

**From:** [LIA07 Hoc](#)  
**To:** [Borchardt, Bill](#); [Bradford, Anna](#); [Cohen, Shari](#); [Cooper, LaToya](#); [Flory, Shirley](#); [Gibbs, Catina](#); [Haney, Catherine](#); [Johnson, Michael](#); [Leeds, Eric](#); [Loyd, Susan](#); [Pace, Patti](#); [Schwarz, Sherry](#); [Sheron, Brian](#); [Speiser, Herald](#); [Virgilio, Martin](#); [Walls, Lorena](#); [Weber, Michael](#)  
**Subject:** Update for Go Books - 1800 EDT, March 19, 2011  
**Date:** Saturday, March 19, 2011 5:48:03 PM  
**Attachments:** [Talking Points 10.pdf](#)  
[ET Chronology 3-19-11 530pm.pdf](#)  
[Press Release 10.pdf](#)  
[TEPCO Press Release 69.pdf](#)  
[USNRC Earthquake-Tsunami Update.031911.1800EDT.pdf](#)

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Please find attached updated information for the "Go Books".

The updates include:

- The 1800, 03/19/11 Status Update
- The latest ET Chronology
- The latest OPA Talking Points
- The latest NRC Press Release
- The latest TEPCO Press Release

Please let me know if you have any questions or concerns.

-Sara

Sara K. Mroz  
Communications and Outreach  
Office of Nuclear Security & Incident Response  
US Nuclear Regulatory Commission  
[Sara.Mroz@nrc.gov](mailto:Sara.Mroz@nrc.gov)  
[LIA07.HOC@nrc.gov](mailto:LIA07.HOC@nrc.gov) (Operations Center)

WITH  
HOC

YYY/101

# OPA

## TALKING POINTS

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### JAPAN NUCLEAR SITUATION

As of 3/18/2011 3:15p.m. EDT

**Update: Addition of bullets on Information Notice and Detectable Levels of Radiation at  
Diablo Canyon**

- Based on calculations performed by NRC experts, we now 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.

- 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. The NRC is aware of various internet postings depicting modeled radiation plumes for the ongoing events at the nuclear power plants in Japan. All of the models the NRC has seen are based on generic assumptions regarding the potential radiation release from the plants and as such are unable to predict actual radiation levels away from the site. The NRC is working closely with our federal partners to monitor radiation releases from the Japanese nuclear power plants.
- [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.
- [Planned to be issued by COB; confirm before use] The NRC today issued an Information Notice 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.
- The NRC continues to work with other U.S. agencies to monitor radioactive releases from Japan and to predict their path.

- 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 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.
- 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.
- 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.
- 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.
- 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 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.



# 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](mailto:opa.resource@nrc.gov) Site: [www.nrc.gov](http://www.nrc.gov)

Blog: <http://public-blog.nrc-gateway.gov>

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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](http://www.nrc.gov) also offers a SUBSCRIBE link. E-mail notifications are sent to subscribers when news releases are posted to NRC's website.



## Press Releases

### Press Release (Mar 19,2011) Implementation plan of rolling blackout on and after Sunday, March 20, 2011

Due to the power supply-demand balance, TEPCO has been implementing rolling blackout since Monday, March 14. We sincerely regret causing anxiety and inconvenience to our customers and the society. We appreciate your cooperation in conserving electricity consumption.

As for customers who will be subject to rolling blackout, please be prepared for the announced blackout periods. Also as for customers who are not subject to blackouts, we would appreciate your continuous cooperation in reducing electricity usage by turning off unnecessary lightings and electrical appliances.

#### Implementation plan of rolling blackout on Sunday, March 20

Regional blocks are not scheduled on March 20th considering today's electricity supply-demand.

#### Implementation plan of rolling blackout from Monday, March 21st to 26th, Saturday

Please refer to the appendix for details.

- Starting and ending time of blackout periods may slightly differ.
- Depending on the supply-demand balance of the day, planned blackouts may not be carried out. Moreover, in case the electricity supply-demand balance becomes tighter than expected, we will reconsider the rolling blackout plan and inform you accordingly before we implement the revised plan.
- A blackout may occur in the adjacent areas where the planned blackouts are carried out.

#### [Others]

- In order to prevent fire, please make sure to switch off electric appliances such as hair driers when you leaving home.
- Please pay attention to the traffic at the crossings in case the traffic light may suddenly turn off.

#### [Improvement in implementing planned blackouts]

- In principle, we will implement the planned blackout based on the current plan. However, we do realize that there is room for improvement. Therefore, we will continue to consider and improve implementation plans from the customers' point of view.

o Prediction of demand and supply on March 19  
Estimated Demand 31,000 MW (18:00 - 19:00)  
Supply Capacity 34,500 MW

o Prediction of demand and supply on March 20  
Estimated Demand 31,000 MW (18:00 - 19:00)  
Supply Capacity 34,000 MW

attachment1:Weekly Rolling Blackout Plan(PDF 41.4KB)

[Back to page top](#)

**From:** Harrington, Holly  
**To:** Sheehan, Neil; Screnci, Diane; Akstulewicz, Brenda; Shannon, Valerie; Janbergs, Holly; Brenner, Eliot; Burnell, Scott; Couret, Ivonne; Hayden, Elizabeth; McIntyre, David  
**Subject:** Rough Idea for the Weekend Staffing at this Point. Subject to change  
**Date:** Friday, March 11, 2011 8:43:55 PM

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## Staffing

Friday until midnight: Eliot, Holly and Brenda

### Saturday:

Midnight to 10 a.m.: Scott

7 a.m. to 7 p.m.: Ivonne

7 a.m. to 7 p.m.: Eliot

Noon to ?: Beth

1 p.m. to ?: Holly

Brenda/Val/Bethany: ?

### Sunday:

Midnight to 10 a.m. Scott

7 a.m. to ?: Dave

7 a.m. to ?: Eliot (morning shows)

Brenda/Val: ??

Also: Holly, Beth, Ivonne (We can keep Ivonne during the day and Beth and I pulling an afternoon to midnight type shift)

Back-Up: Neil and Diane – overnight Sunday to Monday to relieve Scott?

1/11/102

**From:** [Harrington, Holly](#)  
**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:** per platts  
**Date:** Friday, March 11, 2011 8:42:46 PM

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Tokyo Electric Power Co. was still trying to restore power by press time to restart the cooling system at a nuclear power plant shut after a record earthquake struck the country's northeastern region March 11.

According to statements by the Japanese Nuclear and Industrial Safety Agency, Tepco has brought three to four mobile power generators to the Fukushima Daiichi nuclear power plant. An agency update, issued at 4:30 am March 12 local time, said workers were connecting cables to the generators.

Tepco said in a statement 6 am local time March 12 that it has detected radiation levels higher than normal at the plant.

1/11/103



EDO Principal Correspondence Control

FROM: DUE: 04/11/11

EDO CONTROL: G20110215  
DOC DT: 03/21/11  
FINAL REPLY:

State Senator Therese Murray  
Attorney General Martha Coakley  
The Commonwealth of Massachusetts

TO:

Chairman Jaczko

FOR SIGNATURE OF : \*\* GRN \*\*

CRC NO: 11-0151

Leeds, NRR

DESC:

Storage of Spent Nuclear Fuel  
(EDATS: SECY-2011-0165)

ROUTING:

Borchardt  
Weber  
Virgilio  
Ash  
Muessle  
OGC/GC  
Wiggins, NSIR  
Haney, NMSS  
Doane, OIP  
Burns, OGC  
Wittick, OEDO

DATE: 03/29/11

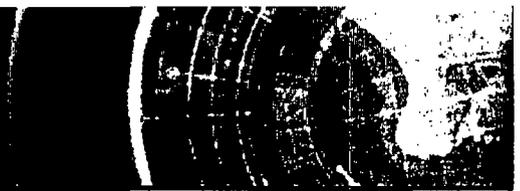
ASSIGNED TO: CONTACT:  
NRR Leeds

SPECIAL INSTRUCTIONS OR REMARKS:

Coordinate response with OGC.

# EDATS

Electronic Document and Action Tracking System



**EDATS Number:** SECY-2011-0165

**Source:** SECY

## General Information

**Assigned To:** NRR

**OEDO Due Date:** 4/11/2011 11:00 PM

**Other Assignees:**

**SECY Due Date:** 4/11/2011 11:00 PM

**Subject:** Storage of Spent Nuclear Fuel

**Description:**

**CC Routing:** NSIR; OIP; OGC; NMSS

**ADAMS Accession Numbers - Incoming:** NONE

**Response/Package:** NONE

## Other Information

**Cross Reference Number:** LTR-11-0151, G20110215

**Staff Initiated:** NO

**Related Task:**

**Recurring Item:** NO

**File Routing:** EDATS

**Agency Lesson Learned:** NO

**OEDO Monthly Report Item:** NO

## Process Information

**Action Type:** Letter

**Priority:** Medium

**Sensitivity:** None

**Signature Level:** NRR

**Urgency:** NO

**Approval Level:** No Approval Required

**OEDO Concurrence:** NO

**OCM Concurrence:** NO

**OCA Concurrence:** NO

**Special Instructions:** Coordinate response with OGC.

## Document Information

**Originator Name:** Therese Murray and Martha Coakley

**Date of Incoming:** 3/21/2011

**Originating Organization:** The Commonwealth of Massachusetts

**Document Received by SECY Date:** 3/29/2011

**Addressee:** Chairman Jaczko and S. Chu, DOE

**Date Response Requested by Originator:** NONE

**Incoming Task Received:** Letter

THE COMMONWEALTH OF MASSACHUSETTS  
OFFICE OF THE ATTORNEY GENERAL  
OFFICE OF THE SENATE PRESIDENT



MARTHA COAKLEY  
ATTORNEY GENERAL



Therese Murray  
President

March 21, 2011

The Honorable Steven Chu  
Secretary  
U.S. Department of Energy  
1000 Independence Avenue SW  
Washington, D.C. 20585

The Honorable Gregory B. Jaczko  
Chairman  
U.S. Nuclear Regulatory Commission  
11555 Rockville Pike  
Rockville, MD 20852

**Re: Storage of Spent Nuclear Fuel**

Dear Secretary Chu and Chairman Jaczko:

In light of the tragic safety breaches and fires at Japan's Fukushima Daiichi plant, we are writing to urge the Department of Energy (DOE) and Nuclear Regulatory Commission (NRC) to reexamine the safety implications of wet storage of spent fuels at nuclear power plants here in the U.S., particularly at the Pilgrim and Vermont Yankee plants that are in or near the Commonwealth of Massachusetts. In addition, we ask the NRC and Secretary Chu's Blue Ribbon Commission on Nuclear Waste to swiftly address the nuclear waste storage issue.

Pilgrim and Vermont Yankee both use the same kind of fuel storage as Fukushima. Over the past five years, the Massachusetts Attorney General's Office has repeatedly asked the NRC to rescind its finding that wet fuel on-site dense storage does not create a risk of environmental impact, and consider mandating additional dry cask storage. Despite our continuous advocacy for the NRC to consider alternative storage at these plants, the NRC has refused to do so – saying that the risk of breach and fire is "insignificant." The events in Japan show that a breach can occur, and we are asking the NRC to revisit that assessment.

