status of Nuclear Reactors in Japan After Earthquake Damage



FOR IMMEDIATE RELEASE
March 12, 2011

CONTACT: Press Office
(202) 226-4972

Upton Statement on Status of Nuclear Reactors in Japan After Earthquake Damage

WASHINGTON, DC – Congressman Fred Upton (R-MI), chairman of the U.S. House Committee on Energy and Commerce, issued the following statement today in response to ongoing reports about the damage to Japanese nuclear facilities after a historic earthquake and tsunami hit the country on Friday:

"Our first priority is the safety of the Japanese people as they assess the damage and work to recover from this terrible natural disaster, and I support the President in his effort to provide assistance to the Japanese government and its people. I understand the Nuclear Regulatory Commission technical staff have offered support to help mitigate damage to the reactors, and our experts are closely monitoring developments at the Fukushima Daiichi

RRRR-224

nuclear power plant and other affected facilities. As we extend our thoughts and prayers to those affected by this historic earthquake and the damage it wrought, we will carefully continue to assess and examine the situation.

"The details of this tragedy are still unfolding. The head of the Nuclear Regulatory Commission is scheduled to testify before the Energy and Commerce Committee next week, and we will use that opportunity to explore what is known in the early aftermath of the damage to Japanese nuclear facilities, as well as to reiterate our unwavering commitment to the safety of U.S. nuclear sites."

###



From: [Harrington, Holly](#)
To: [Hayden, Elizabeth](#)
Subject: FW: Governmental Decisions and Recommendations as a result of the Japanese Emergency
Date: Tuesday, March 22, 2011 8:32:00 AM

Do you want me to handle this?

From: LIA03 Hoc
Sent: Monday, March 21, 2011 6:36 PM
To: Dehn, Jeff; LIA02 Hoc; Harrington, Holly; Hayden, Elizabeth
Cc: Sangimino, Donna-Marie; Bush-Goddard, Stephanie; Wagner, Katie; Schwartzman, Jennifer
Subject: RE: Governmental Decisions and Recommendations as a result of the Japanese Emergency

Jeff – This is something that needs to be answered by OPA. I have sent this to Holly Harrington and Beth Hayden, who can more accurately answer your questions.

From: Dehn, Jeff
Sent: Monday, March 21, 2011 6:31 PM
To: LIA03 Hoc; LIA02 Hoc
Cc: Sangimino, Donna-Marie; Bush-Goddard, Stephanie; Wagner, Katie; Schwartzman, Jennifer
Subject: FW: Governmental Decisions and Recommendations as a result of the Japanese Emergency

Greetings,

This is primarily a public relations question. This request came from the [OECD/NEA](#) requesting us to provide, or point to, information relating to our government's messages to our own citizens stemming from events in Japan ([all publicly available information](#)). NEA will coordinate input from around the world, and provide it back to us in database form.

Is OPA/Ops Center aware of a single source for this information? Or, would OPA recommend sending the below and/or additional links? Or, is there other guidance with respect to this request for information?

<http://public-blog.nrc-gateway.gov/2011/03/16/message-from-u-s-to-u-s-citizens-in-japan/>
http://travel.state.gov/travel/cis_pa_tw/tw/tw_5398.html

The Ops Center Bulletin also cited these as generic US sources of information – I could forward these as well.

- USAID – www.usaid.gov
- U.S. Department of State – www.state.gov
- FEMA – www.fema.gov
- White House – www.whitehouse.gov
- Nuclear Energy Institute – www.nei.org

Thank you for your input. Please feel free to contact me with any questions on this.

RRRR-225

From: [Brenner, Eliot](#)
To: [Sheehan, Neil](#)
Cc: [Harrington, Holly](#)
Subject: RE: Comm Team Sitrep
Date: Monday, March 21, 2011 6:17:59 PM

Go ahead and write it, let holly vet it.

Thanks.

From: Sheehan, Neil
Sent: Monday, March 21, 2011 6:07 PM
To: Brenner, Eliot
Cc: Harrington, Holly
Subject: FW: Comm Team Sitrep

Eliot,

Westchester County is very concerned about media coverage re: 10-mile-radius EPZ versus 50-mile (American) evacuation zone in Japan.

I'd be glad to draft a blog item on this to nip this before it goes completely viral. How does that sound?

Neil

From: Dean, Bill
Sent: Monday, March 21, 2011 5:09 PM
To: Leeds, Eric; Nelson, Robert
Cc: Lew, David; Screnci, Diane; Sheehan, Neil; McNamara, Nancy; Tifft, Doug
Subject: RE: Comm Team Sitrep

Any help you can give wrt 50 Mile EPZ and why 10 mile EPZ is ok on a blog or other vehicle would be greatly appreciated. Just getting onto a call with WestChester County Executive to discuss the matter. They believe something on the blog would be great like the way we addressed the MSNBC article.

Bill

From: Leeds, Eric
Sent: Monday, March 21, 2011 4:32 PM
To: Dean, Bill; Lew, David; McCree, Victor; Wert, Leonard; Pederson, Cynthia; West, Steven; Howell, Art; Collins, Elmo
Cc: Johnson, Michael; Wiggins, Jim; Sheron, Brian; Virgilio, Martin; Brenner, Eliot; Hayden, Elizabeth; Schmidt, Rebecca; Powell, Amy; Grobe, Jack; Uhle, Jennifer; Evans, Michele; Holahan, Gary
Subject: FYI: Comm Team Sitrep

FYI – see below. Lots of progress. Lots more to do.

Eric J. Leeds, Director

RRRR-226

Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
301-415-1270

From: Nelson, Robert

Sent: Monday, March 21, 2011 3:51 PM

To: Leeds, Eric; Boger, Bruce; Giitter, Joseph

Cc: Meighan, Sean; Nguyen, Quynh; Markley, Michael; Oesterle, Eric; Thomas, Eric

Subject: FYI: Comm Team Sitrep

1. The biggest advancement was the public version of Annie Kemmerer's Qs & As. Our team had little to do with this other than to ask for it.
2. We added numerous documents to our NRR internal website:
<http://portal.nrc.gov/edo/nrr/default.aspx> . I've communicated this update to our regional POCs.
3. I prepared & forwarded to Eric a recommended communication to all NRR staff regarding that web site. Our staff is hungry for info.
4. We completed our compilation of OBE, SSE, Max Flooding Level and Protection Level for all of the plants based on info in the FSARs. This info is readily available when needed.
5. We'll begin our screening of potentially sensitive licensing actions tomorrow. I'll inform you of the results.
6. We working on some additional Qs & As but we've been impacted by the AP FOIA and did not make as much progress as we had hoped.
7. I've asked OEDO for the file of the EDO's opening remarks from today's meeting. We don't want to wait for the transcript. This is another source of info for Qs & As. No response yet.

NELSON

From: Mroz (Sahm), Sara
To: Harrington, Holly
Subject: RE: 50 mile EPZ
Date: Monday, March 21, 2011 5:41:24 PM

Sure. I'll work on it tonight (assuming things stay quiet). We put together an info sheet with FEMA that I'll pull the info from ...

-Sara

From: Harrington, Holly
Sent: Monday, March 21, 2011 5:13 PM
To: Mroz (Sahm), Sara
Subject: FW: 50 mile EPZ

Do you think you could possibly do this?

From: Screnci, Diane
Sent: Monday, March 21, 2011 5:11 PM
To: Harrington, Holly
Subject: 50 mile EPZ

Holly,

Bill Dean was wondering whether you guys could write a blog entry explaining the basis for the 10 mile epz and why we recommended more in Japan.

I'm just the messenger.

DIANE SCRENCI
SR. PUBLIC AFFAIRS OFFICER
USNRC, RI
610/337-5330

RRRR-227

David Decker

From: Droggitis, Spiros
Sent: Saturday, March 12, 2011 8:04 PM
To: Schmidt, Rebecca; Shane, Raeann; Riley (OCA), Timothy; Powell, Amy; Decker, David; Dacus, Eugene; Weil, Jenny
Subject: Latest TEPCO press release

<http://www.tepco.co.jp/en/press/corp-com/release/11031302-e.html>

RRR-228

From: [Hayden, Elizabeth](#)
To: [Harrington, Holly](#); [Brenner, Eliot](#)
Subject: FW: QUESTION about Midwest coverage of Japan-related issues
Date: Monday, March 21, 2011 4:53:20 PM

From: Hayden, Elizabeth
Sent: Monday, March 21, 2011 4:53 PM
To: Mitlyng, Viktoria
Subject: RE: QUESTION about Midwest coverage of Japan-related issues

Send them to me with a red flag next to the e-mail and I'll try to get them included.

Beth Hayden
Senior Advisor
Office of Public Affairs
U.S. Nuclear Regulatory Commission
--- Protecting People and the Environment
301-415-8202
elizabeth.hayden@nrc.gov

From: Mitlyng, Viktoria
Sent: Monday, March 21, 2011 4:10 PM
To: Brenner, Eliot; Hayden, Elizabeth; Harrington, Holly
Cc: Chandrathil, Prema
Subject: QUESTION about Midwest coverage of Japan-related issues

There is a lot of coverage in Midwestern media outlets (we are talking to a lot of these reporters) that's not showing up in the clips. Do we need to flag some of the pieces that are most pertinent to NRC issues for you or not worry about it? If you want us to flag those stories, should they go to all of you or one of you? Please advise. Thank you. Vika

Viktoria Mitlyng
Office of Public Affairs
US Nuclear Regulatory Commission
Region III
Lisle, IL 60532
Tel 630/829-9662
Fax 630/515-1026
e-mail: viktoria.mitlyng@nrc.gov

RRRR-229

David Decker

From: Powell, Amy
Sent: Sunday, March 13, 2011 11:08 AM
To: Freedhoff, Michal; Weil, Jenny; Decker, David
Cc: Fischhoff, Ilya
Subject: RE: What are US nuke earthquake stds rated to? Someone is reporting 7 on riChter. True?

Hi Michal - I'm in the Ops Center, so I've got your question into the reactor safety folks for a more complete answer, but anything suggesting a flat standard is not correct. The NRC requires that safety-significant structures, systems, and components be designed to take into account the most severe natural phenomena historically reported for the site and surrounding area. The NRC then adds a margin for error to account for the historical data's limited accuracy. In other words, U.S. nuclear power plants are designed to be safe based on historical data from the area's maximum credible earthquake. I'll get you more information from our reactor safety team.

-----Original Message-----

From: Freedhoff, Michal [<mailto:Michal.Freedhoff@mail.house.gov>]
Sent: Sunday, March 13, 2011 10:54 AM
To: Weil, Jenny; Decker, David; Powell, Amy
Cc: Fischhoff, Ilya
Subject: What are US nuke earthquake stds rated to? Someone is reporting 7 on riChter. True?

Michal Ilana Freedhoff, Ph.D.
Policy Director
Office of Representative Edward J. Markey
2108 Rayburn House Office Building
Washington, DC 20515
202-225-2836

Sent using BlackBerry

RRRR - 230

From: Harrington, Holly
To: Brenner, Eliot; Burnell, Scott; Couret, Ivonne; Hayden, Elizabeth; McIntyre, David; Chandrathil, Prema; Dricks, Victor; Hannah, Roger; Ledford, Joey; Mityng, Viktoria; Screnci, Diane; Sheehan, Neil; Uselding, Lara
Subject: Radiation readings at sites
Date: Monday, March 21, 2011 4:22:00 PM

Apparently some readings at nuclear power plants on the West Coast are being reported. Undine Shoop in HQ has the numbers if anyone needs them.

RRRR-231

From: Shoop, Undine
To: Harrington, Holly
Subject: RE: REMP Reporting Levels and Fukushima
Date: Monday, March 21, 2011 4:21:03 PM

Absolutely

From: Harrington, Holly
Sent: Monday, March 21, 2011 4:21 PM
To: Shoop, Undine
Subject: RE: REMP Reporting Levels and Fukushima

I'd rather you hang onto them, and if we get a question about it, we know where to go. Is that OK?

From: Shoop, Undine
Sent: Monday, March 21, 2011 4:20 PM
To: Harrington, Holly
Subject: FW: REMP Reporting Levels and Fukushima

Holly,

I am getting information on radiation measurements from the sites. Would you like me to forward it to you? Or is that useless information that will only fill up your inbox?