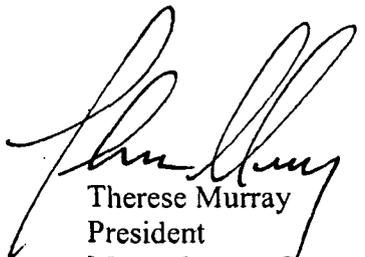
We are pleased that President Obama has directed the NRC to conduct a comprehensive safety review of all of the nuclear power plants in the U.S. Each time the Commission has rejected our premise that wet storage poses a risk, it has cited studies, but then refused to disclose the full studies to us. In conducting the review that the President has requested, the Commission should be transparent regarding the facts, studies and opinions it considers.

Although Secretary Chu has established a Blue Ribbon Commission to study options for disposal of nuclear waste, we are deeply concerned that the federal government has not fulfilled its obligation to begin removal of nuclear waste in 1998, pursuant to the Nuclear Waste Policy Act of 1982 (NWPA). Under the Act, all generators of nuclear power were required to begin paying 1/10 of a cent per kilowatt hour of electricity generated into a spent nuclear fuel fund (SNF). Massachusetts customers have paid into this fund, which today holds \$24 billion.

Across the country, nuclear generators continue to pay into a spent nuclear fuel fund to support a federal central repository for spent fuel and highly radioactive waste that does not exist. We urge you to swiftly address the storage problem. The federal government should immediately consider mandating additional dry cask storage, finding and siting interim central repositories, and determining whether the SNF should be used to facilitate these solutions. We expect the federal government to comply with the NWPA and remove this material from our generation facilities and decommissioned sites in a timely matter.

Nuclear power can and should play an important part of meeting our future energy needs. However, the federal government should ensure that these plants are safe and that their decisions are transparent. We are urging you to re-evaluate these issues in light of the events in Japan.

Cordially,



Therese Murray  
President  
Massachusetts Senate



Martha Coakley  
Massachusetts Attorney General

EDO Principal Correspondence Control

FROM: DUE: 04/18/11

EDO CONTROL: G20110213  
DOC DT: 03/22/11  
FINAL REPLY:

James M. Frincke  
Harbor BioSciences

TO:

Chairman Jaczko

FOR SIGNATURE OF :

\*\* GRN \*\*

CRC NO: 11-0161

Wiggins, NSIR

DESC:

ROUTING:

Viable Radiation Countermeasure Option for Nuclear  
Attack (EDATS: SECY-2011-0167)

Borchardt  
Weber  
Virgilio  
Ash  
Muessle  
OGC/GC  
Miller, FSME  
Burns, OGC  
Merzke, OEDO

DATE: 03/29/11

ASSIGNED TO:

CONTACT:

NSIR

Wiggins

SPECIAL INSTRUCTIONS OR REMARKS:

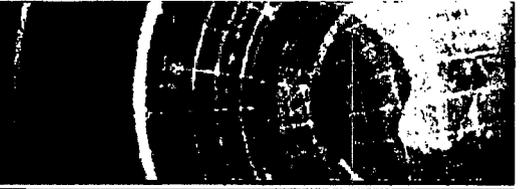
Ref. G20110081.

Template: SECY-017

444/105  
E-RIDS: SECY-01

# EDATS

Electronic Document and Action Tracking System



**EDATS Number:** SECY-2011-0167

**Source:** SECY

## General Information

**Assigned To:** NSIR

**OEDO Due Date:** 4/18/2011 11:00 PM

**Other Assignees:**

**SECY Due Date:** 4/18/2011 11:00 PM

**Subject:** Viable Radiation Countermeasure Option for Nuclear Attack

**Description:**

**CC Routing:** FSME; OGC

**ADAMS Accession Numbers - Incoming:** NONE

**Response/Package:** NONE

## Other Information

**Cross Reference Number:** G20110213, LTR-11-0161

**Staff Initiated:** NO

**Related Task:**

**Recurring Item:** NO

**File Routing:** EDATS

**Agency Lesson Learned:** NO

**OEDO Monthly Report Item:** NO

## Process Information

**Action Type:** Letter

**Priority:** Medium

**Signature Level:** NSIR

**Sensitivity:** None

**Urgency:** NO

**Approval Level:** No Approval Required

**OEDO Concurrence:** NO

**OCM Concurrence:** NO

**OCA Concurrence:** NO

**Special Instructions:** Ref. G20110081.

## Document Information

**Originator Name:** James M. Frincke

**Date of Incoming:** 3/22/2011

**Originating Organization:** Harbor BioSciences

**Document Received by SECY Date:** 3/29/2011

**Addressee:** Chairman Jaczko

**Date Response Requested by Originator:** NONE

**Incoming Task Received:** Letter



*Harbor BioSciences, Inc.*  
*9171 Towne Centre Drive, Suite 180*  
*San Diego, California, 92122*  
*Telephone: 858-587-9333*  
*Fax: 858-558-6470*

March 22, 2011

Chairman Gregory B. Jaczko  
U.S. Nuclear Regulatory Commission  
Mail Stop O-16G4  
Washington, DC 20555-0001

Re: A viable radiation countermeasure option for a nuclear attack

Dear Dr. Jaczko:

I refer to my letter of January 24, 2011 (the "Letter") regarding the possibility of rapidly developing and deploying a treatment for acute radiation exposure. Such exposures may result from a nuclear attack or nuclear accidents such as those now unfolding in Japan.

I was surprised at not having received a response from your office to my Letter. As you know, Federal efforts in this area remain limited to academic research programs under the guidance of the Biomedical Advanced Research and Development Authority (BARDA) and other federal authorities. Although the company can resubmit a proposal to BARDA, that would constitute too great a burden for a company of our size, based on our prior experience. As I indicated in my Letter, BARDA has already reviewed our original response to the HHS request for proposal (DHHS-ORDC-DDA-05-12). That response remains with HHS and the technical status of this project has not changed since then. After review of our data, BARDA rejected our drug in 2007 as "technically unacceptable". We remain baffled as to why, after 5 years of cooperative research and development with the Department of Defense, that suddenly became the case. Our drug, 5-androstenediol ("AED") is safe and effective as the data cited in the Letter shows.

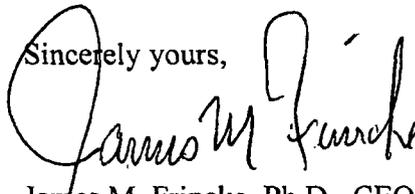
We would like your guidance under these stressful times as to how to reapproach BARDA so that we can expeditiously move to finish clinical development and start producing our drug. AED is ready *now* for the final clinical development that is needed to gain Food and Drug Administration (FDA) marketing approval. I understand that this matter is complicated and involves some understanding of medical issues surrounding acute radiation exposure. I would encourage you or someone on your staff to independently confirm or deny the validity of BARDA's assessment of AED. That could easily be done by speaking with outside practicing nuclear medicine specialists, hematologists or radiation oncologists, all of whom would be familiar with the effects of ionizing radiation or the treatment of radiation-induced immune suppression. The discussion and questions would be short and to the point as shown by the questions on the attached sheet.

That dialog goes to the core issues and concerns. I am confident that if such a conversation were to take place, most or all *unbiased* physicians with experience in radiation biology would find AED to be of great interest. That is something I invite you to independently determine. Harbor BioSciences stands behind its science, which is irrefutable.

It is possible that in the future a better drug may be identified. Nonetheless, I am confident that the search will take years, if not decades as it did to discover and develop AED. In the meantime, the U.S. could have a drug that is effective and would save thousands of U.S. lives if a mass radiation exposure event occurred before then. I believe that when BARDA dismisses our drug as "technically unacceptable", they sacrifice a very good immediately available solution for some distant and as yet unrealized "better solution". That better solution to this immediate problem may never be identified.

Because of AED's impressive potency and safety for treating acute radiation exposure, we have received expressions of interest in the drug from the governments of the Russian Federation and the People's Republic of China. We are now in discussions with both the Russian and Chinese governments for access to our AED technology. In addition, we will contact Japanese, South Korean and relevant European governments to see if they might be interested in developing AED to protect their populations. Each faces a unique situation and none has any immediate solution other than AED. As I indicated in my January letter, AED is the only compound known that would be effective in a large scale radiation exposure incident. It is the only radiation treatment compound that has been tested in humans or in lethally irradiated monkeys, both of which are required by FDA regulations. It would be a shame to simply let the significant time and resource we have expended in service of the American public and our military go to waste.

Sincerely yours,



James M. Frincke, Ph.D., CEO  
Harbor BioSciences, Inc.

Attachment:

Questions for medical personnel regarding a potential new radiation treatment drug

**Questions for medical personnel regarding a  
potential new radiation treatment drug**

Asking the following questions of currently practicing medical personnel would quickly and clearly provide qualified opinion about whether or not a drug (like AED) with the biological activities implied by the questions below would be of interest or not as a new radiation treatment drug. It would be preferable to ask these questions of a practicing doctor (nuclear medicine specialist, hematologist or radiation oncologist) who has **no** familiarity with AED to limit any preconceived bias from skewing the doctor's responses either for or against the drug. An unbiased and neutral evaluation is all that is needed. The name of the drug should not even be mentioned until after the question session is complete.

- Dr. X, would a hypothetical new drug that prevents deaths of lethally irradiated (gamma rays or X-rays) monkeys when administered within about 4 - 6 hours after irradiation be of any potential interest as a treatment for acute radiation exposure from a nuclear attack or nuclear accident?
- Would it matter if that drug was proven to be effective as a monotherapy when compared to a placebo and no clinical support, including no transfusions of any kind, was provided to the lethally irradiated monkeys either before or after exposure to radiation?
- Would it matter if that drug decreased both the severity and duration of severe neutropenia, thrombocytopenia and anemia to the extent that no transfusions were needed to see increased survival after lethal irradiation?
- Would it matter if that drug was shown in over 90 healthy human volunteers in phase I safety studies to increase neutrophils and platelets (a) in a dose-dependent manner and (b) with similar kinetics as is seen in both healthy monkeys and lethally irradiated monkeys?
- Would it matter if (a) that drug was shown to be safe with essentially no adverse events in phase I studies other than mild to moderate intramuscular site irritation from administration of the drug and (b) the FDA expressed no concern about the safety or toxicity of the drug after phase I clinical trials?
- Would it matter if the increased survival in monkeys and platelet, neutrophil and other responses in both monkeys and humans were found to be statistically significant and based on placebo controlled studies that are published in peer-reviewed scientific journals?
- Would it matter if it were not known how effective the drug was when administered at longer times after irradiation, such as 12 hours, 24 hours or 48 hours?
- What would your overall assessment of such a drug for treating potentially lethal acute radiation exposure be, assuming that all of the foregoing effects on monkey survival and human safety in the questions just asked were in fact true?