U

From: Werner, Greg
Sent: Monday, March 21, 2011 1:45 PM
To: Conatser, Richard; Henderson, Pamela; Dickson, Billy; Bonser, Brian
Cc: Garry, Steven; Pedersen, Roger; Jimenez, Manuel; Clemons-Webb, Candace; Shoop, Undine; Ricketson, Larry; Carson, Louis; Graves, Chris; Greene, Natasha; Alldredge, Casey
Subject: RE: REMP Reporting Levels and Fukushima

SONGS, Diablo, and Palo Verde are reporting air samples with I-131 at around 1 E-12 at this time. Over the weekend they were approximately 3 -5 E-13 at Diablo and SONGS.

Greg

From: Conatser, Richard
Sent: Monday, March 21, 2011 12:18 PM
To: Werner, Greg; Henderson, Pamela; Dickson, Billy; Bonser, Brian
Cc: Garry, Steven; Pedersen, Roger; Jimenez, Manuel; Clemons-Webb, Candace; Shoop, Undine
Subject: REMP Reporting Levels and Fukushima

All,

You may want to pass this along to your Inspectors who will be on inspections during the next couple of months.

The NRC's REMP REPORTING LEVELs may be exceeded as a result of plumes from Fukushima passing over REMP sampling stations. This email contains some unit conversions for your use. The table below shows the default NRC REPORTING LEVEL

RRRR-232

for I-131 in REMP samples listed in NUREG-1301 (PWRs) and NUREG-1302 (BWRs). It also converts the REPORTING LEVELS to those units commonly used at the plant sites.

I-131 Reporting Level in NUREG 1301 and NUREG-1302

	I-131	Units	I-131	Units
Drinking Water	2	pCi/L	2E-09	uCi/ml
Non-Drinking Water	20	pCi/L	2E-08	uCi/ml
Air	0.9	pCi/m ³	9E-13	uCi/cc

These are default values, and the site-specific values will be in the licensees' ODCMs. The REMP REPORTING LEVELS may be exceeded as a result of plumes from Fukushima passing over REMP sampling stations. The REMP results may vary as various puffs/plumes traverse the US. If a nuclide concentration exceeds the REPORTING LEVELS (averaged over a calendar quarter), the licensee may be required to report the data to the NRC within 30 days. The licensee should take the actions listed in their ODCM.

Because the I-131 (and possibly other radionuclides) from Fukushima will elevate the "background," it will reduce the licensee's ability to differentiate releases from their site. Strong data evaluation and analyses are appropriate at all times, and are particularly applicable at this time. This is also a good verification of licensee's analytical detection capabilities.

Best Regards,

Richard L. Conatser

Health Physicist

Nuclear Regulatory Commission

301-415-4039

Richard.Conatser@NRC.gov

David Decker

From: Freedhoff, Michal [Michal.Freedhoff@mail.house.gov]
Sent: Sunday, March 13, 2011 10:54 AM
To: Weil, Jenny; Decker, David; Powell, Amy
Cc: Fischhoff, Ilya
Subject: What are US nuke earthquake stds rated to? Someone is reporting 7 on riChter. True?

Michal Ilana Freedhoff, Ph.D.
Policy Director
Office of Representative Edward J. Markey
2108 Rayburn House Office Building
Washington, DC 20515
202-225-2836

Sent using BlackBerry

RRR-233

From: [Mitlyng, Viktoria](#)
To: [Brenner, Eliot](#); [Hayden, Elizabeth](#); [Harrington, Holly](#)
Cc: [Chandraithil, Prema](#)
Subject: QUESTION about Midwest coverage of Japan-related issues
Date: Monday, March 21, 2011 4:10:10 PM

There is a lot of coverage in Midwestern media outlets (we are talking to a lot of these reporters) that's not showing up in the clips. Do we need to flag some of the pieces that are most pertinent to NRC issues for you or not worry about it? If you want us to flag those stories, should they go to all of you or one of you? Please advise. Thank you. Vika

Viktoria Mitlyng
Office of Public Affairs
US Nuclear Regulatory Commission
Region III
Lisle, IL 60532
Tel 630/829-9662
Fax 630/515-1026
e-mail: viktoria.mitlyng@nrc.gov

RRRR-234

Subject: FW: Please review immediately.
Date: Monday, March 21, 2011 3:33:12 PM

Suggested edits to quote:

-
"The federal government has detailed plans for how to respond to a release of radioactive materials in the U.S., regardless of the cause. Given the range of potential causes, from an earthquake to a terrorist attack, the plans provide the flexibility and agility we need to respond aggressively and effectively, to any scenario. In addition, state and local officials and nuclear facilities have detailed emergency plans that include specific protective actions, evacuation routes, and methods to alert the public of actions to take in the event of an emergency. We work closely with and provide guidance to state, tribal and local governments when developing these plans, including providing comprehensive factors to consider for their evacuation plans. We also run a robust and active nuclear power plant exercise program that includes federal, state, tribal and local involvement to test plans and keep them current, ~~and just last year we conducted such an exercise.~~ Federal protective action guidelines ~~guides~~ are used at all nuclear power plants and are widely accepted and used in planning and exercises, and we will continue our efforts to plan and prepare for the safety and security of the American people."
-

SUGGESTED BACKGROUND:

INFO ON EVACUATION ORDERS AND PREPAREDNESS

Keeping nuclear facilities safe in the U.S. is a coordinated effort among the plant's operator, federal, state, local and tribal government agencies. Following the Three Mile Island accident in 1979, Congress established emergency planning and preparedness as a condition for licensing and operations. With any commercial nuclear facility within the U.S., the Nuclear Regulatory Commission (NRC) has regulatory oversight for onsite activities within the plant. FEMA is responsible for working with states and local communities with emergency planning and preparedness for offsite radiological activities – meaning for the residents and communities beyond the physical boundaries of the power plant. As part of those preparedness efforts, we provide guidance to states and localities to help them develop plans for radiological emergencies, including evacuation plans.

As with all disasters, whether natural or man-made, the authority to make decisions on, and issue, evacuation orders lies with state, tribal or local governments. This authority is laid out in state laws – and makes sense for both legal and practical reasons – state and local officials know their own capabilities, including local transportation routes, logistical challenges and community makeup better than anyone. During any disaster, FEMA and the federal government work to help states and local get out the message about evacuation orders, and use our various platforms and communications tools to amplify those messages. For example, during Hurricane Earl this past September, when the state of North Carolina was issuing evacuation orders, FEMA re-tweeted information about these orders on our Twitter account, making it clear the information was coming from state and local officials. It is critical that the public know who they should be listening to or turning to for information about evacuations, and we constantly remind the public, through our

RRRR-235

year-round messaging, that they should always follow the instructions of state and local officials in an emergency – and if told to evacuate, evacuate.

In the event that a state or locality was overwhelmed and could not carry out evacuations on its own, and requested that FEMA help provide the resources to carry out evacuations, we would coordinate through the federal family to provide that support.

~~In order for a nuclear power plant to get certified~~ As part of its licensing requirements by the Nuclear Regulatory Commission, each plant needs to have an approved emergency preparedness plan. ~~certain protective measures in place~~ – FEMA also requires planning with ~~which includes one of those being that the~~ state and local officials around where that plant is housed and requires them to have ~~need to have~~ evacuation plans developed in the event they were needed. Plants get certified annually – so this needs to be certified annually. Note: NRC does not certify plants, but I think FEMA does.

As part of FEMA's responsibility and efforts to work with state, tribal and local governments for planning and protective measures offsite at plants (for the communities around the plants) we provide guidance to states and localities to help them develop their evacuation plans. This happens under our Radiological Emergency Preparedness Program. As part of this program, every two years we inspect the plans state and local officials have in place for their various plants. This inspection includes evaluating their public alert and siren warning systems, and making sure that evacuation plans are factored into their larger planning. The information from these inspections gets reported to the NRC and taken into account when they are making their licensing decisions. If during that inspection we find that their plans are not sufficient, that information gets reported to the NRC, who could potentially pull a plant's license until corrective action is taken.

Overall, the REPP program provides state and local communities the support and resources they need to ensure the health and safety of citizens living around commercial nuclear power plants would be adequately protected in the event of a nuclear power plant accident; and inform and educate the public about radiological emergency preparedness. Here is more information on the program itself: http://www.fema.gov/about/divisions/thd_repp.shtm.

As we do with all hazards, FEMA is focused on making sure the public is aware of the various risks in their communities and providing preparedness and safety information about the potential impact of a nuclear or radiological threat. Families that live near or around nuclear power plants should become informed about simple steps they can take to protect themselves in the event of a nuclear explosion by contacting their local Office of Emergency Management, referring to information in the local telephone directory and publications received about emergency preparedness. Individuals and families can also visit www.ready.gov. And part of this public awareness means making sure families and residents know who evacuation orders would be issued from in the event of an emergency.

RESPONSE TO RADIOLOGICAL INCIDENTS

In the event of an incident occurring at a nuclear power plant in the U.S., the Department of Homeland Security would bring to bear the expertise and authorities of agencies across the Federal government. These roles are outlined in the National Response Framework, a guide to how the nation conducts all-hazards response – from the smallest incident to the largest catastrophe. The NRF makes clear the roles and responsibilities of federal agencies under all domestic incidents, so that all other members of the nation’s emergency management team understand how the federal response would be coordinated. It applies to both Stafford Act and non-Stafford Act events. For more on the NRF, click here: http://www.fema.gov/pdf/emergency/nrf/NRF_FAQ.pdf.

Under this scenario, several agencies would have key roles in technical and operational needs. For instance:

- The Nuclear Regulatory Commission (NRC) would coordinate incidents at, or caused by, a facility that is licensed by the NRC or under agreement with the NRC, such as commercial nuclear power plants.
- The Environmental Protection Agency EPA would coordinate the Federal environmental response to incidents involving the release of nuclear/radioactive materials that occur in the inland zone and in certain coastal zones.

In the event of a serious nuclear power plant incident with the potential to affect surrounding communities, the NRC and the affected plant would make protective action recommendations to the local officials based on plant conditions. Recommendations could ~~would~~ include evacuation, sheltering in place, KI, and provisions for farmers related to livestock.

FEMA would stand ready to support the federal response efforts in any way needed, as permitted under our authorities. We would leverage all of the resources our agency brings to bear, including our expertise in disaster response and recovery coordination, help with staffing, and other needs, in support of the federal response and the impacted states and local communities.

When disasters strike, the first responders are local emergency and public works personnel, volunteers, humanitarian organizations, and numerous private interest groups who provide emergency assistance required to protect the public's health and safety and to meet immediate human needs. In general, under state laws, decisions and orders about evacuations would come from state, local and tribal governments, who have primary responsibility and authority for evacuation planning, transportation, sheltering, and public safety. As we do with any disaster, FEMA and our federal partners would support state, local and tribal governments in their evacuation plans and do everything we can to amplify these messages and urge people to follow their local evacuation orders if and when given by state, local, and tribal leaders.

From: [Harrington, Holly](#)
To: [Courret, Ivonne](#); [Hannah, Roger](#)
Subject: RE: Response from "Contact Us About Live Webcasts"
Date: Monday, March 21, 2011 3:16:00 PM

Send this to Beth to respond.

-----Original Message-----

From: Courret, Ivonne
Sent: Monday, March 21, 2011 3:12 PM
To: Harrington, Holly; Hannah, Roger
Subject: FW: Response from "Contact Us About Live Webcasts"
Importance: High

Yep...they are starting to study us....Ivonne

Ivonne L. Couret
Public Affairs Officer
Office of Public Affairs
Media Desk
opa.resource@nrc.gov
301-415-8200

Visit our online photo gallery. Incorporate graphics and photographs to tell your story!
<http://www.nrc.gov/reading-rm/photo-gallery/>

2010-2011 Information Digest - Where you can find NRC Facts at a Glance
<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1350/>

-----Original Message-----

From: Stenberg, Danita On Behalf Of Streaming Resource
Sent: Monday, March 21, 2011 1:21 PM
To: Courret, Ivonne
Subject: FW: Response from "Contact Us About Live Webcasts"
Importance: High

Ivonne,

I was unsure how to respond to this request please advise or let me know if you will respond.

Thank you for your help

Danita

Danita C Stenberg
Project Officer/AV Production Specialist
Multimedia Communications Branch
ADM/DAS/MCB
U.S. Nuclear Regulatory Commission
Mailstop: T6E20
301-415-5166

-----Original Message-----

From: William J. Kinsella [<mailto:wjkinsel@ncsu.edu>]

RRRR-236

Sent: Monday, March 21, 2011 11:03 AM
To: Streaming Resource
Subject: Response from "Contact Us About Live Webcasts"

Below is the result of your feedback form. It was submitted by

William J. Kinsella (wjkinsel@ncsu.edu) on Monday, March 21, 2011 at 11:02:47

comments: I have just watched the March 21 NRC briefing webcast and would like to receive any records of that meeting as soon as possible. A written transcript, digital file, CD, and/or audio recording would all be helpful. I am an academic communication researcher working in the area of nuclear energy communication. I am studying the NRC's public communication in response to the events in Japan, and working to develop some conclusions from the available materials as soon as possible. Thank your for organizing and webcasting this meeting, and for your efforts on behalf of all US citizens as well as the people of Japan.

organization: North Carolina State University

address1: Department of Communication

address2: Campus Box 8104

city: Raleigh

state: NC

zip: 27607-3030

country: USA

phone: 919-788-9016

From: [Harrington, Holly](#)
To: [Tobin, Jennifer](#)
Cc: [Bonaccorso, Amy](#); [Deavers, Ron](#)
Subject: RE: OPA Assistance
Date: Monday, March 21, 2011 3:13:00 PM

Jenny – Thank you for everything you’d done for us. With the call volume going down, I think we’re OK without you directly staffing the “center.” But I think Amy would appreciate it if you were able to answer e-mails, if necessary . . .

Holly

From: Tobin, Jennifer
Sent: Monday, March 21, 2011 3:02 PM
To: Harrington, Holly
Cc: Bonaccorso, Amy; Deavers, Ron
Subject: OPA Assistance

Holly,
Due to the small size of our office and our involvement with Japanese counterparts, my management has said that they need me in our office. I can still respond to the emails that you forward me but it doesn’t look like I’ll be able to “man a desk” with you guys for the remainder of the event. Hopefully things are calming down though!

-Jenny

Jenny (Tobin) Wollenweber
Export Licensing Officer
Office of International Programs
office: 301-415-2328

RRRR-237

From: [Harrington, Holly](#)
To: [Anderson, Brian](#)
Subject: RE: We do have a job for you!
Date: Monday, March 21, 2011 3:03:00 PM

You can reach out to whomever you choose. In the end, we'll have to run it by RST for approval, I think.

No timeframe except "soon"!!

From: Anderson, Brian
Sent: Monday, March 21, 2011 2:37 PM
To: [Harrington, Holly](#)
Subject: RE: We do have a job for you!

Got it. I'm somewhat familiar with B5b, so I'll start working this immediately.

1. Any problem if I reach out to some contacts I have in NSIR, or should I stick with working only through RST staff?
2. Do I have a deadline for this? An hour ago, right?

From: [Harrington, Holly](#)
Sent: Monday, March 21, 2011 2:31 PM
To: [Anderson, Brian](#)
Subject: We do have a job for you!

We need some "key messages" or Q&As related to B5b, which are mitigative measures we require plants after 9/11 and theoretically related to large fires (and aircraft) but they are more generally speaking, extreme measures that our plants are required to have in place to combat unusual situations.

You could contact the Reactor Safety Team in the Op Center and ask for their b5b expert. Say you are doing this for OPA verbal use initially (although we may turn them into a fact sheet at some point, too).

Basically answer these questions:

1. What mitigative measures are required in the event of large fires at a plant?
2. When did this mitigative measures become required?
3. How do we know these will work/be effective?
4. Has any plant every had to employ them?
5. Are they regularly tested/inspected?

Let me know if this makes sense.

Holly

RRRR-238

From: Virgilio, Martin
Sent: Wednesday, April 06, 2011 2:32 PM
To: Wiggins, Jim; Burnell, Scott; RST06 Hoc
Cc: Zimmerman, Roy
Subject: RE: Proposed Unit 2 core response language

Me too, thanks Scott

From: Wiggins, Jim
Sent: Wednesday, April 06, 2011 2:22 PM
To: Burnell, Scott; Virgilio, Martin; RST06 Hoc
Cc: Zimmerman, Roy
Subject: RE: Proposed Unit 2 core response language

Looks like good to me.

From: Burnell, Scott
Sent: Wednesday, April 06, 2011 2:04 PM
To: Virgilio, Martin; Wiggins, Jim; RST06 Hoc
Subject: Proposed Unit 2 core response language
Importance: High

Your thoughts are appreciated on the following:

There continues to be a great deal we don't know regarding the situation at Fukushima. One thing we do know with reasonable certainty is that the core of Unit 2 has been damaged. Beyond that, the NRC speculates there are possible leakage paths from the reactor vessel into the drywell that could account for reports of high radiation levels in the drywell. The NRC does not believe the reactor vessel has failed, and we do believe the core remains in the vessel. These two beliefs drive our continuing recommendation that every available method should be used to add fresh water to the Unit 2 reactor vessel and continue cooling the core.

From: [Harrington, Holly](#)
To: [Loyd, Susan](#)
Subject: WEB EOC
Date: Monday, March 21, 2011 2:15:00 PM

Susan – I actually have a tiny amount of breathing room this afternoon and could come up and show you how to use this, if you want.

<http://148.184.213.135/eoc7/default.aspx>

Holly

RRRR - 240

From: [Harrington, Holly](#)
To: [Montgomery, Jack](#); [Ousley, Elizabeth](#)
Subject: Laptops are no longer needed.
Date: Monday, March 21, 2011 12:54:00 PM

They are in my office. Can someone come get them or tell me where to return them. Thanks!!

RRRR-241

From: [Harrington, Holly](#)
To: [HOO Hoc](#)
Subject: RE: HOO / Public Affairs
Date: Monday, March 21, 2011 12:46:00 PM

Don't bother RIV with these. Just treat them like citizen inquiries and we'll explain to them why we're not sending unsolicited suggestions from the American public to the Japanese authorities!

From: HOO Hoc
Sent: Monday, March 21, 2011 12:45 PM
To: Harrington, Holly
Subject: RE: HOO / Public Affairs

Holly,

Sorry I didn't explain, R4 ROOs were just helping us out with call volume.

Howie

Headquarters Operations Officer
U.S. Nuclear Regulatory Commission
Phone: 301-816-5100
Fax: 301-816-5151
email: hoo.hoc@nrc.gov
secure e-mail: hoo1@nrc.sgov.gov

From: Harrington, Holly
Sent: Monday, March 21, 2011 12:26 PM
To: HOO Hoc
Subject: RE: HOO / Public Affairs

Thank you for this. A few things:

If citizen health concerns can't be sent to CDC (if caller resists), you can refer them to 8200 or opa.resource and our Public Inquiry Desk will try to address them.

I'm unaware of Region IV agreeing to take unsolicited citizen suggestions. We are handling them also through the Public Inquiry Desk, so you can send these to us as well.

During off-hours, due to staffing limitations, OPA is probably going to do extended hours in the OP Center (and/or OPA's regular offices) but not overnight. We are still working out a system here where we will take urgent calls on a rotating basis. We will let you know before COB today.

OK?

Holly

RRRR-242

From: HOO Hoc
Sent: Monday, March 21, 2011 12:17 PM
To: HOO Hoc
Subject: HOO / Public Affairs

Holly,

We are trying to get alignment on handling Public Affairs related calls into the Ops Center, specifically by the HOO team. The way we see it is that:

During normal business hours

- a. Media requests (print and broadcast) are transferred to (301) 415-8200.
- b. Citizen health concerns are transferred to the CDC. (1-800-232-4357)
- c. Citizen suggestions for dealing with Japanese events will be referred to OPA.Resources@nrc.gov first, and if unsuccessful, transferred to R4 ROO.

After normal business hours

- a. Immediate broadcast requests, e.g., wanting an interview now, transfer to the on-watch PAO in the Ops Center.
- b. Non-urgent media requests will be told to contact the public affairs office during normal business hours.
- c. Citizen suggestions for dealing with Japanese events will be referred to OPA.Resources@nrc.gov first, and if the citizen persists, we will read them the statement provided by your office then clear the line.

Regards,

Howie Crouch

Headquarters Operations Officer
U.S. Nuclear Regulatory Commission
Phone: 301-816-5100
Fax: 301-816-5151
email: hoo.hoc@nrc.gov
secure e-mail: hoo1@nrc.sgov.gov

From: Couret, Ivonne
To: Brenner, Eliot; Hayden, Elizabeth; Janbergs, Holly; Harrington, Holly; McIntyre, David; Burnell, Scott; Screnci, Diane; Sheehan, Neil; Uselding, Lara; Dricks, Victor; Chandrathil, Prema; Mittlmg, Viktoria; Ledford, Joey; Hannah, Roger
Subject: FYI - FW: Commission Briefing - webcast archived available on web 3p.m. Today
Date: Monday, March 21, 2011 12:07:29 PM

FYI Ivonne

From: Stenberg, Danita
Sent: Monday, March 21, 2011 11:51 AM
To: Couret, Ivonne
Cc: Kundrat, Christine; Baval, Rochelle
Subject: RE: Commission Briefing - Transcripts and webcast archived

Ivonne,

The web stream will expedite to post today within the next 4 hours.
Please advise people to look for look for it NLT 3PM Eastern.

Danita

Danita C Stenberg
Project Officer/AV Production Specialist
Multimedia Communications Branch
ADM/DAS/MCB
U.S. Nuclear Regulatory Commission
Mailstop: T6E20
301-415-5166

From: Couret, Ivonne
Sent: Monday, March 21, 2011 11:48 AM
To: Stenberg, Danita; Kundrat, Christine; Baval, Rochelle
Subject: Commission Briefing - Transcripts and webcast archived
Importance: High

Exactly when will the transcripts and webcast of this morning's meeting be available? I have a new flood of request. Please advise. Ivonne

Ivonne L. Couret
Public Affairs Officer
Office of Public Affairs
Media Desk
opa.resource@nrc.gov
301-415-8200

Visit our online photo gallery. Incorporate graphics and photographs to tell your story!
<http://www.nrc.gov/reading-rm/photo-gallery/>

2010-2011 Information Digest - Where you can find NRC Facts at a Glance
<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1350/>

RRRR-243

From: [Harrington, Holly](#)
To: [McIntyre, James](#)
Subject: Nuke/rad folks?
Date: Monday, March 21, 2011 11:46:00 AM

We may be in the market for some contract PR assistance. We're particularly looking for folks with a nuke/rad background that can help us in the days head deal with media inquiries. We have the ability to bring them on for 89 days. I was wondering if you had any DAEs that might fit that profile?

Basically need them to be local DC area or around Philly or Chicago.

Hope all is well with you!

Holly

RRR-244

From: [Harrington, Holly](#)
To: [Brenner, Eliot](#)
Subject: sending thanks to FEMA
Date: Monday, March 21, 2011 11:44:00 AM

When time, please send this (or something like this) to:

Brent.colburn@dhs.gov

Brent –

Thank you for sending us FEMA reinforcements in our time of need last week. Michael Widomski was a significant help to us, particularly providing direct support for the public meeting and resulting media gaggle this morning. His experience, his calm and cool demeanor, and his willingness to jump in without waiting for instructions was especially helpful. We may not hesitate to ask for his help again! We also appreciate Nancy Still's willingness to assist, although we were not as able to take advantage of her skills.

RRRR - 245

From: [Harrington, Holly](#)
To: [Sheehan, Neil](#); [Brenner, Eliot](#)
Cc: [Mroz \(Sahm\), Sara](#)
Subject: RE: Comm Team Sitrep
Date: Tuesday, March 22, 2011 8:27:00 AM

Sara says they put together something for FEMA. I'll try to find it to help you draft something

From: Sheehan, Neil
Sent: Tuesday, March 22, 2011 8:27 AM
To: Harrington, Holly; Brenner, Eliot
Cc: Mroz (Sahm), Sara
Subject: RE: Comm Team Sitrep

The Westchester County folks were almost pleading with us yesterday to get out in front with a response. I can always take a crack at it and, depending on the timing, combine efforts with Sara. If we got something posted today, the N.Y. folks would be grateful.

From: Harrington, Holly
Sent: Tuesday, March 22, 2011 8:25 AM
To: Sheehan, Neil; Brenner, Eliot
Cc: Mroz (Sahm), Sara
Subject: RE: Comm Team Sitrep

Diane had forwarded Bill Dean's request for this blog post yesterday and I'd forwarded the request to Sara Mroz in NSIR. She says she has something but won't be back in until 3 p.m. today to get it approved. I've not seen what she's got. I hate to duplicate efforts, but if Region 1 needs something for today, I guess Neil will have to put something together . . . Otherwise, I'll talk to Sara this afternoon.

Holly

From: Sheehan, Neil
Sent: Monday, March 21, 2011 6:07 PM
To: Brenner, Eliot
Cc: Harrington, Holly
Subject: FW: Comm Team Sitrep

Eliot,

Westchester County is very concerned about media coverage re: 10-mile-radius EPZ versus 50-mile (American) evacuation zone in Japan.