**From:** [Brenner, Eliot](#)  
**To:** [Harrington, Holly](#)  
**Cc:** [Hayden, Elizabeth](#)  
**Subject:** conferdnce call  
**Date:** Friday, March 11, 2011 9:39:11 PM

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Chairman wants you back at the Ops center. He will be briefed before the TA call. Ops will put you and me onto that call. Chairman is chomping at the bit to get out front, but I told him we need something concrete to say to do that.

Are you getting any press calls? He was asking.

1/11/106

**From:** [Harrington, Holly](#)  
**To:** [Brenner, Eliot](#)  
**Cc:** [Hayden, Elizabeth](#)  
**Subject:** RE: conferdnce call  
**Date:** Friday, March 11, 2011 9:40:22 PM

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Not lately, no. did turn down CNN. Just forwarded him the White House information. Will head back to OP Center

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**From:** Brenner, Eliot  
**Sent:** Friday, March 11, 2011 9:39 PM  
**To:** Harrington, Holly  
**Cc:** Hayden, Elizabeth  
**Subject:** conferdnce call

Chairman wants you back at the Ops center. He will be briefed before the TA call. Ops will put you and me onto that call. Chairman is chomping at the bit to get out front, but I told him we need something concrete to say to do that.

Are you getting any press calls? He was asking.

1/11/11 107

**From:** [LIA07 Hoc](#)  
**To:** [Borchardt, Bill](#); [Cohen, Shari](#); [Flory, Shirley](#); [Gibbs, Catina](#); [Haney, Catherine](#); [Johnson, Michael](#); [Leeds, Eric](#); [Loyd, Susan](#); [Pace, Patti](#); [Schwarz, Sherry](#); [Sheron, Brian](#); [Speiser, Herald](#); [Virgilio, Martin](#); [Walls, Lorena](#); [Weber, Michael](#)  
**Subject:** Update for Go Books - 0600 EDT, March 18, 2011  
**Date:** Friday, March 18, 2011 6:20:57 AM  
**Attachments:** [TEPCO Press Release 57.pdf](#)  
[TEPCO Press Release 54.pdf](#)  
[TEPCO Press Release 55.pdf](#)  
[TEPCO Press Release 56.pdf](#)  
[NRC Status Update 3-18-11--0600am.pdf](#)  
[ET Chronology 3-18-11 0504am.pdf](#)  
[White House Press Release 5.pdf](#)

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WITH  
HOC

Please find attached updated information for the "Go Books".

The updates include:

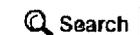
- The 0600, 3/18/11 Status Update
- The latest ET Chronology
- The latest TEPCO Press Releases
- Remarks by President Obama on the Japan situation

Please let me know if you have any questions or concerns.

Thank you,

Rebecca Clinton  
EBT Coordinator

444/108



## Press Releases

### Press Release (Mar 18, 2011) Status of TEPCO's Facilities and its services after Tohoku-Taiheiyou-Oki Earthquake (as of 10:00AM)

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Due to the Tohoku-Taiheiyou-Oki Earthquake which occurred on March 11th 2011, TEPCO's facilities including our nuclear power stations have been severely damaged. We deeply apologize for the anxiety and inconvenience caused.

Below is the status of TEPCO's major facilities.

\*new items are underlined

#### [Nuclear Power Station]

##### Fukushima Daiichi Nuclear Power Station:

**Units 1 to 3: shutdown due to earthquake**

(Units 4 to 6: outage due to regular inspection)

\* The national government has instructed to evacuate for those local residents within 20km radius of the site periphery and to remain indoors for those local residents between 20km and 30km radius of the site periphery.

#### \* Unit 1

The explosive sound and white smoke was confirmed near Unit 1 when the big quake occurred at 3:36pm, March 12th. We have started injection of sea water at 8:20 pm and then boric acid into the reactor afterwards.

#### \* Unit 2

At 1:25 pm, March 14th, since the Reactor Core Isolation Cooling System has failed, it was determined that a specific incident stipulated in article 15, clause 1 of Act on Special Measures Concerning Nuclear Emergency Preparedness occurred (failure of reactor cooling function). At 5:17 pm, while the water level in the reactor reached the top of the fuel rod, we have restarted the water injection with the valve operation. At approximately 6:14 am, March 15th, the abnormal sound was confirmed near the suppression chamber and the pressure inside the chamber decreased afterwards. It was determined that there is a possibility that something happened in the suppression chamber. While sea water injection to the reactor continued, TEPCO employees and workers from other companies

not in charge of injection work started tentative evacuation to a safe location.

Sea water injection to the reactor is still under operation.

\* Unit 3

At 6:50 am, March 14th, while water injection to the reactor was under operation, the pressure in the reactor containment vessel increased to 530 kPa. As a result, at 7:44 am, it was determined that a specific incident stipulated in article 15, clause 1 occurred (abnormal increase of the pressure of reactor containment vessel). Afterwards, the pressure has gradually decreased (as of 9:05 am, 490 kPa).

At approximately 11:01 am, March 14th, an explosion followed by white smoke occurred near Unit 3. 4 TEPCO employees and 3 workers from other companies (all of them are conscious) have sustained injuries and they were already dispatched to the hospital by ambulances.

As the temperature of water in the spent fuel pool rose, spraying water by helicopters with the support of the Self Defense Force was considered, however the works on March 16th was cancelled.

At 6:15 am, March 17th, the pressure of the Suppression Chamber temporarily increased, but currently it is stable in a certain range. Monitoring will be continued.

In order to cool spent fuel pool, water discharge by helicopters has been conducted on March 17th with the cooperation of Self-Defense Force.

At approximately past 7:00 pm, March 17th, Self-Defense Forces and the police had started water discharge by water cannon trucks upon our request for the cooperation. At 8:09 pm, March 17th, they had finished water discharge.

\* Unit 4

At approximately 6:00 am, March 15th, an explosive sound occurred and the damage in the 5th floor roof of Unit 4 reactor building was confirmed. At 9:38 am, the fire near the north-west part of 4th floor of Unit 4 reactor building was confirmed. At approximately 11:00 am, TEPCO employee confirmed that the fire was off.

At approximately 5:45 am, a TEPCO employee discovered a fire at the northwest corner of the Nuclear Reactor Building. TEPCO immediately reported this incident to the fire department and the local government and proceeded with the extinction of fire. At approximately 6:15 am, TEPCO staff confirmed at the site that there are no signs of fire.

\* On March 18th, regarding the spent fuel in the common spent fuel pool, we have confirmed that the water level of the pool is secured. A detailed inspection is under preparation.

\* common spent fuel pool: a spent fuel pool for common use set in a separate building in a plant site in order to preserve spent fuel which are transferred from the spent fuel pool in each Unit building.

\* On March 17th, we patrolled buildings for dry casks and found no signs of abnormal situation for the casks by visual observation. A detailed inspection is under preparation.

\* dry cask: a measure to store spent fuel in a dry storage casks in storages. Fukushima Daiichi Nuclear Power Station started to utilize the measure from August 1995.

\* We will continuously endeavor to securing safety, and monitoring of the surrounding environment.

**Fukushima Daini Nuclear Power Station:****Units 1 to 4: shutdown due to earthquake**

\* The national government has instructed evacuation for those local residents within 10km radius of the periphery.

\* In order to achieve cold shutdown, reactor cooling function was restored and cooling of reactors was conducted. As a result, all reactors achieved cold shutdown: Unit 1 at 5:00 pm, March 14th, Unit 2 at 6:00 pm, March 14th, Unit 3 at 0:15 pm, March 12th, Unit 4 at 7:15 am, March 16th.

\* Since March 12th, we had been preparing measures for reducing the pressure of reactor containment vessels (partial discharge of air containing radioactive materials to outside), but on March 17th, we released such preparation in all Units.

\* (Unit 1)

As it is confirmed that the temperature of the Emergency Equipment Cooling Water System \*1 has increased, at 3:20 pm, March 15th, we stopped the Residual Heat Removal System (B) for the inspection. Subsequently, failure was detected in the power supply facility associated with the pumps of the Emergency Equipment Cooling Water System. At 4:25 pm, March 15th, after replacing the power facility, the pumps and the Residual Heat Removal System (B) have been reactivated.

\* (Unit 4)

As it is confirmed that the pressure at the outlet of the pumps of the Emergency Equipment Cooling Water System\*1 has been decreased, at 8:05 pm, March 15th, we stopped the Residual Heat Removal System (B) for the inspection. Subsequently, failure was detected in the power supply facility associated with the pumps of the Emergency Equipment Cooling Water System. At 9:25 pm, March 15th, after replacing the relevant facility, the pumps and the Residual Heat Removal System (B) have been reactivated.

\*1:emergency water system in which cooling water (pure water) circulates which exchanged the heat with sea water in order to cool down bearing pumps and/or heat exchangers etc.

**Kashiwazaki Kariwa Nuclear Power Station:****Units 1, 5, 6, 7: normal operation**

(Units 2 to 4: outage due to regular inspection)

**[Thermal Power Station]**

Hirono Thermal Power Station Units 2 and 4: shutdown due to earthquake  
Hitachinaka Thermal Power Station Unit 1: shutdown due to earthquake  
Kashima Thermal Power Station Units 2, 3, 5, 6: shutdown due to earthquake  
Higashi-Ohgishima Thermal Power Station Unit 1: shutdown due to earthquake

**[Hydro Power Station]**

\* All the stations have been restored.

**[Transmission System, etc.]**

All substation failed due to the earthquake have been restored.

**[Blackout in TEPCO's Service Area]**

Total of approximately 2,600 households are out of power (as of 9:00PM, March 17, 2011).

Tokyo: 0

Kanagawa Pref.: 0

Tochigi Pref.: 0

Chiba Pref.: 0

Saitama Pref: 0  
Gunma Pref.: 0  
Ibaraki Pref:2,562  
Yamanashi Pref: 0  
Shizuoka Pref: 0 (east of Fuji River)

**[Supply and Demand Status within TEPCO's Service Area to Secure Stable Power Supply]**

Backup supply from Shinshinano Conversion Station: 600MW  
Backup supply from Sakuma Conversion Station: 300MW  
Backup supply from Higashi Shimizu Conversion Station: 100MW  
Backup supply from Kitahon Interconnection Facility: 600MW

Considering the critical balance of our power supply capacity and expected power demand forward, in order to avoid unexpected blackout, TEPCO has implemented rolling blackout (planned blackout alternates from one area to another) since yesterday. We will make our utmost to secure the stable power supply as early as possible.

For customers who will be subject to rolling blackout, please be prepared for the announced blackout periods. Also for customers who are not subject to blackouts, TEPCO appreciates your continuous cooperation in reducing electricity usage by avoiding using unnecessary lighting and electrical equipment.

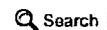
**[Others]**

Please do NOT touch cut-off electric wires.

In order to prevent fire, please make sure to switch off the electric appliances such as hair drier and to shut down the breaker of distribution board when you leave your house.

For the customer who has in-house power generation, please secure fuel for generator.