I'd be glad to draft a blog item on this to nip this before it goes completely viral. How does that sound?

Neil

RRRR-246

From: Dean, Bill
Sent: Monday, March 21, 2011 5:09 PM
To: Leeds, Eric; Nelson, Robert
Cc: Lew, David; Screnci, Diane; Sheehan, Neil; McNamara, Nancy; Tifft, Doug
Subject: RE: Comm Team Sitrep

Any help you can give wrt 50 Mile EPZ and why 10 mile EPZ is ok on a blog or other vehicle would be greatly appreciated. Just getting onto a call with WestChester County Executive to discuss the matter. They believe something on the blog would be great like the way we addressed the MSNBC article.

Bill

From: Leeds, Eric
Sent: Monday, March 21, 2011 4:32 PM
To: Dean, Bill; Lew, David; McCree, Victor; Wert, Leonard; Pederson, Cynthia; West, Steven; Howell, Art; Collins, Elmo
Cc: Johnson, Michael; Wiggins, Jim; Sheron, Brian; Virgilio, Martin; Brenner, Eliot; Hayden, Elizabeth; Schmidt, Rebecca; Powell, Amy; Grobe, Jack; Uhle, Jennifer; Evans, Michele; Holahan, Gary
Subject: FYI: Comm Team Sitrep

FYI – see below. Lots of progress. Lots more to do.

Eric J. Leeds, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
301-415-1270

From: Nelson, Robert
Sent: Monday, March 21, 2011 3:51 PM
To: Leeds, Eric; Boger, Bruce; Giitter, Joseph
Cc: Meighan, Sean; Nguyen, Quynh; Markley, Michael; Oesterle, Eric; Thomas, Eric
Subject: FYI: Comm Team Sitrep

1. The biggest advancement was the public version of Annie Kemmerer's Qs & As. Our team had little to do with this other than to ask for it.
2. We added numerous documents to our NRR internal website:
<http://portal.nrc.gov/edo/nrr/default.aspx> . I've communicated this update to our regional POCs.
3. I prepared & forwarded to Eric a recommended communication to all NRR staff regarding that web site. Our staff is hungry for info.
4. We completed our compilation of OBE, SSE, Max Flooding Level and Protection Level for all of the plants based on info in the FSARs. This info is readily available when needed.
5. We'll begin our screening of potentially sensitive licensing actions tomorrow. I'll inform you of the results.
6. We working on some additional Qs & As but we've been impacted by the AP FOIA and did not make as much progress as we had hoped.
7. I've asked OEDO for the file of the EDO's opening remarks from today's meeting. We don't want to wait for the transcript. This is another source of info for Qs & As.

No response yet.

NELSON

From: [WebContractor Resource](#)
To: [Hayden, Elizabeth](#); [WebContractor Resource](#); [Hardy, Sally](#)
Cc: [Harrington, Holly](#); [Couret, Ivonne](#)
Subject: RE: Japan page: KI info
Date: Monday, March 21, 2011 11:41:15 AM

Good Morning,

The 3/21 Commission Meeting slides have been added:
<http://148.184.174.31/japan/japan-info.html>

Thank You,
David
Web Team

From: Hayden, Elizabeth
Sent: Monday, March 21, 2011 10:22 AM
To: [WebContractor Resource](#); [Hardy, Sally](#)
Cc: [Harrington, Holly](#); [Couret, Ivonne](#)
Subject: Re: Japan page: KI info

The slides for this morning's OCM mtg can be posted on the Japan page. Suggest putting it under a new heading Commission Meeting 3/21 - Slides and list it under Press Releases. We will then add a link to the video and transcript when available.

From: [WebContractor Resource](#)
To: [Hayden, Elizabeth](#)
Cc: [WebWork Resource](#)
Sent: Mon Mar 21 09:02:15 2011
Subject: RE: Japan page: KI info

Good Morning Beth,

This has been updated and posted live.

Thank you,
Michael

From: Hayden, Elizabeth
Sent: Monday, March 21, 2011 8:36 AM
To: Main, Jeffrey
Cc: Hoffman, Joan; Hardy, Sally
Subject: RE: Japan page: KI info

The KI FAQs at <http://www.nrc.gov/about-nrc/emerg-preparedness/about-emerg-preparedness/potassium-iodide/ki-faq.html> needs to be linked under FAQs on the Japan webpage as **Potassium Iodide**

Beth Hayden
Senior Advisor
Office of Public Affairs

RRRR-247

U.S. Nuclear Regulatory Commission
--- Protecting People and the Environment
301-415-8202
elizabeth.hayden@nrc.gov

From: Main, Jeffrey
Sent: Monday, March 21, 2011 7:36 AM
To: Harrington, Holly
Cc: Hayden, Elizabeth; Main, Jeffrey; Hoffman, Joan; Hardy, Sally
Subject: RE: Japan page: KI info

Holly,

One more note. I ran a check and verified that NO pages at our site link to the old KI page (which doesn't exist). All the links, including those from our google search engine search results, point to the new page.

This means that most or all of those 12000 requests for the old KI page that no longer exists are likely from people who still have the old page bookmarked. As I said, I've now redirected the old page to push users to the new KI page—it works, getting you to the new page; you can test it at <http://www.nrc.gov/about-nrc/emerg-preparedness/protect-public/ki-faq.html>

As for our new KI page, I went to google.com (not our site google search) and could not find our KI page anywhere in the top 100 pages on the subject. What I could find were (as you would expect at #1) Walmart.com selling it, many news and science sites with KI articles, other sites that could be scammers, and still other sites saying the U.S. govt is trying to hide it from people.

I know that this is a politically sensitive issue and also that we cannot control the outside search engines, but I think this goes to the point that I think we should elevate the visibility of our response to the issue in light of the current crisis and resulting site usage data.

--Jeffrey

From: Main, Jeffrey
Sent: Sunday, March 20, 2011 11:43 AM
To: Harrington, Holly; Hardy, Sally; Hoffman, Joan
Cc: Hayden, Elizabeth
Subject: RE: Japan page: KI info

Yes, I understand, thanks.

I guess my thought was that we do have KI info at the site. You can find it if you simply enter "KI" in a site search. By not linking to it from the Japan page when we have it and 1000s of people are looking for it, people may infer we are trying to hide it.

--Jeffrey

From: Harrington, Holly
Sent: Sunday, March 20, 2011 11:37 AM

To: Main, Jeffrey; Hardy, Sally; Hoffman, Joan
Cc: Hayden, Elizabeth
Subject: FW: Japan page: KI info

Jeffrey – Thank you so much for getting the redirect to the KI page! As for adding a link to the Japan page, I'll let Beth weigh in. She created and organized the page and there might have been a specific reason why KI was not added (since we say that no one in the U.S. needs it right now, perhaps?)

Holly

From: Janbergs, Holly **On Behalf Of** OPA Resource
Sent: Sunday, March 20, 2011 11:35 AM
To: Harrington, Holly
Subject: FW: Japan page: KI info

From: Main, Jeffrey
Sent: Sunday, March 20, 2011 11:02 AM
To: OPA Resource
Cc: Hardy, Sally; Hoffman, Joan; Main, Jeffrey
Subject: Japan page: KI info

Good morning!

I was looking through the usage stats for the public site and noticed **over 12,000** failed attempts to get to the old KI FAQ page in the past 7 days. During that period, this old page is by far the single most requested page that can not be found at our site.

<http://www.nrc.gov/about-nrc/emerg-preparedness/protect-public/ki-faq.html>
that was moved to .
<http://www.nrc.gov/about-nrc/emerg-preparedness/about-emerg-preparedness/potassium-iodide/ki-faq.html>

I've created a redirect to push the requests to the new location. It will take a few hours to become effective, but should get users the info they are looking for soon.

However, I also noticed that the new Japan info page does not actually mention KI. I know there is a PDF on how to protect yourself (linked from the Japan page), but I think people may be looking specifically for KI information and may bypass this PDF since KI is not mentioned in the title. In addition, the PDF file does not mention the other info we have on KI at the site. Given the recent news reports on the KI scare out west, we might want to specifically mention it on the Japan page with links to the KI information.

Just a thought.

--Jeffrey

From: [Harrington, Holly](#)
To: martin.bricketto@law360.com
Subject: Yes prepared remarks are from Chairman Jaczko's opening remarks
Date: Monday, March 21, 2011 11:32:00 AM

RRRR-248

From: [Greenwood, Krystal](#) on behalf of [AV-PHOTO Resource](#)
To: [Hayden, Elizabeth](#); [AV-PHOTO Resource](#)
Cc: [Taylor, Robert](#); [Harrington, Holly](#)
Subject: RE: request loan of a camera
Date: Monday, March 21, 2011 11:09:18 AM
Attachments: [image001.png](#)

Good Morning:

The AV Studio can reserved a coolpix camera for your use. If you can please confirm that it will be needed it can be retrieved form the AV Studio, located in T6E8, anytime after 7:00am on the designated day. Once you have returned the coolpix camera we will provide you with a CD of images. We will give you a quick review of how to upload and send images via the internet if needed. Please confirm the need of usage and dates that the Coolpix will be reserved. Should you have any further questions/questions please feel free to contact the AV Studio.

Thank you,

Krystal Greenwood
3 Links Technologies
AudioVisual Support Contractor
U.S. Nuclear Regulatory Commission
Location: T6E8
Mailstop: T6E20
Tel. 301-415-6851
Krystal.Greenwood@nrc.gov



From: Hayden, Elizabeth
Sent: Saturday, March 19, 2011 4:21 PM
To: AV-PHOTO Resource
Cc: Taylor, Robert; Harrington, Holly
Subject: request loan of a camera

The next NRC team to go over to Japan will include Rob Taylor who we would like to ask to take a camera so that he can send us back some photos for the web. If Rob agrees, would there be a small digital camera from AV that he could use in Japan?

RRRR-249

From: [OST03 HOC](#)
To: [DOI](#); [DTRA](#); [chardin](#); [rfraass@crcpd.org](#); [james.d.lloyd@nasa.gov](#); [PN Distribution](#); [FDA](#); [State Dept](#); [White House Sit Room](#); [Bernie Beaudin](#); [Canadian Nuclear Safety Commission \(CNSC\)](#); [eoc2@cnsc-ccsn.gc.ca](#); [DOEHQEOC@OEM.DOE.GOV](#); [fldr-nrc@comdt.uscg.mil](#); [EOC.EPAHQ@EPAMAIL.EPA.GOV](#); [Lawrence Koleff](#); [SIOC](#); [FEMA-operations-center@dhs.gov](#); [Health Canada Operations Center](#); [IAEA Emergency Response Unit](#); [USDA](#); [Screnci, Diane](#); [Sheehan, Neil](#); [Dricks, Victor](#); [Clifford, James](#); [Gamberoni, Marsha](#); [Heater, Keith](#); [Holian, Brian](#); [Kay Gallagher](#); [Kinneman, John](#); [Lew, David](#); [Nick, Joseph](#); [ODaniell, Cynthia](#); [Powell, Raymond](#); [R1 IRC](#); [Roberts, Darrell](#); [Thompson, Margaret](#); [Davenport, Patricia](#); [McCallie, Karen](#); [Miles, Patricia](#); [Quinones-Navarro, Joylynn](#); [R2 IRC](#); [Rudisail, Steven](#); [R3 IRC](#); [Smith, Desiree](#); [Alferink, Beth](#); [Andrews, Tom](#); [Howell, Linda](#); [R4 IRC](#)
Subject: Real Event: NRC Press Release #12 - Japan Event Earthquake/Tsunami
Date: Monday, March 21, 2011 11:06:28 AM
Attachments: [Press Release 12.pdf](#)

*****Event Information is Attached*****

The NRC is responding to an event.

Please contact the NRC Executive Support Team if necessary at 301-816-5100 or reply to this e-mail.

RRRR-250



NRC NEWS

U.S. NUCLEAR REGULATORY COMMISSION

Office of Public Affairs Telephone: 301/415-8200

Washington, D.C. 20555-0001

E-mail: opa.resource@nrc.gov Site: www.nrc.gov

Blog: <http://public-blog.nrc-gateway.gov>

No. 11-053

March 19, 2011

NRC POSTS UPDATED SEISMIC QUESTIONS AND ANSWERS

The Nuclear Regulatory Commission has posted a series of updated seismic and tsunami questions and answers on its website. The Q&A provides basic information on earthquakes and tsunamis, details on U.S. nuclear power plant seismic design and an explanation of NRC's recent study on earthquake risk. The document is available at <http://www.nrc.gov/japan/faqs-related-to-japan.pdf>, and other NRC information related to the March 11 earthquake and tsunami is available at <http://www.nrc.gov/japan/japan-info.html>.