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**Press Releases**

**Press Release (Mar 17,2011)  
March 18th (Fri): Group 4 (Original Schedule: 15:20 - 19:00)**

-Blackout Period: Approximately 3 hours (15:20 - 19:00)  
-Expected Number of Customers: Approximately 1,950,000  
-Applicable Region: Saitama pref., Kanagawa pref., Tokyo, Yamanashi pref.,  
Gunma pref., Tochigi pref.

No.A  
Kawaguchi City, Soka City, Yashio City, Warabi City

No.B  
Saitama City (Urawa Ward, Minuma Ward, Sakura Ward, Nishi Ward, Omiya  
Ward, Chuo Ward, Minami Ward, Kita Ward, Midori Ward), Toda City,  
Kawaguchi City, Warabi City

No.C  
Isehara City, Atsugi City, Zama City, Sagami-hara City (Chuo Ward, Minami  
Ward, Midori Ward), Machida City, Aikawa Town<sup>1)</sup>

No.D  
Okegawa City, Kazo City, Kuki City, Satte City, Ageo City, Miyashiro Town,  
Shiraoka Town, Ina Town, Hasuda City

No.E  
Inagi City, Kunitachi City, Akishima City, Hino City, Hachioji City,  
Tachikawa City

No.F  
Yokohama City (Tsurumi Ward), Kawasaki City (Saiwai Ward, Kawasaki  
Ward, Nakahara Ward)

No.G  
Saitama City (Minuma Ward, Nishi Ward, Omiya Ward, Chuo Ward, Kita Ward),  
Fujimino City, Okegawa City, Sayama City, Kumagaya City, Kounosu City,  
Sakado City, Ageo City, Niiza City, Fukaya City, Kawagoe City, Yorii Town,  
Yokoze Town, Minano Town, Nagatoro Town, Higashichichibu Village,  
Chichibu City, Asaka City, Tsurugashima City, Higashimatsuyama City,  
Hidaka City, Ogose Town, Moroyama Town, Iruma City, Hanno City, Tokigawa  
Town, Namegawa Town, Yoshimi Town, Ogawa Town, Kawajima Town, Hatoyama  
Town, Ranzan Town, Fujimi City, Wako City

No.H  
Koshu City, Kai City, Kofu City, Yamanashi City, Ichikawamisato Town,  
Chuo City, Showa Town, Fuefuki City, Minami-Alps City

No.I  
Isesaki City, Ota City, Chiyoda Town, Oizumi Town, Oura Town, Kumagaya  
City

No.J  
Midori City, Isesaki City, Kiryu City, Ota City, Honjo City, Ashikaga  
City

No.K  
Saitama City (Urawa Ward, Minami Ward, Midori Ward), Toda City,  
Warabi City, Kawaguchi City

No.L  
Saitama City (Urawa Ward, Omiya Ward, Minami Ward, Midori Ward), Toda  
City, Kawaguchi City, Hatogaya City, Warabi City, Adachi Ward

No.M  
Odawara City, Hadano City, Yugawara Town, Hakone Town, Kaisei Town,  
Yamakita Town, Matsuda Town, Ooi Town, Nakai Town, Minamiashigara City

No.N  
Iwafune Town, Tatebayashi City, Sano City, Ashikaga City, Tochigi City,  
Chiyoda Town, Itakura Town, Meiwa Town, Oura Town

\*No. is based on each substation's coverage area.

- Start time and end time may slightly differ in each Group.
- Depending upon the demand-supply conditions during the designated day,  
additional blackout may occur at other than the scheduled time.
- We will make maximum efforts to continue supplying electricity to the  
railroad services and may not carry out the rolling blackout to them.



## Press Releases

Press Release (Mar 17,2011)  
March 18th(Fri): Group 5(Original Schedule 18:20 - 22:00)

-Blackout Period : Approximately 3 hours ( 18:20 - 22:00 )  
-Expected Number of Customers: approximately 3,690,000  
-Applicable Region: Chiba Pref., Yamanashi Pref., Kanagawa Pref.,  
Gunma Pref., Saitama Pref., Tochigi Pref., Tokyo and Shizuoka Pref.

No.A

Misato City, Soka City, Yashio City

No.B

Koshu City, Yamanashi City, Otsuki City, Tsuru City, Yamanakako Village,  
Nishikatsura Town, Oshino Village, Fujikawaguchiko Town, Narusawa Village,  
Fujiyoshida City, KosugeVillage

No.C

Ito City, Izunokuni City, Izu City, Shimoda City, Kawazu Town, Matsuzaki  
Town, Nishi-izu Town, Higashi-izu Town, Minami-izu Town, Mishima City,  
Numazu City, Kannami Town, Atami City

No.D

Hiratsuka City, Oiso Town, Ninomiya Town, Isehara City, Chigasaki City,  
Atsugi City, Hadano City, Ebina City, Samukawa Town

No.E

Otawara City, Utsunomiya City, Sakura City (Tochigi pref.), Nikko City,  
Yaita City, Nasushiobara City, Takanezawa Town, Shioya Town

No.F

Annaka City, Shimonita Town, Kanra Town, Nanmoku Village, Takasaki City,  
Tamamura Town, Kamisato Town, Kamikawa Town, Misato Town, Fukaya City,  
Kanna Town, Chichibu City, Fujioka City, Tomioka City, Honjo City

No.G

Koshigaya City, Arakawa Ward, Misato City, Kawaguchi City, Soka City,  
Adachi Ward, Yashio City

No.H

Yokohama City (Aoba Ward, Tsuzuki Ward), Kawasaki City (Miyamae Ward,  
Takatsu Ward)

No.I

Isesaki City, Kusatsu Town, Nakanojo Town, Naganohara Town, Tsumagoi  
Village, Takasaki City, Tamamura Town, Shibukawa City, Maebashi City

No.J

Aikawa Town, Uenohara City, Sagami-hara City (Chuo Ward, Minami Ward,  
Midori Ward), Machida City, Doshi Village

No.K

Utsunomiya City, Sakura City (Tochigi pref.), Nasukarasuyama City,  
Yaita City, Otawara City, Nakagawa Town, Ichikai Town, Motegi Town,  
Kaminokawa Town, Shioya Town

No.L

Numazu City, Fujinomiya City, Fuji City

No.M

Yokohama City (Isogo Ward, Sakae Ward, Totsuka Ward, Konan Ward,  
Izumi Ward, Minami Ward), Kamakura City, Fujisawa City

No.N

Abiko City, Kamagaya City, Matsudo City, Kashiwa City, Shirol City,  
Noda City, Nagareyama City

No.O

Kumagaya City, Gyoda City, Fukaya City, Honjo City

No.P

Ichikawamisato Town, Minobu Town, Nanbu Town, Fujikawa Town, Fujinomiya  
City, Fuji City

No.Q

Hiratsuka City, Aikawa Town, Kiyokawa Village, Zama City, Isehara City,  
Atsugi City, Hadano City, Ebina City

No.R

Funabashi City<sup>1</sup>, Urayasu City<sup>1</sup>, Kamagaya City<sup>1</sup>, Yotsukaido City<sup>1</sup>,  
Ichikawa City<sup>1</sup>

\*No. is based on each substation's coverage area.

\*Start time and end time may slightly differ in each Group.

\*Depending upon the demand-supply conditions during the designated day, additional blackout may occur at other than the scheduled time.

\*We will make maximum efforts to continue supplying electricity to the railroad services and may not carry out the rolling blackout to them.

\*1 Newly appointed areas due to operation changes in the substations. However, those areas could be out of the list when they are reenergized due to the operational reasons in the future.

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## Press Releases

### Press Release (Mar 17, 2011) Plant Status of Fukushima Daiichi Nuclear Power Station (as of 11:00 PM Mar 17th)

\*new items are underlined

All 6 units of Fukushima Daiichi Nuclear Power Station have been shut down.

#### Unit 1 (Shut down)

- Reactor has been shut down. However, the explosive sound and white smoke were confirmed after the big quake occurred at 3:36PM Mar 12th. It was assumed to be hydrogen explosion.
- We have been injecting sea water into the reactor pressure vessel.

#### Unit 2 (Shut down)

- Reactor has been shut down and Reactor Core Isolation Cooling System has been injecting water to the reactor. However, the level of reactor coolant had dropped and the reactor pressure had increased because the system stopped. The national government instructed that measures are taken to lower the pressure within the Reactor Containment Vessel and to inject sea water into the Reactor while carefully confirming safety. The level of reactor coolant and the pressure of the Reactor had resumed.
- At approximately 6:00AM on March 15, 2011, an abnormal noise began emanating from nearby Pressure Suppression Chamber and the pressure within this chamber decreased.
- While we continue sea water injection operations, we temporarily moved TEPCO employees and workers from other companies not directly involved in this work to safe places.

#### Unit 3 (Shut down)

- Reactor has been shut down. However, the explosive sound and white smoke were confirmed at 11:01AM Mar 14th. It was assumed to be hydrogen explosion.
- Fog like steam was confirmed from the reactor building at 8:30AM on March 16th.
- We continue monitoring as it was reported that the pressure of the Suppression Chamber has been temporarily increasing since approximately 6:15AM on March 17th.
- We have been injecting sea water into the reactor pressure vessel.

#### Unit 4 (outage due to regular inspection)

- Reactor has been shut down. However, at approximately 6AM on March 15th, we have confirmed the explosive sound and the sustained damage around the 5th floor rooftop area of the Nuclear Reactor Building.
- On March 15th and 16th, we respectively confirmed the outbreak of fire at the 4th floor of the northwestern part of the Nuclear Reactor Building. We immediately reported this matter to the fire department and the related authorities. TEPCO employees confirmed that each fire had already died down by itself. We will continue to carefully monitor situations.
- Currently, we do not consider any reactor coolant leakage inside the reactor containment vessel.

#### Unit 5 (outage due to regular inspection)

- Reactor has been shut down and the sufficient level of reactor coolant to ensure safety is maintained.
- Currently, we do not consider any reactor coolant leakage inside the reactor containment vessel.

#### Unit 6 (outage due to regular inspection)

- Reactor has been shut down and the sufficient level of reactor coolant to ensure safety is maintained.
- Currently, we do not consider any reactor coolant leakage inside the reactor containment vessel.

#### Cooling spent fuel pools

- On Unit 3, water discharge by Self-Defense Force's helicopters had been conducted since 9:48 AM in the morning on March 17th.
- On Unit 3, water discharge by the riot police's high-pressure water cannon trucks and Self-Defense Force's fire engines had been conducted since approximately past 7PM on March 17th and they had finished water discharge at 8:09PM.
- We are considering further water discharge at Unit 3 and others subject to the conditions of spent fuel pools when we get ready.

#### Casualty

- 2 workers of cooperative firm were injured at the occurrence of the earthquake, and were transported to the hospital.
- 1 TEPCO employee who was not able to stand by his own holding left chest with his hand, was transported to the hospital by an ambulance.
- 1 subcontract worker at the key earthquake-proof building was

- unconscious and transported to the hospital by an ambulance.
- The radiation exposure of 1 TEPCO employee, who was working inside the reactor building, exceeded 100mSv and he was transported to the hospital.
- 2 TEPCO employees felt bad during their operation in the central control rooms of Unit 1 and 2 while wearing full masks, and were transferred to Fukushima Daiichi Power Station for consultation with a medical advisor.
- 4 workers were injured and transported to the hospital after explosive sound and white smoke were confirmed around the Unit 1.
- 11 workers were injured and transported to Fukushima Daiichi Nuclear Power Station etc. after explosive sound and white smoke were confirmed around the Unit 3. One of the workers was transported to the FUKUSHIMA Medical University Hospital at 10:56AM
- Presence of 2 TEPCO employees at the site is not confirmed.