###

News releases are available through a free *listserv* subscription at the following Web address: <http://www.nrc.gov/public-involve/listserver.html>. The NRC homepage at www.nrc.gov also offers a SUBSCRIBE link. E-mail notifications are sent to subscribers when news releases are posted to NRC's website.

From: Couret, Ivonne
To: McIntyre, David; Brenner, Eliot; Hayden, Elizabeth; Janbergs, Holly; Harrington, Holly; Screnci, Diane; Sheehan, Neil; Chandrathil, Prema; Mitlyng, Viktoria; Dricks, Victor; Uselding, Lara; Taylor, Robert; Bonaccorso, Amy; Powell, Amy; Schmidt, Rebecca
Subject: NRC Dose Comparison Bar Chart
Date: Monday, March 21, 2011 10:26:49 AM
Attachments: factoid2-lrg.gif
factoid2-lrg.pdf

FYI if you need this....

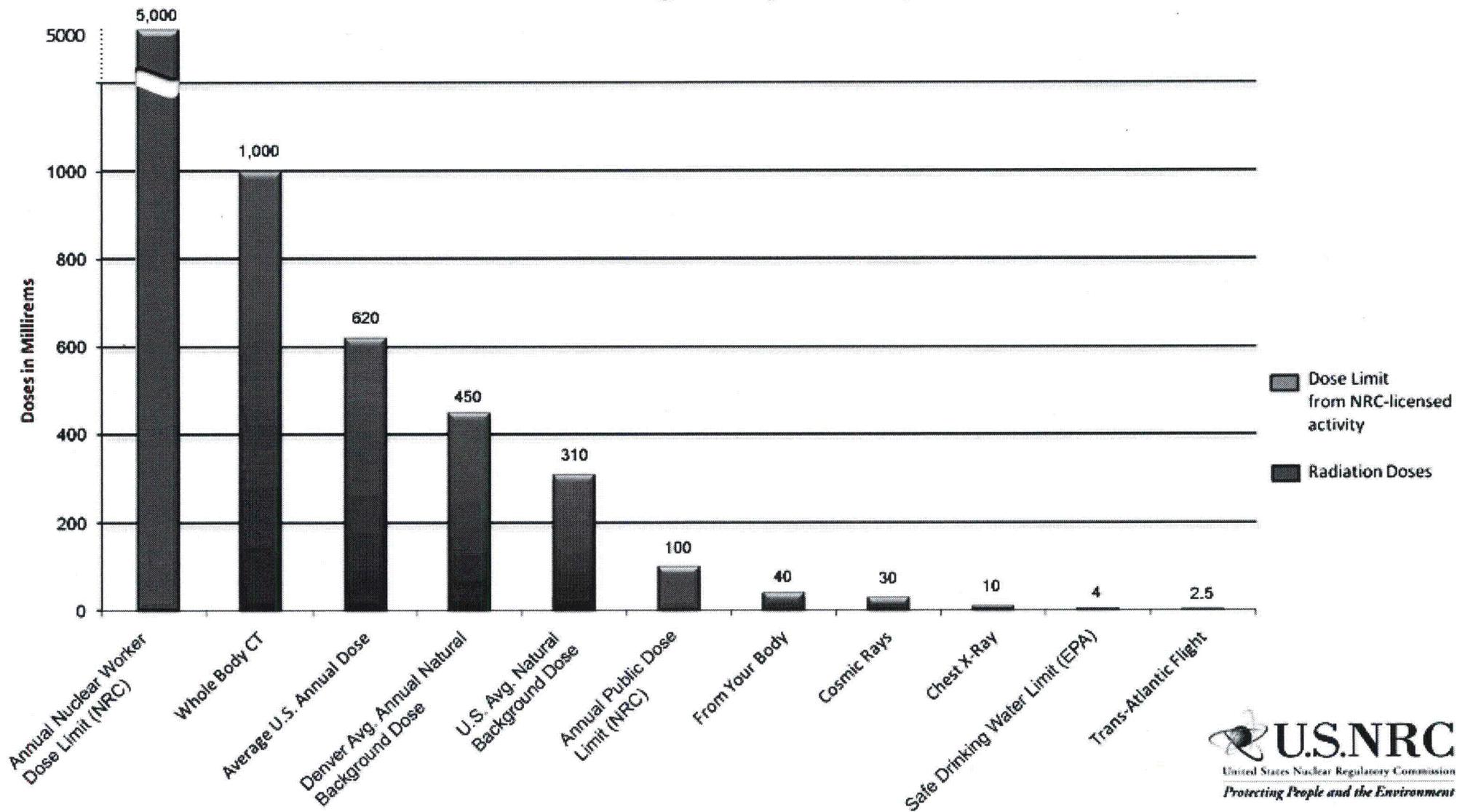
Ivonne L. Couret
Public Affairs Officer
Office of Public Affairs
Media Desk
opa.resource@nrc.gov
301-415-8200

Visit our online photo gallery. Incorporate graphics and photographs to tell your story!
<http://www.nrc.gov/reading-rm/photo-gallery/>

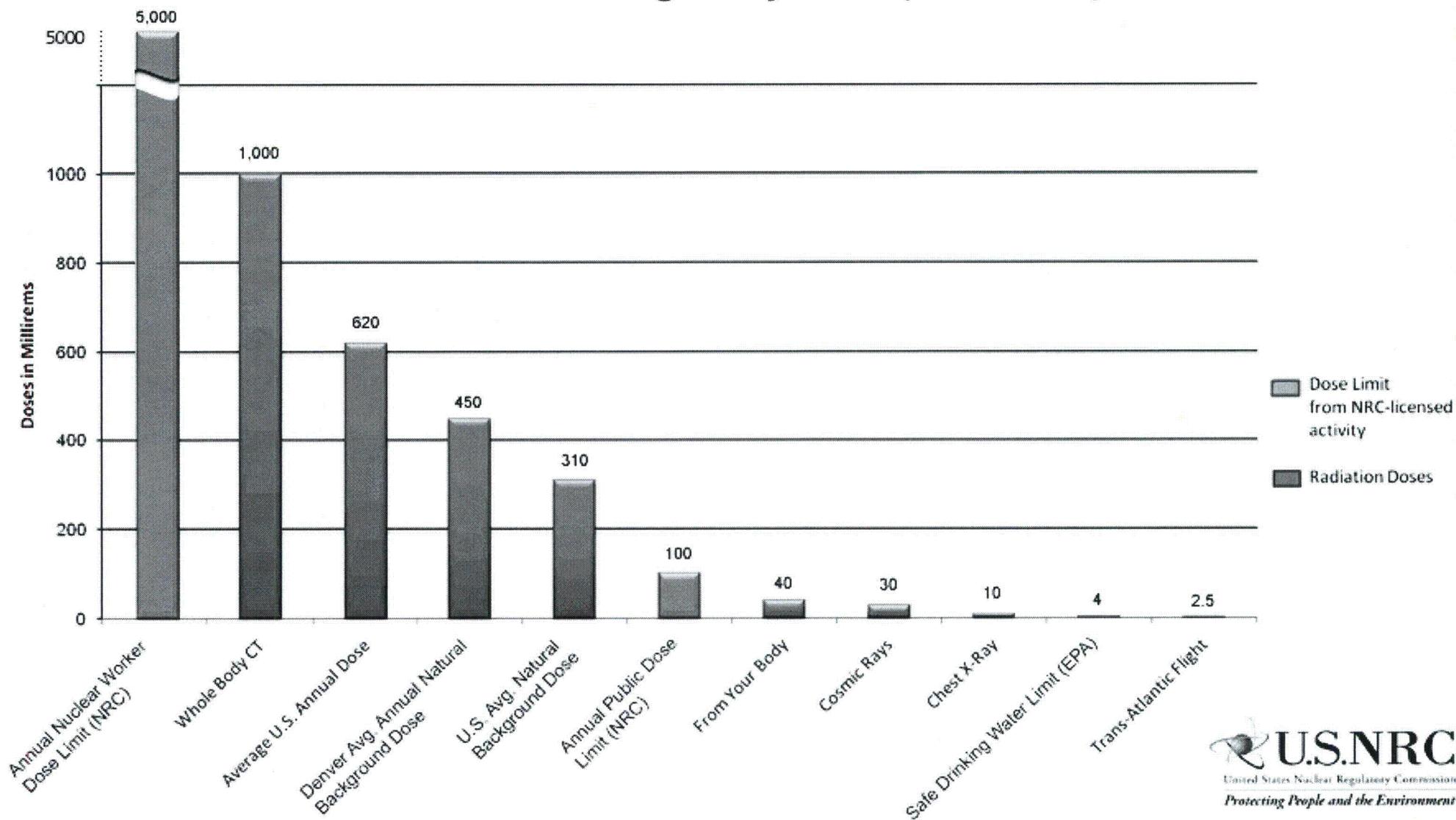
2010-2011 Information Digest - Where you can find NRC Facts at a Glance
<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1350/>

RRRR-251

Radiation Doses and Regulatory Limits (in Millirems)



Radiation Doses and Regulatory Limits (in Millirems)



From: [Hayden, Elizabeth](#)
To: [WebContractor Resource](#); [Hardy, Sally](#)
Cc: [Harrington, Holly](#); [Courret, Ivonne](#)
Subject: Re: Japan page: KI info
Date: Monday, March 21, 2011 10:21:52 AM

The slides for this morning's OCM mtg can be posted on the Japan page. Suggest putting it under a new heading Commission Meeting 3/21 - Slides and list it under Press Releases. We will then add a link to the video and transcript when available.

From: WebContractor Resource
To: Hayden, Elizabeth
Cc: WebWork Resource
Sent: Mon Mar 21 09:02:15 2011
Subject: RE: Japan page: KI info

Good Morning Beth,

This has been updated and posted live.

Thank you,
Michael

From: Hayden, Elizabeth
Sent: Monday, March 21, 2011 8:36 AM
To: Main, Jeffrey
Cc: Hoffman, Joan; Hardy, Sally
Subject: RE: Japan page: KI info

The KI FAQs at <http://www.nrc.gov/about-nrc/emerg-preparedness/about-emerg-preparedness/potassium-iodide/ki-faq.html> needs to be linked under FAQs on the Japan webpage as **Potassium Iodide**

Beth Hayden
Senior Advisor
Office of Public Affairs
U.S. Nuclear Regulatory Commission
--- Protecting People and the Environment
301-415-8202
elizabeth.hayden@nrc.gov

From: Main, Jeffrey
Sent: Monday, March 21, 2011 7:36 AM
To: Harrington, Holly
Cc: Hayden, Elizabeth; Main, Jeffrey; Hoffman, Joan; Hardy, Sally
Subject: RE: Japan page: KI info

Holly,

One more note. I ran a check and verified that NO pages at our site link to the old KI page (which doesn't exist). All the links, including those from our google search engine

RRRR-252

search results, point to the new page.

This means that most or all of those 12000 requests for the old KI page that no longer exists are likely from people who still have the old page bookmarked. As I said, I've now redirected the old page to push users to the new KI page—it works, getting you to the new page; you can test it at <http://www.nrc.gov/about-nrc/emerg-preparedness/protect-public/ki-faq.html>

As for our new KI page, I went to google.com (not our site google search) and could not find our KI page anywhere in the top 100 pages on the subject. What I could find were (as you would expect at #1) Walmart.com selling it, many news and science sites with KI articles, other sites that could be scammers, and still other sites saying the U.S. govt is trying to hide it from people.

I know that this is a politically sensitive issue and also that we cannot control the outside search engines, but I think this goes to the point that I think we should elevate the visibility of our response to the issue in light of the current crisis and resulting site usage data.

--Jeffrey

From: Main, Jeffrey
Sent: Sunday, March 20, 2011 11:43 AM
To: Harrington, Holly; Hardy, Sally; Hoffman, Joan
Cc: Hayden, Elizabeth
Subject: RE: Japan page: KI info

Yes, I understand, thanks.

I guess my thought was that we do have KI info at the site. You can find it if you simply enter "KI" in a site search. By not linking to it from the Japan page when we have it and 1000s of people are looking for it, people may infer we are trying to hide it.

--Jeffrey

From: Harrington, Holly
Sent: Sunday, March 20, 2011 11:37 AM
To: Main, Jeffrey; Hardy, Sally; Hoffman, Joan
Cc: Hayden, Elizabeth
Subject: FW: Japan page: KI info

Jeffrey – Thank you so much for getting the redirect to the KI page! As for adding a link to the Japan page, I'll let Beth weigh in. She created and organized the page and there might have been a specific reason why KI was not added (since we say that no one in the U.S. needs it right now, perhaps?)

Holly

From: Janbergs, Holly **On Behalf Of** OPA Resource
Sent: Sunday, March 20, 2011 11:35 AM
To: Harrington, Holly
Subject: FW: Japan page: KI info

From: Main, Jeffrey
Sent: Sunday, March 20, 2011 11:02 AM
To: OPA Resource
Cc: Hardy, Sally; Hoffman, Joan; Main, Jeffrey
Subject: Japan page: KI info

Good morning!

I was looking through the usage stats for the public site and noticed **over 12,000** failed attempts to get to the old KI FAQ page in the past 7 days. During that period, this old page is by far the single most requested page that can not be found at our site.

<http://www.nrc.gov/about-nrc/emerg-preparedness/protect-public/ki-faq.html>

that was moved to .

<http://www.nrc.gov/about-nrc/emerg-preparedness/about-emerg-preparedness/potassium-iodide/ki-faq.html>

I've created a redirect to push the requests to the new location. It will take a few hours to become effective, but should get users the info they are looking for soon.

However, I also noticed that the new Japan info page does not actually mention KI. I know there is a PDF on how to protect yourself (linked from the Japan page), but I think people may be looking specifically for KI information and may bypass this PDF since KI is not mentioned in the title. In addition, the PDF file does not mention the other info we have on KI at the site. Given the recent news reports on the KI scare out west, we might want to specifically mention it on the Japan page with links to the KI information.

Just a thought.

--Jeffrey

From: [Harrington, Holly](#)
To: [Hayden, Elizabeth](#)
Subject: RE: New page for the NRC Actions on the Japan Emergency
Date: Monday, March 21, 2011 10:12:00 AM

That is how I'm reading his email

From: Hayden, Elizabeth
Sent: Monday, March 21, 2011 10:04 AM
To: Harrington, Holly
Subject: Re: New page for the NRC Actions on the Japan Emergency

The slides from thw OCM meeting?

From: Harrington, Holly
To: Hayden, Elizabeth
Sent: Mon Mar 21 10:01:07 2011
Subject: RE: New page for the NRC Actions on the Japan Emergency

I think he was asking if we also wanted those slides on the Japan page or linked from the Japan page ..

From: Hayden, Elizabeth
Sent: Monday, March 21, 2011 10:00 AM
To: OPA Resource; Harrington, Holly
Subject: Re: New page for the NRC Actions on the Japan Emergency

Opa should approve any info to be added to the page.

From: Janbergs, Holly
To: Harrington, Holly; Hayden, Elizabeth
Sent: Mon Mar 21 09:30:14 2011
Subject: FW: New page for the NRC Actions on the Japan Emergency

From: WebContractor Resource
Sent: Monday, March 21, 2011 9:11 AM
To: OPA Resource
Subject: New page for the NRC Actions on the Japan Emergency

Good Morning,

Is the new page for the NRC Actions on the Japan Emergency only for OPA documents, or are we to add anything related to the Japan emergency?

This morning I added slides on the public website for this morning's Commission meeting:
<http://www.nrc.gov/reading-rm/doc-collections/commission/tr/2011/>

Would we want these on the new page?

RRRR-253

Thank You,
David
Web Team

From: LIA02 Hoc
Sent: Thursday, April 07, 2011 11:57 AM
To: ET07 Hoc
Subject: FW: URGENT:Effect of the Earthquake at 23:50, Thursday

-----Original Message-----

From: LIA02 Hoc
Sent: Thursday, April 07, 2011 11:54 AM
To: Emche, Danielle
Cc: LIA08 Hoc; LIA06 Hoc
Subject: RE: URGENT:Effect of the Earthquake at 23:50, Thursday

Danielle,
Everyone OK???????

We have heard that "they" have abandon the site?

And there is only one off site power line available?

Any information?

Skip

-----Original Message-----

From: Emche, Danielle
Sent: Thursday, April 07, 2011 11:32 AM
To: LIA02 Hoc; Foggie, Kirk; RST01 Hoc
Subject: Fw: URGENT:Effect of the Earthquake at 23:50, Thursday

Danielle
Sent from an NRC BlackBerry.

----- Original Message -----

From: PROTOCOLOFFICE-EM <protocoloffice-em@mofa.go.jp>
To: PROTOCOLOFFICE-EM <protocoloffice-em@mofa.go.jp>
Sent: Thu Apr 07 11:25:36 2011
Subject: URGENT:Effect of the Earthquake at 23:50, Thursday

URGENT

(0:20) Friday, 8 April 2011

To All Missions (Embassies, Consular posts and International Organizations in Japan)

2422/254

TEPCO confirmed that, judging from the camera images, any trouble is not seen at Units 1 to 4 of the Fukushima Dai-ichi Nuclear Power Plant after the earthquake happened at around 23:50, Thursday.

TEPCO also confirmed that there is no change of water level of the trench of Units 1 to 4 at the press briefing at around 0:15, Friday.

Contact: International Nuclear Energy Cooperation Division, Tel 03-5501-8227

From: [Burnell, Scott](#)
To: [Harrington, Holly](#); [Brenner, Eliot](#); [Hayden, Elizabeth](#)
Cc: [McIntyre, David](#); [Dricks, Victor](#)
Subject: RE: B5B info from what Chairman said yesterday on C-Span
Date: Monday, March 21, 2011 9:50:47 AM

Video's on CSPAN page:

<http://www.cspan.org/Events/Nuclear-Regulators-Give-Update-on-Crisis-in-Japan/10737420375-3/>

Not a transcript, true, but...

From: Harrington, Holly
Sent: Monday, March 21, 2011 9:50 AM
To: Brenner, Eliot; Hayden, Elizabeth
Cc: Burnell, Scott; McIntyre, David; Dricks, Victor
Subject: B5B info from what Chairman said yesterday on C-Span

Victor says it would be helpful to have some Q&As (and perhaps talking points as well) that echo what the Chairman said yesterday regarding fuel pool failure mitigation and B5b. This sounds like a good idea, but I don't have a transcript to pull from. Perhaps we can discuss today after the hubbub about the meeting dies down.

Holly

RRRR-255

From: OPA Resource
To: Ash, Darren; Barkley, Richard; Batkin, Joshua; Bell, Hubert; Belmore, Nancy; Beraman, Thomas; Bollwerk, Paul; Bonaccorso, Amy; Borchardt, Bill; Bozin, Sunny; Brenner, Eliot; Brock, Terry; Brown, Boris; Bubar, Patrice; Burnell, Scott; Burns, Stephen; Carpenter, Cynthia; Chandrathil, Prema; Clark, Theresa; Collins, Elmo; Couret, Ivonne; Crawford, Carrie; Cutler, Iris; Dacus, Eugene; Dapas, Marc; Davis, Roger; Dean, Bill; Decker, David; Dricks, Victor; Droggitis, Spiros; Flory, Shirley; Franovich, Mike; Gibbs, Catina; Haney, Catherine; Hannah, Roger; Harbuck, Craig; Harrington, Holly; Hasan, Nasreen; Hayden, Elizabeth; Holahan, Gary; Holahan, Patricia; Holian, Brian; Jacobssen, Patricia; Jaczko, Gregory; Jasinski, Robert; Jenkins, Verlyn; Johnson, Michael; Jones, Andrea; Kock, Andrea; Kotzalas, Margie; Ledford, Joey; Lee, Samson; Leeds, Eric; Lepre, Janet; Lew, David; Lewis, Antoinette; Loyd, Susan; Magwood, William; McCrary, Cheryl; McGrady-Finneran, Patricia; McIntyre, David; Mensah, Tanya; Mitlyng, Viktoria; Monninger, John; Montes, David; Nieh, Ho; Ordaz, Vonna; Ostendorff, William; Owen, Lucy; Powell, Amy; Quesenberry, Jeannette; Reddick, Darani; Regan, Christopher; Reyes, Luis; Riddick, Nicole; RidsSecyMailCenter Resource; Riley (OCA), Timothy; Rohrer, Shirley; Samuel, Olive; Satorius, Mark; Schaaf, Robert; Schmidt, Rebecca; Scott, Catherine; Screnci, Diane; Shaffer, Vered; Shane, Raeann; Sharkey, Jeffrey; Sheehan, Neil; Sheron, Brian; Siurano-Perez, Osiris; Steger (Tucci), Christine; Svinicki, Kristine; Tabatabai, Omid; Tannenbaum, Anita; Taylor, Renee; Temp, WDM; Thomas, Ann; Uhle, Jennifer; Uselding, Lara; Vietti-Cook, Annette; Virgilio, Martin; Virgilio, Rosetta; Walker-Smith, Antoinette; Weaver, Doug; Weber, Michael; Weil, Jenny; Werner, Greg; Wiggins, Jim; Williams, Evelyn; Zimmerman, Roy; Zorn, Jason
Subject: Press Release: Prepared Remarks for Commission Meeting Monday, March 21, 2011
Date: Monday, March 21, 2011 9:36:21 AM
Attachments: 11-054.docx

For immediate release and posting.

Office of Public Affairs
US Nuclear Regulatory Commission
301-415-8200
opa.resource@nrc.gov

RRRR-256



NRC NEWS

U.S. NUCLEAR REGULATORY COMMISSION

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No. 11-054

March 21, 2011

PREPARED REMARKS FOR COMMISSION MEETING MONDAY, MARCH 21, 2011

Good morning. The Commission meets today to discuss the tragic events in Japan and consider possible actions we may take to verify the safety of the nuclear facilities that we regulate in the United States. This meeting will—without a doubt—be one of the most heavily watched meetings in the history of this agency.

People across the country and around the world who have been touched by the magnitude and scale of this disaster are closely following the events in Japan, and the repercussions in this country and in many other countries. I would first like to offer my condolences to all those who have been affected by the earthquake and tsunami in Japan. Our hearts go out to all who have been dealing with the aftermath of these natural disasters, and we are mindful of the long and difficult road they will face in recovering. We know that the people of Japan are resilient and strong, and we have every confidence that they will come through this difficult time and move forward, with resolve, to rebuild their vibrant country.

I believe I speak for all Americans when I say that we stand together with the people of Japan at this most difficult and challenging time. The NRC is a relatively small agency, with approximately 4000 staff, but we play a critical role in protecting the American people and the environment. We have inspectors who work full-time at every nuclear plant in the country, and we are proud to have world-class scientists, engineers and professionals representing nearly every discipline.

Since Friday, March 11, when the earthquake and tsunami struck, the NRC's headquarters Operations Center has been operating on a 24-hour basis to monitor and analyze events at nuclear power plants in Japan. At the request of the Japanese government, and through the United States Agency for International Development (USAID), the NRC sent a team of its technical experts to provide on-the-ground support, and we have been in continual contact with them. And, within the United States, the NRC has been working closely with other Federal agencies as part of our government's response to the situation.

We have a responsibility to the American people to undertake a systematic and methodical review of the safety of our own domestic nuclear facilities, in light of the natural disaster and the resulting nuclear emergency in Japan. Beginning to examine all available

information is an essential part of our effort to analyze the event and understand its impact on Japan and implications for the United States. Our focus is always on keeping plants and radioactive materials in this country safe and secure.

As this immediate crisis in Japan comes to an end, we will look at any information we can gain from the event and see if there are changes we need to make, to further protect the public. Together with my colleagues on the Commission, we will review the current status and identify the steps we will take to conduct that review. In the meantime, we will continue to oversee and monitor plants to ensure that U. S. reactors remain safe.

On behalf of the Commission, I want to thank all of our staff for maintaining their focus on our essential safety and security mission throughout these difficult days. I want to acknowledge their tireless efforts and their critical contributions to the U.S. response to assist Japan. In spite of the evolving situation, the long hours, and the intensity of efforts over the past week, staff has approached their responsibilities with dedication, determination and professionalism, and I am incredibly proud of their efforts.

The American people also can be proud of the commitment and dedication within the Federal workforce, which is exemplified by our staff every day. Before we begin our meeting with Mr. Borchardt's presentation, would any of my fellow Commissioners like to make opening comments?

###

News releases are available through a free *listserv* subscription at the following Web address: <http://www.nrc.gov/public-involve/listserver.html>. The NRC homepage at www.nrc.gov also offers a SUBSCRIBE link. E-mail notifications are sent to subscribers when news releases are posted to NRC's website.

David Decker

From: Epstein, Jonathan (Bingaman) [Jonathan_Epstein@bingaman.senate.gov]
Sent: Saturday, March 12, 2011 7:59 PM
To: Decker, David; Powell, Amy
Subject: Fw: Monday

Fyi - I have to start with DOE due to jurisdiction over here.