#### Others

- We measured radioactive materials (iodine etc.) inside of the nuclear power station area (outdoor) by monitoring car and confirmed that radioactive materials level is getting higher than ordinary level. As listed below, we have determined that specific incidents stipulated in article 15, clause 1 of Act on Special Measures Concerning Nuclear Emergency Preparedness (Abnormal increase in radiation dose measured at site boundary) have occurred.
  - \*Determined at 4:17 PM Mar 12th (Around Monitoring Post 4 )
  - \*Determined at 8:56 AM Mar 13th (Around Monitoring Post 4 )
  - \*Determined at 2:15 PM Mar 13th (Around Monitoring Post 4 )
  - \*Determined at 3:50 AM Mar 14th (Around Monitoring Post 6 )
  - \*Determined at 4:15 AM Mar 14th (Around Monitoring Post 2 )
  - \*Determined at 9:27 AM Mar 14th (Around Monitoring Post 3 )
  - \*Determined at 9:37 PM Mar 14th (Around main entrance )
  - \*Determined at 6:51 AM Mar 15th (Around main entrance )
  - \*Determined at 8:11 AM Mar 15th (Around main entrance )
  - \*Determined at 4:17 PM Mar 15th (Around main entrance )
  - \*Determined at 11:05 PM Mar 15th (Around main entrance )
- The national government has instructed evacuation for those local residents within 20km radius of the periphery and evacuation to inside for those residents from 20km to 30km radius of the periphery, because it's possible that radioactive materials are discharged.
- At approximately 10AM on March 15, we observed 400mSv/h at the inland side of the Unit 3 reactor building and 100mSv/h at the inland side of the Unit 4 reactor building.
- We will continue to take all measures to ensure the safety and to continue monitoring the surrounding environment around the Power Station.

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**The White House**

Office of the Press Secretary

For Immediate Release

March 17, 2011

**Press Briefing by Press Secretary Jay Carney, Chairman of the Nuclear Regulatory Commission Greg Jaczko and Deputy Secretary of Energy Dan Poneman, 3/17/2011**

**James S. Brady Press Briefing Room**

12:58 P.M. EDT

MR. CARNEY: Happy St. Patrick's Day, everyone. A lot of green out there -- appreciate that, as a Carney.

I would just start by saying I assume you all got the advisory that the President will have a statement this afternoon. I have, again, brought today some of our experts who can discuss the situation in Japan and, more specifically, our -- what this administration, this government is doing to help the Japanese in dealing with that situation and what the implications are for American citizens.

So I will turn this over to them very briefly -- actually in a minute. I just want to again say that if they could make their quick opening statements, then take questions from you on the subject area that concerns them so that they can then depart, I will stay and take questions on other issues.

I have, just to remind you, with me on my far right the chairman of the Nuclear Regulatory Commission Mr. Greg Jaczko, and on my near right, Dan Poneman, the Deputy Secretary of Energy. I will turn it over to them. Greg, why don't you start with a statement, and then we'll take questions.

CHAIRMAN JACZKO: Well, I'll just give you a brief status update on basically three points. One, we have a team of 11 technical experts who continue to work in Tokyo to provide assistance to the Japanese government and to the ambassador in Tokyo.

Yesterday the NRC looked at the available information that we had. Based on that information, we took a look at how we would deal with a situation similar to that in the United States, and based on that, we recommended that citizens out to about 50 miles should be evacuated. We provided that recommendation to the ambassador, and he issued a statement for American citizens to that effect. And I want to stress that this is we think a prudent and a precautionary measure to take.

And finally, I just want to reiterate that we don't see any concern from radiation levels that could be harmful here in the United States or any of the U.S. territories.

So I'll turn it over to Dan, then.

DEPUTY SECRETARY PONEMAN: Thank you, and good morning. We have continued working very hard in consultation with our great friends and strong allies in Japan as they've come to terms and wrestled with this very challenging situation. I think most of you know that our equipment that we sent over to support them in their efforts has arrived on a C-17. We sent a team of 33 additional people, which were added to the six people we already had out there in Japan. They had over 17,000 pounds of equipment with them. They've unpacked that. They've actually taken the two pods that do the aerial measurement of ground depositions, mounted them -- one on a fixed-wing aircraft, one on a helicopter -- and we flew those aircraft on their first missions. We have been collecting information as they've come back. We're in the process of sharing that information with our Japanese hosts. And while that's still being looked at, the preliminary indications are that they are consistent with the recommendations that came down from the chairman of the Nuclear Regulatory Commission, which then Ambassador Roos used to make a 50-mile evacuation guideline. So the indications are that that looks like it was a prudent move.

**WATCH THE VIDEO**



March 17, 2011 5:15 PM

Press Briefing

**BLOG POSTS ON THIS ISSUE**

March 18, 2011 12:00 AM EDT

**West Wing Week: "Punching Above Your Weight"**

This week, Education Month continued, with President Obama asking Congress to fix No Child Left Behind before the beginning of the coming school year. The President also updates the American people on relief efforts in Japan and pledges continued support.

March 17, 2011 6:07 PM EDT

**Three Trends on Fostering Innovation through Open Government**

Last Sunday, economist Dick Thaler wrote an article in the New York Times highlighting the many ways innovators are using government data to create platforms, applications, and other useful tools that touch the lives of our friends and neighbors.

March 17, 2011 5:00 PM EDT

**Fostering Innovation Across America**

On March 22, the Department of the Treasury will host a conference titled 'Access to Capital: Fostering Innovation and Growth for Small Companies.' Email your questions and ideas to [AccessToCapRSVP@treasury.gov](mailto:AccessToCapRSVP@treasury.gov), and some of these questions will be posed to panelists and Administration officials.

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Other countries around the world all continue to do what they can to support the Japanese as they lead this effort to address this challenge. We have had a number of consultations. I have personally been in contact with my counterparts in France and Russia, all of us thinking about ways in which we can assist the Japanese as they come to terms with this challenge.

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That's going to continue to be our focus in the days and weeks ahead. We're going to continue to work very closely with the Japanese and come to do what we can to see a safe path through this in support of Japanese-led efforts to come to terms with this very dangerous situation.

MR. CARNEY: Why don't we begin with questions. Ben.

Q Thanks, Jay. Two questions. First, for Chairman Jaczko, when you talk about the 50-mile recommendation of yesterday being based on the best available information, could you tell us where exactly the United States is getting its information and whether it is -- you would consider it to be hard facts or best guesses?

CHAIRMAN JACZKO: Well, we have -- as I said, we have a team of 11 of some of our best technical experts in Tokyo, and they're working with counterparts from the utility in Tokyo as well as other individuals with the government. So that's one of the sources. We're collecting data from as many places as we can to -- as I said, to make the best judgments we can with the information available.

But I would stress that this is a very difficult situation. There's often conflicting information. And so we made what we thought was a prudent decision.

Q So how would you characterize your faith in the accuracy of information you're getting?

CHAIRMAN JACZKO: Well, I think the team we have in place is providing us with good and reliable information. And we continue to do what we can to support the people of Japan and to provide assistance and recommendations where we can. This is a very difficult situation, and there will be a lot of work continuing as we go forward to deal with continuing to cool the reactors and to provide cooling to the spent fuel pool. So as we go forward we'll continue that dialogue and discussion.

Q One last question. What is your assessment as we stand, as you stand here today, about where this is headed? Best-case scenario, worst-case scenario?

CHAIRMAN JACZKO: Well, I really don't want to speculate on where this could go. I think there's tremendous efforts ongoing right now to continue to provide cooling to the reactors and continue to provide cooling to the spent fuel pool. So we're working to provide assistance where we can with ideas about how to address that, and if necessary provide equipment and other means.

MR. CARNEY: Yes.

Q Sorry, just to follow up Ben's initial question about what kind of -- what level of faith the U.S. government has in how the Japanese are handling the crisis. Is the administration satisfied with or not how Japan is handling it? And how would you categorize the -- and are they satisfied with the level of information being provided by Japanese authorities?

CHAIRMAN JACZKO: Well, I'm the head of an independent regulatory agency, so I would defer the questions about the administration's position to the others. But I would just say, again, our efforts are really working to help the Japanese people deal with what is a very difficult and really tragic situation. So that's where we're going to continue to focus and see what we can do to provide them with any assistance we can.

MR. CARNEY: Dan.

DEPUTY SECRETARY PONEMAN: If I could just comment on that. You know Americans, we always want more information and we are constantly trying to find out whatever we can. And as the chairman said, the facts on the ground are genuinely complex, they are genuinely confusing.

We have had a dialogue. We've had our two experts that are already out in Japan; they've been engaging directly with the Japanese. We've had as recently as yesterday, senior-level

officials from METI and from the Nuclear Industrial Security Agency in Japan in direct consultation with us. We're going to maintain that dialogue and do whatever we can in support of their efforts to get this situation under control.

Q Mr. Chairman, you said that there's no concern, I guess here, domestically that radiation will be harmful. In addition to the ongoing measurements I guess that are taken on a regular basis apart -- aside from this disaster, what else is being done to get an accurate measurement that none of this will impact the United States?

CHAIRMAN JACZKO: Well, again, I'd probably turn to Dan to answer that question. We're really focused, again, first and foremost, on making sure the plants in this country are safe and then continuing to provide assistance to the Japanese with their efforts in dealing with the crisis there.

Q In addition just to the regular measurements that are taken, have you beefed up that effort to check the quality of the air in the United States?

DEPUTY SECRETARY PONEMAN: Well, there's a continuous effort, as you well know, that the EPA runs to make sure we have detectors all over the country.

Q But in addition to that, has there been anything that's been added?

DEPUTY SECRETARY PONEMAN: I will refer you to EPA for more specifics on anything they're doing. What we have been doing to support them in that effort is to make sure that we have the people at Lawrence Livermore who are working on the modeling aspect of this so that as and when data comes in, we've got the capability and a robust one to analyze that information. That's, of course, something that we do in conjunction with NOAA and Jane Lubchenko. So everything that could be done to be prepared for such time as that mechanism needs to be used has been done. But I would go back to what the chairman has said. There's nothing that indicates at this stage that that's going to be required under the circumstances as we now understand them.

Q So Americans shouldn't be concerned at this point?

DEPUTY SECRETARY PONEMAN: That's him.

CHAIRMAN JACZKO: I just want to stress, I mean, I don't think there's any real disagreement here. The basic physics and basic science tells us that there really can't be any risk or harm to anyone here in the United States or Hawaii or any of the other territories. So that's something that we feel very comfortable with. It's really just based on the basic facts and science that's involved here.