Sent from my BlackBerry Wireless Handheld - please excuse the typos

----- Original Message -----

From: Epstein, Jonathan (Bingaman)
Sent: Saturday, March 12, 2011 07:55 PM
To: 'laneje@Hq.Doe.Gov' <laneje@Hq.Doe.Gov>
Cc: 'peter.lyons@hq.doe.gov' <peter.lyons@hq.doe.gov>; Simon, Bob (Energy); Fowler, Sam (Energy); Bennett, Mia (Energy); Edwards, Isaac (Energy)
Subject: Monday

Jeff do you think DOE can come over Monday and brief staff on Fukushima I and II status. If you can then can you coordinate with NRC and maybe have them come too?

If this can be done name some possible times so Mia can get SD366, reply to all please.
Thanks JE

Sent from my BlackBerry Wireless Handheld - please excuse the typos

RRR-257

From: [Burnell, Scott](#)
To: [Harrington, Holly](#)
Subject: RE: QUAKE_TP_3_20.docx
Date: Monday, March 21, 2011 8:55:21 AM

Yes, press release first, working on it right now.

Just nudged the management in NRR who I think can provide the details – followup will come later in keeping with Beth/Eliot guidance.

From: Harrington, Holly
Sent: Monday, March 21, 2011 8:54 AM
To: Burnell, Scott
Subject: RE: QUAKE_TP_3_20.docx

I think it's a good idea to help the regions with materials when they ask. But now that Beth is back, I'm a bit leery to be the one to say go ahead. And I don't know what other projects you have going. In my mind, priority is press release, etc., for this morning; followed by updating the FAQs per Annie. Only then can we contemplate this project and perhaps after checking with Beth/Eliot . . .

From: Burnell, Scott
Sent: Sunday, March 20, 2011 3:04 PM
To: Mitlyng, Viktoria; Harrington, Holly; Sheehan, Neil
Cc: McIntyre, David
Subject: RE: QUAKE_TP_3_20.docx

No yelling at me for checking e-mail on my "day off," Holly, I felt a disturbance in the Force and I was right, wasn't I?? :-)

I've already told at least one reporter that two primary BWR Mark I issues were resolved decades ago:

Suppression pool torus -- there were concerns about the torii (plural of torus?) being able to withstand the forces of a full-blown steam release from the reactor vessel. All the BWR Mark I torii were reinforced to resolve the concern.

Hydrogen venting -- post-TMI, all plants had to include systems for dealing with hydrogen buildup, to avoid exactly what apparently has happened in Japan. All BWR Mark I (and probably other BWR containments but I'm not sure) had to install "hardened vents" to shunt releases in such a way as to preclude hydrogen buildup and potential detonation.

I talked this over with Neil in the Ops Ctr at some point last week and he agrees with my recollection.

IIRC, the folks in NRR Division of Safety Systems should have more details, so I'll check with them first thing tomorrow on formalising the above language.

From: Mitlyng, Viktoria
Sent: Sunday, March 20, 2011 2:37 PM
To: Harrington, Holly
Cc: Burnell, Scott; McIntyre, David
Subject: RE: QUAKE_TP_3_20.docx

Thanks! It would be very useful, especially as we are going into a Braidwood meeting Thursday. I am

RRRR-258

sure questions about Dresden and the safety of this type of containment will come as the plant are less than 30 miles apart.

From: Harrington, Holly
Sent: Sunday, March 20, 2011 2:24 PM
To: Mitlyng, Viktoria
Cc: Burnell, Scott; McIntyre, David
Subject: RE: QUAKE_TP_3_20.docx

To my knowledge we are not, but maybe we can if things are quieter Monday afternoon. Scott – what do you think?

From: Mitlyng, Viktoria
Sent: Sunday, March 20, 2011 2:18 PM
To: Harrington, Holly
Subject: RE: QUAKE_TP_3_20.docx

Thanks, Holly. I know you all are REALLY busy but are we working on GE Mark 1 Containment talking points - as in how the NRC has addressed issues that have come up with this design historically speaking. The statements out there make it sound like the NRC has done nothing with issues raised for the past 30 years.

From: Harrington, Holly
Sent: Sunday, March 20, 2011 1:40 PM
To: Brenner, Eliot; Burnell, Scott; Couret, Ivonne; Hayden, Elizabeth; McIntyre, David; Chandrathil, Prema; Dricks, Victor; Hannah, Roger; Ledford, Joey; Mitlyng, Viktoria; Screnci, Diane; Sheehan, Neil; Uselding, Lara
Subject: FW: QUAKE_TP_3_20.docx

For your use . . . Some updates and re-arranging . . .

From: McIntyre, David
Sent: Sunday, March 20, 2011 1:34 PM
To: Harrington, Holly
Subject: QUAKE_TP_3_20.docx

Brian agrees with me that dividing this into topics helps make it more coherent.

From: [Burnell, Scott](#)
To: [Harrington, Holly](#); [Montes, David](#)
Subject: RE: Chairman's Remarks
Date: Monday, March 21, 2011 8:31:31 AM

Thanks!!

From: Harrington, Holly
Sent: Monday, March 21, 2011 8:31 AM
To: Burnell, Scott
Subject: FW: Chairman's Remarks

Pls pull a quote from this for your press release

From: Loyd, Susan
Sent: Monday, March 21, 2011 8:27 AM
To: Harrington, Holly; Akstulewicz, Brenda; Brenner, Eliot
Cc: OPA Resource
Subject: Chairman's Remarks

I usually have David provide Chairman's Commission meeting remarks to OPA, so am not sure if you want this formatted differently? Or if you do that? As usual, please don't include his closing remarks as he often changes those, depending on how the meeting goes. Also don't include those in any media distribution. Thanks!

Susan K. Loyd
Communications Director
Office of the Chairman
U.S. Nuclear Regulatory Commission
Tele: 301-415-1838
Susan.Loyd@nrc.gov

RRRR-259

Prepared Remarks for Commission Meeting – Monday, March 21, 2011

Opening Remarks

Good morning. The Commission meets today to discuss the tragic events in Japan and consider possible actions we may take to verify the safety of the nuclear facilities that we regulate in the United States.

This meeting will—without a doubt—be one of the most heavily watched meetings in the history of this agency. People across the country and around the world who have been touched by the magnitude and scale of this disaster are closely following the events in Japan and the repercussions in this country and in other countries.

I would first like to offer my condolences to all those who have been affected by the earthquake and tsunami in Japan. Our hearts go out to all who have been dealing with the aftermath of these natural disasters, and we are mindful of the long and difficult road they will face in recovering. We know that the people of Japan are resilient and strong, and we have every confidence that they will come through this horrific time and move forward, with resolve, to rebuild their vibrant country. I believe I speak for all Americans when I say that we stand together with the people of Japan at this most difficult and challenging time.

The NRC is a relatively small agency, with approximately 4000 staff, but we play a critically important role in protecting the American people and the environment. Our agency sets the rules by which private, commercial nuclear power plants operate, and nuclear materials are used in thousands of academic, medical and industrial settings in the United States. We have inspectors who work full-time at every nuclear plant in the country, and we are proud to have world-class scientists, engineers and professionals representing nearly every discipline.

Regulators throughout the world look to the NRC and its role in independently licensing and regulating nuclear power plants and materials to protect public health and safety and the environment. But while the NRC regulates commercial uses of radioactive materials in the United States, we also interact with nuclear regulators from around the world.

Since Friday, March 11, when the earthquake and tsunami struck, the NRC's headquarters Operations Center has been operating on a 24-hour basis to monitor and analyze events at nuclear power plants in Japan. At the request of the Japanese government, and through the United States Agency for International Development (USAID), the NRC sent a team of its technical experts to provide on-the-ground support, and we have been in continual contact with them. And, within the United States, the NRC has been working closely with other Federal agencies as part of our government's response to the situation.

We all wish this meeting were not necessary. But we have a responsibility to the American people to undertake a systematic and methodical review of the safety of our own domestic nuclear facilities, in light of the natural disaster and the resulting nuclear emergency in Japan.

Beginning to examine all available information is an essential part of our effort to analyze the event and understand its impact on Japan and implications for the United States. Our focus is always on keeping plants and radioactive materials in this country safe and secure. As this immediate crisis in Japan comes to an end, we will look at any information we can gain from the event and see if there are changes we need to make, to further protect the public. Together with my colleagues on the Commission, we will review the current status and identify the steps

we will take to conduct that review. In the meantime, we will continue to oversee and monitor plants to ensure that U. S. reactors remain safe.

On behalf of the Commission, I want to thank all of our staff for maintaining their focus on our essential safety and security mission throughout these difficult days. I want to acknowledge their tireless efforts and their critical contributions to the U.S. response to assist Japan. In spite of the evolving situation, the long hours, and the intensity of efforts over the past week, staff has approached their responsibilities with dedication, determination and professionalism, and I am incredibly proud of their efforts. The American people also can be proud of the commitment and dedication within the Federal workforce, which is exemplified by our staff every day.

Before we begin our meeting with Mr. Borchardt's presentation, would any of my fellow Commissioners like to make opening comments?

Closing Remarks

Thank you for providing the Commission with clear recommendations. The staff's proposed course of action clearly reflects their considerable expertise and experience, and appears both prudent and reasonable. I'm confident that this proposal can enable us to move forward on a methodical and systematic lessons-learned review that will assure the American people of the safety of the nation's nuclear facilities.

I believe that we have consensus on the approach to analyze the near- and long-term impacts, unless any of my colleagues have anything to add?

Then I will ask the Secretary to finalize and sign out a memorandum to staff, detailing the decision that the Commission has reached here today.

Thank you. The meeting is adjourned.

From: [Harrington, Holly](#)
To: [Main, Jeffrey](#)
Subject: RE: Japan page: KI info
Date: Monday, March 21, 2011 8:39:00 AM

Per the Chairman, the NRC is stepping back into its statutory role of regulating U.S. nuclear power plants and letting those agencies i.e. DOE, EPA, HHS with responsibility for such things to take the lead on US government response to the Japanese crisis.

From: Main, Jeffrey
Sent: Monday, March 21, 2011 7:36 AM
To: Harrington, Holly
Cc: Hayden, Elizabeth; Main, Jeffrey; Hoffman, Joan; Hardy, Sally
Subject: RE: Japan page: KI info

Holly,

One more note. I ran a check and verified that NO pages at our site link to the old KI page (which doesn't exist). All the links, including those from our google search engine search results, point to the new page.

This means that most or all of those 12000 requests for the old KI page that no longer exists are likely from people who still have the old page bookmarked. As I said, I've now redirected the old page to push users to the new KI page—it works, getting you to the new page; you can test it at <http://www.nrc.gov/about-nrc/emerg-preparedness/protect-public/ki-faq.html>

As for our new KI page, I went to google.com (not our site google search) and could not find our KI page anywhere in the top 100 pages on the subject. What I could find were (as you would expect at #1) Walmart.com selling it, many news and science sites with KI articles, other sites that could be scammers, and still other sites saying the U.S. govt is trying to hide it from people.

I know that this is a politically sensitive issue and also that we cannot control the outside search engines, but I think this goes to the point that I think we should elevate the visibility of our response to the issue in light of the current crisis and resulting site usage data.

--Jeffrey

From: Main, Jeffrey
Sent: Sunday, March 20, 2011 11:43 AM
To: Harrington, Holly; Hardy, Sally; Hoffman, Joan
Cc: Hayden, Elizabeth
Subject: RE: Japan page: KI info

Yes, I understand, thanks.

I guess my thought was that we do have KI info at the site. You can find it if you simply enter "KI" in a site search. By not linking to it from the Japan page when we have it and 1000s of people are looking for it, people may infer we are trying to hide it.

RRRR-260

--Jeffrey

From: Harrington, Holly
Sent: Sunday, March 20, 2011 11:37 AM
To: Main, Jeffrey; Hardy, Sally; Hoffman, Joan
Cc: Hayden, Elizabeth
Subject: FW: Japan page: KI info

Jeffrey – Thank you so much for getting the redirect to the KI page! As for adding a link to the Japan page, I'll let Beth weigh in. She created and organized the page and there might have been a specific reason why KI was not added (since we say that no one in the U.S. needs it right now, perhaps?)

Holly

From: Janbergs, Holly **On Behalf Of** OPA Resource
Sent: Sunday, March 20, 2011 11:35 AM
To: Harrington, Holly
Subject: FW: Japan page: KI info

From: Main, Jeffrey
Sent: Sunday, March 20, 2011 11:02 AM
To: OPA Resource
Cc: Hardy, Sally; Hoffman, Joan; Main, Jeffrey
Subject: Japan page: KI info

Good morning!

I was looking through the usage stats for the public site and noticed **over 12,000** failed attempts to get to the old KI FAQ page in the past 7 days. During that period, this old page is by far the single most requested page that can not be found at our site.

<http://www.nrc.gov/about-nrc/emerg-preparedness/protect-public/ki-faq.html>
that was moved to .

<http://www.nrc.gov/about-nrc/emerg-preparedness/about-emerg-preparedness/potassium-iodide/ki-faq.html>

I've created a redirect to push the requests to the new location. It will take a few hours to become effective, but should get users the info they are looking for soon.

However, I also noticed that the new Japan info page does not actually mention KI. I know there is a PDF on how to protect yourself (linked from the Japan page), but I think people may be looking specifically for KI information and may bypass this PDF since KI is not mentioned in the title. In addition, the PDF file does not mention the other info we have on KI at the site. Given the recent news reports on the KI scare out west, we might want to specifically mention it on the Japan page with links to the KI information.

Just a thought.

--Jeffrey

From: RMPACTSU_ELNRC
To: [LIA01 Hoc](#); [LIA11 Hoc](#); [LIA07 Hoc](#); [LIA02 Hoc](#); [LIA08 Hoc](#); [LIA12 Hoc](#); [LIA04 Hoc](#); [ET07 Hoc](#); [PMT01 Hoc](#); [Hoc, PMT12](#); [PMT09 Hoc](#); [Harrington, Holly](#); [McIntyre, David](#); [Burnell, Scott](#)
Subject: FYI - Radiation Chart
Date: Monday, March 21, 2011 8:32:28 AM

FYI - This is what is being passed around down here at USAID. It's a radiation chart that explains things in very simple terms!

Is it accurate?

<http://xkcd.com/radiation/>

Thanks!
Michael I. Dudek

RRRR-261

From: Salus, Amy
To: Wiggins, Jim; Dapas, Marc; Holahan, Patricia; Correia, Richard; VandenBerghe, John; Diec, David; NSIRConfRoom Resource; Fragoyannis, Nancy; Rivers, Joseph; Jones, Cynthia; Milligan, Patricia; Henderson, Karen; Goldberg, Paul; Harrington, Holly; Shropshire, Alan; McDermott, Brian; Abraham, Susan; Decker, David; Mitchell, Reggie; Rheaume, Cynthia; Evans, Michele
Cc: Layton, Michael; joe.on.travel@verizon.net; Young, Mitzi; Libby, Earl; Merzke, Daniel; Golla, Joe; StAmour, Norman
Subject: Canceled: NSIR Management Meeting
Importance: High

When: Monday, March 21, 2011 9:00 AM-9:45 AM (GMT-05:00) Eastern Time (US & Canada).
Where: T4B3

Note: The GMT offset above does not reflect daylight saving time adjustments.

~~*~*~*~*~*~*~*~*

RRRR-262

From: [Harrington, Holly](#)
To: [McIntyre, David](#)
Subject: RE: QUAKE_TP_3_20.docx
Date: Sunday, March 20, 2011 1:47:00 PM

OK. Will let it be since the one I just sent contains the info

From: McIntyre, David
Sent: Sunday, March 20, 2011 1:42 PM
To: Harrington, Holly
Subject: RE: QUAKE_TP_3_20.docx

Eliot looked at it and thought I'd neglected to mention tomorrow's briefing – he was looking in Part 3 and I had it in Part 1. So at his suggestion, I repeated it in Part 3. As Brian said, so much for trying not to be repetitive.

Repeating that one bullet is the only difference b/w this and the version I sent you, so you may not need to resend. This version is now in WebEOC.

From: Harrington, Holly
Sent: Sunday, March 20, 2011 1:35 PM
To: McIntyre, David
Subject: RE: QUAKE_TP_3_20.docx

This is great. Will you put in WebEOC and I'll send around to folks

From: McIntyre, David
Sent: Sunday, March 20, 2011 1:34 PM
To: Harrington, Holly
Subject: QUAKE_TP_3_20.docx

Brian agrees with me that dividing this into topics helps make it more coherent.

RRRR-263

OPA

TALKING POINTS

JAPAN NUCLEAR SITUATION

As of 3/20/2011 12:53 PM

Updates in Red

CONTENTS

1. The Situation in Japan
2. Monitoring Radiation in the United States
3. The Safety of U.S. Nuclear Power Plants

PART 1: THE SITUATION IN JAPAN

- As of Sunday, March 20, 2011, the NRC continues to monitor the nuclear crisis in Japan stemming from the March 11 earthquake and tsunami. NRC's top priorities are the continued assessment of radiological conditions, dose predictions, and protective action recommendations. This effort focuses primarily on conditions in Japan around the vicinity of the Fukushima Daiichi nuclear power plant. The NRC is also working with DOE to model the flow of radiation across the Pacific Ocean toward the United States.
- A team of 10 NRC experts continues to assist Japanese efforts in Tokyo as part of a USAID-sponsored assistance effort. [If asked: One team member fell ill and returned to the US.]
- The Commission will be briefed by the NRC staff on the situation in Japan at a public meeting on Monday, March 21, 2011. See the media advisory for details. This briefing will be webcast from the NRC website at www.nrc.gov.
- Based on calculations performed by NRC experts, we continue to believe that it is appropriate for U.S. residents within 50 miles of the Fukushima reactors to evacuate. Our recommendation is based on NRC guidelines for public safety that would be used in the United States under similar circumstances.
- The 10-mile EPZ reflects the area where projected doses from design basis accidents at nuclear power plants would not exceed the EPA's protective action guidelines, and we are confident that it would be adequate even for severe accidents. However, the 10-mile zone was always considered a base for emergency response that could be expanded if the situation warranted. The situation in Japan, with four reactors experiencing exceptional difficulties simultaneously, creates the need to expand the EPZ beyond the normal 10-mile radius.

We have said from the beginning of this crisis that the NRC would analyze this situation for any lessons that can be derived to improve our oversight of U.S. nuclear power plants. Emergency planning will be part of that review.

- The NRC is closely monitoring information about the spent fuel pools as well as radiation levels at the Japanese nuclear power plants. Given the totality of the situation, the NRC's recommendation for U.S. residents within 50 miles of the Fukushima reactors to evacuate remains unchanged. That recommendation was based on actual radiation levels in the nuclear complex.
- The Japanese government has formally asked for U.S. assistance in responding to nuclear power plant cooling issues triggered by an earthquake and tsunami on March 11. ~~The NRC has eleven staff on the ground in Japan as part of the USAID team.~~
- The NRC is coordinating its actions with other federal agencies as part of the U.S. government response. The NRC's headquarters Operations Center was activated at the beginning of the event and has been monitoring the situation on a 24-hour basis ever since.

PART 2: MONITORING RADIATION IN THE UNITED STATES

- **REVISED:** The NRC is working closely with our federal partners to monitor radiation releases from the Japanese nuclear power plants. Given the results of the monitoring and distance between Japan and Hawaii, Alaska, U.S. Pacific Territories and the U.S. West Coast, the NRC expects the U.S. to avoid any harmful levels of radioactivity. Reports of radiation being detected in the United States are all far below levels that would present a health risk. Additional questions regarding monitoring of the radioactive release should be referred to DOE at 202 586 4940.
- The Department of Energy has been designated the lead agency for communicating information to the States regarding monitoring of radiation heading toward or over the United States. The DOE's Lawrence Livermore National Laboratory (National Atmospheric Release Assessment Center) is monitoring weather patterns over the Pacific Ocean. The Environmental Protection Agency maintains air monitoring stations throughout the country and has reinforced its monitoring effort. DOE will provide aerial monitoring. Questions about this effort should be directed to DOE at 202 586 4940.
- The Environmental Protection Agency has increased its radiation monitoring in the western U.S. Data from the EPA's RadNet is available on the EPA's website.
- [Only if specifically asked] The NRC is aware that Diablo Canyon nuclear power plant in California detected a very low level of radiation. The site believes that the source of the radiation is likely the Fukushima Daiichi nuclear power plant in Japan. The amounts detected are barely detectable on the instruments and pose no danger to public health and safety. The NRC continues to believe, based on all available information, that no harmful levels of radiation will reach U.S. territory. This information has been shared with the U.S. Department of Energy and the U.S.

Environmental Protection Agency. Additional questions regarding monitoring of the radioactive release should be referred to DOE at 202 586 4940.

- In accordance with established protocols, U.S. Customs and Border Protection (CBP) employs several types of radiation detection equipment in its operations at both air and sea ports, and uses this equipment, along with specific operational protocols, to resolve any security or safety risks that are identified with inbound travelers and cargo. Out of an abundance of caution, CBP has issued field guidance reiterating its operational protocols and directing field personnel to specifically monitor maritime and air traffic from Japan. CBP will continue to evaluate the potential risks posed by radiation contamination on inbound travelers and cargo and will adjust its detection and response protocols, in coordination with its interagency partners, as developments warrant.

PART 3: THE SAFETY OF U.S. NUCLEAR POWER PLANTS

- The NRC is always looking to learn information that can be applied to U.S. reactors and we will analyze the information that comes from this incident. President Obama has directed the agency to conduct a comprehensive review of the safety of U.S. nuclear plants; the agency will do so.
- The Commission will be briefed by the NRC staff on the situation in Japan at a public meeting on Monday, March 21, 2011. See the media advisory for details. This briefing will be webcast from the NRC website at www.nrc.gov.
- The NRC issued an Information Notice on March 18 to all of its operating nuclear power plants describing the effects of the March 11 earthquake and tsunami on Japanese nuclear power plants. The purpose of the Information Notice is to inform the plants of the most recent information available to the NRC. The NRC expects U.S. nuclear power plants will review the entire notice to determine how it applies to their facilities and consider actions, as appropriate.
- U.S. nuclear power plants are built to withstand environmental hazards, including earthquakes. Even those plants that are located outside of areas with extensive seismic activity are designed for safety in the event of such a natural disaster.
- The NRC requires that safety-significant structures, systems, and components be designed to take into account the most severe natural phenomena historically reported for the site and surrounding area. The NRC then adds a margin for error to account for the limitations on historical data. In other words, U.S. nuclear power plants are designed to be safe based on historical data to predict the area's maximum credible earthquake.

- In response to MSNBC.com report ranking US NPPs according to vulnerability to earthquakes: The NRC does not rank nuclear power plants according to their vulnerability to earthquakes. This "ranking" was developed by an MSNBC reporter using partial information and an even more partial understanding of how we evaluate plants for seismic risk. Each plant is evaluated individually according to the geology of its site, not by a "one-size-fits-all" model - therefore such rankings or comparisons are highly misleading.

From: [LIA07 Hoc](#)
To: [LIA07 Hoc](#)
Subject: 0600 EDT (March 22, 2011) USNRC Earthquake/Tsunami Status Update
Date: Tuesday, March 22, 2011 6:19:59 AM
Attachments: [NRC Status Update 3.22.11--0600 EDT.pdf](#)

Please find attached a 0600 EDT (March 22, 2011) status update from the US Nuclear Regulatory Commission's Emergency Operations Center regarding the impacts of the earthquake/tsunami.

Please note that this information is "~~Official Use Only~~" and is only being shared within the federal family.

Please call the Headquarters Operations Officer at 301-816-5100 with questions.

-Jim

Jim Anderson
Office of Nuclear Security and Incident Response
US Nuclear Regulatory Commission
James.anderson@nrc.gov
LIA07.HOC@nrc.gov (Operations Center)

RRRR-264

David Decker

From: Haynes, Laura (Carper) [Laura_Haynes@carper.senate.gov]
Sent: Friday, March 11, 2011 2:02 PM
To: Schmidt, Rebecca
Cc: Decker, David
Subject: RE: japan info

I talked to David – thanks!!

From: Schmidt, Rebecca [<mailto:Rebecca.Schmidt@nrc.gov>]
Sent: Friday, March 11, 2011 1:49 PM
To: Haynes, Laura (Carper)
Cc: Decker, David
Subject: japan info

Laura,

Raeann is in the Ops center and David just came back from a meeting on it. He will call you. Becky

ERRR-265

From: [Bulletin News](#)
To: NRC-editors@bulletinnews.com
Subject: NRC News Summary for Tuesday, March 22, 2011
Date: Tuesday, March 22, 2011 7:06:37 AM
Attachments: [NRCSummary110322.doc](#)
[NRCSummary110322.pdf](#)
[NRCClips110322.doc](#)
[NRCClips110322.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>.

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

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RRRR-266