Q Mr. Chairman, could you tell us, since the three days since you stood there before, why did the situation deteriorate the way it did, the four reactors? Can you explain to us what has happened? We've seen the pictures of the reactors. What's happened since you were here on Monday?

CHAIRMAN JACZKO: Well, the situation continues to be very dynamic in Japan. And as we looked at a lot of the available information, we saw greater challenges, I think, with providing cooling to some of the spent fuel pools that had initially not been as much of an issue. So that was really one of the major changes that led us to reevaluate some of our information and come up with the recommendation we did.

Q And the situation as it stands right now? The attempts today to put water in there don't seem to have done much.

CHAIRMAN JACZKO: Well, I would say right now there's continued efforts to do that. They're continuing to provide water into the spent fuel pools as well as continue to provide cooling to the reactor core. And that's really what their focus is going to have to be for some time, is just to continue that activity of cooling and getting water or other means to cool the reactors and the pools.

Q Days or weeks?

CHAIRMAN JACZKO: This is something that will likely take some time to work through, possibly weeks, as eventually you remove the majority of the heat from the reactors and then the

spent fuel pool. So it's something that will be ongoing for some time. And that's why, as I said, we're continuing to do everything we can to provide assistance to the Japanese as they deal with this situation.

Q You said that the 11 experts, the 11 American experts, are in Tokyo. Does that mean that they are completely reliant on Japanese officials and utility officials closer to the site to give them the information that they then analyze? Or is there an independent way for them to get information about what's actually happening?

CHAIRMAN JACZKO: Well, they're working with counterparts from the utility and other officials there to gather information. And then, of course, they're using their judgment, they're communicating back here with our staff and headquarters; we're reaching out to experts in this country to provide additional ideas if necessary.

Q But are they getting any independent information on their own, or is it all coming to them from somebody in Japan?

CHAIRMAN JACZKO: Well, the information is coming to them from sources ultimately in Japan. And again, this is a very dynamic and a very -- I think a complicated situation in Japan. So they'll continue to work with their counterparts there and continue to provide recommendations to us about what we think we can do to help the Japanese.

Q And I ask that because even the Prime Minister of Japan and certainly the Japanese public have expressed great frustration with the secrecy and lack of transparency coming in particular from the utility. Are you experiencing that same frustration, are your people, that same frustration in getting information?

CHAIRMAN JACZKO: Well, they are -- I think the people we have in Tokyo, they are talking with experts there, they're talking with individuals from the utility. And I think they're getting information that is useful to us in making the kinds of recommendations that we need to make. And our focus is really on looking at how would this situation be similar to a situation in the United States, and then providing suggestions for actions we may need to take relative to American citizens.

The Japanese are, as I said, they're dealing with a very significant crisis and they have a lot of efforts focused on trying to deal with the reactors, trying to deal with the situation on the ground.

So we have a small team there, they're getting good information and we'll continue to do what we can to help.

Q And on the 50 miles, are you -- I'm sorry, go ahead.

DEPUTY SECRETARY PONEMAN: I might just add there, that's why it's so important that we get the information that we have now sent the equipment over to collect. And we've had two flights come back with additional data pull there. We sent other detectors over there, other sampling equipment. And so it's not just people talking to people; we're beginning to collect the information that will give us the measurements that will help inform policy.

Q And is that because you're frustrated you haven't been able to get that information directly from the Japanese?

DEPUTY SECRETARY PONEMAN: No, to the contrary.

Q So there's no frustration -- even though the Prime Minister himself just blew up at a press conference over the lack of transparency from TEPCO.

DEPUTY SECRETARY PONEMAN: And as I said, we Americans always want more information. We're striving for that, but we want a combination of data and things that you can get through collection and things that we get from talking to people who are dealing with this. But we're trying to do what we can to support the Japanese in their efforts, and it's a continuing dialogue and I'm sure it's going to continue.

Q On the 50-mile issue, do you agree that it's a strange situation that you can have different citizens from different countries getting different advice on this, and doesn't it need to all be one consistent standard?

CHAIRMAN JACZKO: Well, we have different regulatory systems throughout the world and we have different approaches to dealing with these kinds of issues. So we took the available information we had and we looked at how we would deal with a similar situation here in the United States and we made the recommendation about 50 miles.

Q So are American citizens who don't obey that information risking their lives?

CHAIRMAN JACZKO: The recommendation is ultimately a precautionary measure right now based on -- what we looked at are some of the risks and challenges going forward in this situation. So we provided the recommendation to the ambassador, the ambassador made that recommendation, and we think it's a prudent measure to take.

Q Right, but you're the scientist. Are people putting their safety in danger?

CHAIRMAN JACZKO: As I said, we think it's a prudent measure to follow the evacuation based on how we would handle a situation like that in the United States.

Q Should Japanese citizens follow that prudent measure?

CHAIRMAN JACZKO: I think I've answered that one.

MR. CARNEY: All right. Yes, Mike.

Q Mr. Chairman, my understanding is Senators Boxer and Carper have sent a letter to you asking the NRC to review that ability of American facilities to withstand a -- just different types of disasters. The other day it sounded like maybe that review wasn't necessary because we're constantly reviewing our facilities. But have you seen the letter? What's your reaction? What do you think?

CHAIRMAN JACZKO: Well, any time there's a significant event like this anywhere in the world, or even something like this in the United States, 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.

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. And this certainly will be new information that when we have good, credible information about what happened in Japan, we'll take that information and we'll work to see what changes we might need to make, if any, to our system.

DEPUTY SECRETARY PONEMAN: I might just add to that, from the aspect of policy, safety has always been our paramount concern and we will continue to strive to make sure that all of our energy sources keep that first and foremost. And so we continue to rely on the independence of the NRC and its ability to make those judgment calls as to whether it is operating safely enough. But we will not rest from our perspective at all, because we'll continue to take every data we can into account and continue to improve the safety of our nuclear power and any other energy source that we are advancing.

Q I imagine the one-two punch of a massive earthquake and then a tsunami has to make people in this country concerned about whether our facilities can withstand that, right?

DEPUTY SECRETARY PONEMAN: I would think that we -- we do not need to have that great stimuli to have a continued focus on safety. It goes back decades, as we've discussed. After Three Mile Island, which was a different kind of set of facts than what we are now presented with, we went to school on that situation. We improved the way we do our regulations. We moved toward a more passive design approach when it comes to cooling cores and so forth. And we exercise and we've come up with hypotheticals, and then we take facts in hand as they present themselves. It's going to be a continuous effort and it's built into the management principles of our organization that we're always going to look to do what we can to make sure our activities are all carried out in the safest manner possible.

MR. CARNEY: Chuck.

Q Mr. Secretary, in your opening statement, you said that the aerial footage confirmed the chairman's recommendations. And what the chairman had testified to you yesterday was that he thought that there was no more water in the pool, essentially, there was no more cooling mechanism. Is that what you're finding in this footage?

DEPUTY SECRETARY PONEMAN: Those are two different things. Just to be clear, what we sent out were these pods, and these pods measure deposition of radioactive materials on the ground. And so what our -- what I said was that our preliminary indications -- because the data is being analyzed, it's being shared with the Japanese so they can analyze it, too -- suggest that the prudential measure that the chairman recommended in terms of the 50-mile radius for evacuation is consistent with what we're finding. It's not related to --

Q So you don't have evidence yet of whether this pool -- because he had testified yesterday that you would fear that there was no more water in this fourth -- in the spent fuel pond. Is that correct?

DEPUTY SECRETARY PONEMAN: If I could just say -- I think I can answer the question. The Japanese themselves have indicated that the level of water in that pond is low and is of concern. And there have been -- we certainly saw the chairman's testimony yesterday, and we're getting whatever data we can on the situation at that pool. It doesn't change what we -- what is important, and that's the Japanese, as they have themselves indicated, need to get more cooling water into that pool. So anything that can be done in that direction, whether it's from water cannons or water drops, that's going to be something they're focused on, and of course, we would do whatever we could to help them.

Q And then just two quick questions, and either one of you -- does the Japanese government still have the capacity to manage this crisis on their own at this point, or has this completely overwhelmed them?

DEPUTY SECRETARY PONEMAN: I'd just make the following point: The Japanese government has tremendous longstanding capabilities in this area. They have responsibly been developing an integrated nuclear industry for decades. It has always been in close cooperation not only with other partnering countries, which certainly includes the United States, but with the International Atomic Energy Agency and international fora.

So they have treated safety as a very important responsibility, and certainly the indications you've seen from the Prime Minister, chief cabinet secretary, speaking to people, show their continued commitment to that. And we, as their close friends and allies and as a country that is also committed to the safe development of nuclear energy for peaceful purposes to build a low-carbon energy future, we're going to continue to support them in that effort.

MR. CARNEY: Jonathan.

Q For Mr. Jaczko, the statement that the NRC put out yesterday saying that the protective action recommendations are implemented when projected doses could exceed one rem to the body or five rems to the thyroid. How likely is it in this current situation that those doses would exceed one rem to the body and five rems to the thyroid?

CHAIRMAN JACZKO: Well, again, the recommendation was based on the possibility of certain scenarios happening that just haven't happened yet. So we thought given the situation we were seeing, that there was a possibility of the situation becoming worse. And as a result, we thought it was a prudent measure to take the recommendations that we provided.

Q But you don't have dosing estimates, per se, within that radius?

CHAIRMAN JACZKO: Well, we've done some very preliminary modeling just to give us an estimate of where we think the likelihood of radiation levels around the plant would be high enough to trigger these kind of protective action recommendations. But right now, again, it's based on a series of prudent assumptions and prudent assessments of what could happen, which is the way that we go about generally doing our protective action recommendations here in the United States. So that was really the way we approached it.

Q And picking up on Chuck's question, a Japanese official today said he did not know if that cooling pool has been emptied. Is it still your assessment that that cooling pond with the spent fuel rods is now empty?

CHAIRMAN JACZKO: Well, everything -- when we made the determination the other day, everything indicated that that was the case. And I think as has been said, there's a lot of conflicting information around this. But the bottom line is, is that there clearly appears to be a challenge keeping that spent fuel filled with sufficient water. So it is a very dynamic situation. And again, our efforts are really focused here on helping the Japanese deal with what is a very tragic and difficult situation, and we'll continue to provide recommendations and expertise where we can to help.

Q Will the NRC release the data to the public that it's using?

CHAIRMAN JACZKO: We did release the data.

MR. CARNEY: Julianna.

Q One of the questions in the letter that Mike referenced is which nuclear -- U.S. nuclear power plants share similar design features with the affected Japanese reactor facilities. Do you have a tally of the plants that have the similar design features? And also, is there any -- you talked about potential for review, but what about specifically reviewing those plants with those designs or older plants?

CHAIRMAN JACZKO: Well, there are about -- there are 35 so-called boiling water reactor designs in this country. Twenty-three of those have the so-called Mark I containment, which is the containment which is similar to the type that's used in the facilities we're dealing with in Japan.

And over the years, we have done studies and assessments of those particular types of reactors. And actually over several decades, actually in the late '80s and early '90s, changes were made to those containments to deal with these types of very severe scenarios.

So again, when we get all the relevant data and we have good, solid data about what happened in Japan, we intend to take a very thorough look at what happened and what changes that we could make. And I understand the President yesterday recommended that this is something the NRC should look at, and it's certainly something that I think we will.

Q But at this point you don't see the need for a specific -- a review of specifically those plants with those design features?

CHAIRMAN JACZKO: Well, again, we don't really know exactly what the most relevant information is right now from Japan. So we want to get that information, and we want to do a systematic and a methodical look at what changes we may need to make to those types of plants or possibly any other types of plants in the country.

MR. CARNEY: And we'll just take a few more for these gentlemen.

April.

Q I want to go back to what Julianna asked about the plants that are similar to the plants in Japan that are having problems. With the ones that are similar, and going back to what you said about the teaching moments, the plants that are here that are similar, some of the ones that you are looking at, are they along fault lines? And have you tested in any kind of way if there was a possibility of an earthquake how would these cooling systems be able to handle shutting the nuclear reactors down?

CHAIRMAN JACZKO: Well, all the plants in the United States are designed to deal with a wide range of natural disasters, whether it's earthquakes, tornados, tsunamis, other seismic events. We require all of them to deal with those. And what we really look at is we look at historically what are the largest kinds of events that we've seen happen, and we then add a little bit of something extra to that just because we know we don't know everything. And from that we design the plants to be able to withstand that kind of activity.

Now, as I said, over the years we've gone a little bit beyond that as well, because we know that sometimes there's limitations in our knowledge. So we've looked at what we call severe accidents,

which are these kinds of very catastrophic situations, and the plants over the years have made modifications that deal with these very catastrophic types of events.

And finally, following September 11th, the agency ordered all the nuclear power plants in this country to basically pre-stage equipment and materials and have procedures in place to deal with a situation very similar to what we have in Japan, where you have a catastrophic loss of power in a very catastrophic situation at the nuclear power plant. So we've inspected that -- that all the plants have those procedures and they have that equipment in place. So we think that there's a very robust program in this country to deal with those things.

MR. CARNEY: Last one, Margaret.

Q How many -- wait, I want to follow up. How many of these nuclear facilities are on fault lines in the United States?

CHAIRMAN JACZKO: Well, all the nuclear power plants in this country are designed to deal with seismic events. We tend to think about it at the NRC not in terms of what's near a fault line but in terms of the different types of seismic activity. So, in fact, every plant in the United States is designed to deal with whatever seismic activity is likely for that.

Q I understand, but how many are on fault lines? That's the question. I'm not trying to be funny, but it's a serious question because there is concern about some of these nuclear reactors in California.

CHAIRMAN JACZKO: Well, certainly with the plants in California, they are designed to a very robust seismic standard, and for the ones that are on the coast they're also designed to deal with a very significant tsunami. And in fact, after the 2004 tsunami, we took a look at the programs we have in place to deal with the tsunamis, much as I expect we'll do here with the situation from Japan.

MR. CARNEY: Thank you, guys.

No, wait, I'm sorry, I did say Margaret.

Q I just wanted to quickly clarify about the new aerial measurements that have come back. Those came back, in fact, after you made the 50-mile radius recommendation, right? Is what they showed is that the Japanese have underestimated the radiation? Is that what the new data has shown?

DEPUTY SECRETARY PONEMAN: No, first of all, we're analyzing the information and we're sharing it with the Japanese. The preliminary look at it has indicated that the measures that have been taken have been prudent ones from all of our perspective. What we monitor from the U.S. side is the guidance that comes out from the ambassador, which is informed by the chairman's recommendation on a 50-mile radius. And we have no reason to question the assessment that had been made or the recommendation that had been made by the Japanese authorities.

Q So the measurements don't suggest that the Japanese best guess earlier was an under-guess?

DEPUTY SECRETARY PONEMAN: The preliminary indications suggest that all the measures that have been recommended either by the government of Japan or by the government of the U.S. have been prudent and appropriate.

Q Did you gentlemen brief the President today?

Q You can answer. (Laughter.)

MR. CARNEY: I answer for them. As you know, Chairman Jaczko briefed the President yesterday. He has not personally briefed the President today. But they're both part of a team that is being constantly tapped by the National Security Advisor, the Homeland Security Advisor, Deputy National Security Advisor. I know, because I was with them, that Chairman Jaczko was here at the Situation Room until very late last night. So this is a highly coordinated effort and the President is getting very regular updates on the information that they gather and provide.

Q What's he going to announce?

MR. CARNEY: I don't want to get ahead of the President. (Laughter.)

Q You walked into that.

MR. CARNEY: But I think we said that he would have something to say about Japan.

Q Right.

MR. CARNEY: Ben. I'll do this -- let's just say -- let's move very quickly on these other issues. Ben.

Q Very quickly, going back to the big picture here, does the President have full faith that Japan is handling this crisis appropriately and forthrightly?

MR. CARNEY: The President, as you know, spoke for a long time yesterday evening with the Prime Minister of Japan. He is very concerned about the situation in Japan and wanted to make sure that the Prime Minister knew that the United States is fully committed to the alliance, to our friendship with the Japanese, and that we are committed to do everything we can to help them get through this very critical situation.

The coordination between the Japanese government and the international folks, including the United States, who are there providing assistance, is very robust. I think -- I should just refer you to the statements that Chairman Jaczko and Secretary Poneman made, which is it's a very fluid situation. There's a lot of information. It is not particularly easy to get information from the site because of all the reasons that have been cited about the potential radiation emissions and the damage done.

So it's not a question of satisfaction beyond the fact that we are craving information, and I think the way Secretary Poneman described it, as Americans we always want more information. But the cooperation is there, the data is being shared, and we look forward to continuing to work side by side with our Japanese partners in helping them and assisting them deal with this problem.

Q Well, just quickly, to follow up, I understand that the coordination is there and that these events are fluid, but I ask that because I think the American people are trying to figure this out and they're looking to the government, our government, to say, should we have faith in the Japanese government that things are going to be handled. So I'm still trying to figure out whether --

MR. CARNEY: Well, but, Ben, here's the situation. This is the Japanese government, crisis in Japan. They are obviously in the lead. There's not -- I'm not sure what the question implies, that we would take over the effort --

Q No, no, no, I'm just -- the question is just about whether President Obama has faith that the Japanese government is able to handle this.

MR. CARNEY: President Obama has great faith in the idea that the Japanese are fully aware of the severity of the crisis that they're dealing with. How could they not? And they have a tremendous amount of capacity of resources to deal with this very difficult problem, but it is a crisis significant enough that a lot of countries, including the United States, led by the United States, have come in to offer further aid and assistance and expertise to help them deal with it. But it is a crisis in Japan that the Japanese obviously have to take the lead in dealing with -- and they are.

Yes, Matt.

Q I'm sorry, on Libya, what's the reason for the administration's shift from what was earlier very lukewarm support for the idea of a no-fly zone and now seems to be backing for something as extreme as air strikes on Libyan ground forces? And is this still -- are these such measures, if approved by the U.N., enough to stave off defeat for the rebels?

MR. CARNEY: Is that your analysis that it's a shift or is it something you believe that any American official said?

Q It's pretty clear that that has shifted. I mean, your -- we've gone through days of briefings in which --

MR. CARNEY: What we have made --

Q -- no-fly zone has been knocked down.

MR. CARNEY: But here's the thing. What Secretary Rice -- or rather, Ambassador Rice and Secretary Clinton have been doing have been working -- Ambassador Rice in particular at the United Nations -- on negotiating with our partners on the Security Council on a resolution that would support a more effective international response to the situation on the ground in Libya. The President has instructed his team to play an active and leading role in these negotiations, which are aimed at producing a result which would help protect civilians and increase the pressure on the Qaddafi regime.

Now, broadening out, in terms of -- we have made it clear from the first time you and others asked me about this question of a no-fly zone weeks ago, that we are actively considering it and it is an option the President insisted would be on the table. The fact that we have also discussed that we need to look at a broad range of other options, that we want to make sure that the options we choose and pursue will be effective at protecting civilians and putting pressure on the Qaddafi regime, are not contradictory. That remains our position. And we are certainly looking at a resolution that will authorize the -- taking action on a variety of measures that include but go beyond a no-fly zone. It is not our feeling that, as apparently it is -- has been from some others, that a no-fly zone is a snap-your-fingers, one-size-fits-all solution to a problem. And what we want is action on a variety of items that can improve the situation in Libya.

Yes, Dan.

Q As the President is being briefed on not only what's going on in Japan but the review that's ongoing here in the United States of nuclear facilities, is he conveying a sense of urgency that all of these experts need to really sort of step up their game to ensure that facilities here domestically are indeed safe and that an accident that we're witnessing in Japan cannot occur like that here?

MR. CARNEY: Yes, he is. He is making sure that there's a sense of urgency. And he made clear in some interviews he gave the other day that he has requested and asked that the Nuclear Regulatory Commission, which is an independent body, take into account the information we're getting about what happened in Japan and the ramifications of that on the nuclear facility there; that it takes that information, analyzes it, and then applies the lessons learned to its analysis of the security and safety of the reactors here.

Now, that is the NRC's mission, and I would say that the fact that the President has made that request himself only adds to the urgency of that mission.

But we should remind Americans that the NRC exists precisely for that reason, and that it is -- it's a daily mission for that agency to play out scenarios, evaluate data, and make changes in the security procedures and structures at the nuclear facilities in the United States on a regular basis as it deems necessary to maintain the highest possible security and safety at those facilities.

Q One quick question on Libya.

MR. CARNEY: Yes.

Q Is there a timeline that the administration is looking at? There's been talk now for several weeks about options -- we're looking at various different options. At what point will you really start executing some of these options?

MR. CARNEY: Well, Dan, we've executed an enormous array of options, as you know, in response to -- both unilaterally and with our partners internationally -- in response to the situation in Libya, and we moved very quickly out of the box within, I think, nine days to get some of those actions in place. Nine days.

And the resolution that may emerge from the United Nations, whether -- I think Ann asked me when, and I would refer to my colleagues up in New York on the timing of that. But whether it's today or tomorrow, whenever it is, it will be at a time that, comparative to any similar action taken

by the United Nations in its past, will be with remarkable speed, unprecedented speed. So the urgency has been there.

And the timeline has simply -- has been driven by, from our perspective, making sure the actions we take are the right ones and that we do not pursue an action that sounds good, only to find out it's actually not achieving a purpose that we wanted it to achieve. And that is why the actions that Ambassador Rice is negotiating in New York will hopefully address the problem and the situation on the ground in a way that can be effective.

Yes.

Q Have we gone from considering actively those options that you speak of that would be in the U.N. to actually advocating them?

MR. CARNEY: All I'll say on that is that the President has instructed his team in New York to play an active and leading role in the negotiations with the goal of protecting civilians. And they are obviously working on a resolution which will contain hopefully within it a variety of new options that the international community can take action on that will affect the situation on the ground; protect civilians in Libya. So I think that answers your question.

Q Jay.

MR. CARNEY: Yes.

Q Earlier today Senator John McCain told Sky News that he had some major concerns; that the situation in Bahrain could in fact turn into a proxy war between Saudi Arabia and Iran. Does this administration share those concerns?

MR. CARNEY: The concerns that we have about the situation in Bahrain have been, I think, very clearly expressed by the Secretary of State, as well as by me here at the podium, which is we find the use of violence against peaceful protestors to be extremely unfortunate, abhorrent and simply not the kind of actions that will lead to a resolution of the political problems that exist in Bahrain and that exist in countries around the region. We urge maximum restraint on the government of Bahrain and everyone else in Bahrain as they deal with this situation. We urge political dialogue, peaceful political dialogue aimed at bringing about the kind of reforms that will respond to the legitimate grievances that Bahrainis have expressed on the streets of their capital city.

Q But outside interests don't concern this administration?

MR. CARNEY: We are obviously always concerned about the behavior of Iran. We've been very clear about our general suspiciousness of their motivations. But the guiding principle we have in looking at the events in Bahrain and the principles that the President of the United States expressed to the King yesterday, as I read out from here, are that we believe that all sides need to exercise maximum restraint, refrain from violence, and come together in a national dialogue that resolves these issues in a way that will in the end benefit the people of Bahrain, the country of Bahrain, and will provide in the long run the kind of stability that I'm sure Bahrain wants and its people deserve.

Q To follow on that, Jay, on Iran?

Q On nuclear --

MR. CARNEY: Yes, sir.

Q How important has the promise by Arab nations to take part in any military intervention, not simply support it, been in the administration's --

MR. CARNEY: It's extremely important. We feel, as we've said many times, that the actions taken by the Arab League over the weekend, the statements that they put out, were very significant in making clear to the regime in Libya, to the people around the region, and to people around the world and governments around the world, that the international community is united in its opposition to

Qaddafi and his actions against his own people, and that the international community is united

as it moves forward to take action -- more action -- aimed at protecting civilians in Libya and eventually removing Qaddafi from power.

So the -- and in terms of participation, we think that is very important because of the signal it sends that this is not a Western action, not an American action, but an international action with the support of the governments and the people in the region.

Q On Israel, Jay?

MR. CARNEY: Let me move -- yes, sir.

Q Thank you, Jay. As Qaddafi intensifies his attacks on rebel-held areas, how concerned is the President that by the time the United Nations decides to act it would be too late to save lives and too late to set back the advances of Qaddafi towards these areas?

MR. CARNEY: Well, I would say that we are very concerned about the situation in Libya and the violence that is being perpetrated by the Qaddafi regime against its people. We are acting with a great sense of urgency, together with our international partners, to take the kinds of actions that we believe will protect Libyan citizens and move towards a situation where Qaddafi is no longer in power -- which is what we believe the Libyan people want.

So again, I would just refer you to the fact that the actions that we -- the international community with the leadership of the United States -- have taken are unprecedented in their speed and their sweep and their scope, and the actions that the United Nations may take as it -- when it emerges from -- the Security Council emerges from its negotiations, will again be unprecedented in their speed and scope.

Let me --

Q Would one vote, even if it's one of the permanent members, which of course, can veto the Security Council -- would one vote then move -- prevent the United States from taking any action?

MR. CARNEY: I don't want to prejudge what will happen at the United Nations. We are working obviously very closely in partnership with other members of the Security Council to craft a resolution that can --

Q Do you think a strong vote in support even if there is one holdout --

MR. CARNEY: Again, I don't want to prejudge it. I can just say that we have been acting in concert with our international partners in a variety of ways since the beginning of this situation in Libya and will obviously continue to do so. But I do not want to in any way prejudge the outcome at the United Nations.

Q On Israel --

MR. CARNEY: Sorry -- Abby.

Q A quick question. Is the President going to take any questions in the Rose Garden today?

MR. CARNEY: I believe it's -- he will be just issuing a statement today.

Q And given -- a quick follow-up -- since he won't be -- I won't have or anyone won't have an opportunity to ask him, he said that he'd asked the Pentagon last week whether the treatment of Bradley Manning was appropriate. I'm just wondering if he believes personally that the treatment of Bradley Manning is appropriate, and what we can read from the fact that just a day later they changed the conditions under which he was being held.

MR. CARNEY: I would refer you -- I would not expand beyond what the President said in terms of his personal reaction to the question. And I would point you to the statements the State Department and the Defense Department have made on that.

Yes.

Q What's the U.S. strategic interest in Libya? Why is the President contemplating a policy to possibly put U.S. forces in danger for what is essentially right now a civil war?

MR. CARNEY: As I've made clear from here, and others have, that the United States believes obviously that the actions of the Qaddafi government against its people are reprehensible and abhorrent, and we have called on him to cease and desist.

We have worked together with our international partners -- not alone, but with our international partners -- to take measures that we believe will put the kind of pressure on Qaddafi that's necessary to get him to cease and desist and eventually leave power. And we think it is in the interest of the United States to take the actions we have taken with our international partners to do just that.

Q Does the President not believe that this is a civil war?

MR. CARNEY: Again, I don't want to -- the terminology is not the issue here. The actions on the ground are obvious. The calls that we and others have made that they cease have been clear. And the actions that we will take -- that we have taken and we will take going forward -- are aimed at affecting that situation positively.

Q Does it hurt the President when he -- and you, also from the podium -- continually call for Qaddafi to leave power, to give up power, and yet he is still in power? Does it in any way hurt the strength of the President in terms of issuing those types of --

MR. CARNEY: Well, I would simply remind you again that we are talking here about an event that is only weeks old. So to suggest that somehow we could -- anybody could snap their fingers and when a leader in a country takes action that the international community condemns -- that leader, if he or she decides that they're going to hunker down and stay in power, that days pass and they haven't left is some measure of the impact of the international community, that's I think a silly standard to set. Because what we are seeing here is remarkable cooperation at the international level, with leadership by the United States, to put immense pressure on the regime in Libya to cease the violence, to stop killing its own people, and to give up power.

Let me go all the way in the back. Yes, sir.

Q With the dangers of the reactor in Japan, what real effect has that had on any U.S.-led efforts for humanitarian rescue, relief, anything like that, to people that are still very isolated from any sort of support?

MR. CARNEY: Well, in terms of the specifics, I'm not sure of the question. We have -- the United States government has in very quick fashion made resources available to the Japanese to help in the rescue effort, to help in the -- in humanitarian efforts that are ongoing, obviously, in Japan.

I think, if I could, that the total obligations that -- this is a USAID-led effort. The total obligation at this point is over \$10 million. Obviously those numbers will go up because of the presence of teams and equipment that keeps coming -- keep coming in. But it's a multifaceted effort that the United States is making on behalf of the Japanese people.

Q But have radiation concerns dampened any efforts to actually move assets into any of these areas?

MR. CARNEY: I would have to refer you to USAID, Defense Department, Department of Energy, in terms of that. I don't have answers to those questions. But I can say that a great deal of effort is being expended to assist the Japanese.

Q Follow-up, Jay, on that.

MR. CARNEY: Sorry, let me move -- Bill.

Q Jay, after -- in light of what happened in Japan, Germany yesterday shut down seven nuclear reactors; the head of the E.U. said they were going to do an immediate review of every reactor in 27 different countries. Why hasn't President Obama demanded the same thing for reactors in this country?

MR. CARNEY: Bill, I think I answered this question a couple of times already, and I think Chairman Jaczko has answered it, too. 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.

Q So he has full confidence in the NRC and believes in it then?

MR. CARNEY: He has full confidence that the agency charged with this responsibility is fulfilling its responsibility, and he has tasked that agency to take into account all of the information it is gleaning from the events in Japan and evaluate that information and apply it as responsible -- as would be responsible and necessary in evaluating the security and safety of the reactors here in the United States.

All the way in the back. Yes.

Q Jay, a couple of weeks ago, the President of Mexico was standing with President Obama, and the President of the U.S. says Mexico has a successful story against war on drugs. But yesterday you had FBI director, Mr. Mueller, went to Capitol Hill and he was asked about it. He says he cannot say it's a successful story because the level of murders and atrocities. So what's the real position of the U.S. government?

MR. CARNEY: Well, I think what the President said is he commended Mr. Calderón on his bravery and his commitment to taking on this enormous challenge. And I think it's obviously a very difficult situation and it takes a great deal of bravery and commitment to do what he's doing, and I think the President was commending him on that. He was not evaluating a success of it, but commending him on the remarkable efforts that he's taken.

Q So he agrees with Mr. Mueller, it's not a successful story?

MR. CARNEY: Again, I don't -- I'm not familiar with the FBI director's remarks and I would point you to what the President said.

Q Thanks, Jay.

MR. CARNEY: Thank you.

END 1:50 P.M. EDT

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## March 14, 2011 Headlines

### **Nuke Industry Rocked By Quake Emergency At Japanese Reactor**

In a safety scare that promises to reopen controversy over nuclear power, the world watched Friday as the operator of a Japanese reactor scrambled desperately to restore emergency core cooling capability after a massive earthquake knocked out key systems, the plant's backup diesel generators failed and the reactor suffered a mysterious loss of cooling water needed to prevent fuel overheating. The crisis at the six-unit Fukushima Daiichi nuclear power plant, where three boiling water reactors were being operated by Tokyo Electric Power Company (TEPCO), prompted an evacuation of some 1,000 nearby residents and an unprecedented relief flight by the U.S. Air Force to bring in additional coolant to resupply the plant and prevent any overheating of...

### **EPA Requiring Three Oklahoma Coal Plants To Scrub Or Use Gas**

In an unusual ultimatum, the Environmental Protection Agency said last week that it is proposing to take over visibility portions of the Oklahoma Clean Air Act implementation plan to require three coal-fired power plants in the state either to switch to natural gas or install sulfur dioxide scrubbers within three years. EPA on March 7 announced a proposed federal implementation plan (FIP) to improve visibility in the Oklahoma region by reducing emissions of sulfur dioxide, which combines with other chemicals in the air to form particles that can produce regional haze. The proposed federal plan would target two coal-fired plants owned by Oklahoma Gas & Electric (OG&E) and one plant owned by Public Service Co. of Oklahoma (PSO), a subsidiary of American Electric Power Co. All three of the units are about 30 years old, and burn low-sulfur coal from Wyoming's Powder River Basin. The Clean Air Act requires states to reduce emissions that contribute to regional haze and to demonstrate...

### **Air Rules Could Risk 11 Percent Of PJM Generation**

Anticipated clean air regulations could force the retirement of as much as 19,000 megawatts of coal capacity in the Mid-Atlantic—or 11 percent of the region's generation—unless power prices rise to levels that make operation of the plants profitable, the independent market monitor for PJM Interconnection LCC said Thursday. That was a key finding of a 2011 "State of the Market" report for PJM Interconnection LLC, which runs the grid for 13 Mid-Atlantic states and the District of Columbia. The report was prepared by Monitoring

601/109  
Y/Y/109

Analytics, a consulting firm that serves as a federally required independent monitor of the markets that PJM runs. As a primary conclusion, the market monitor said most markets in PJM—for power, capacity and most so-called “ancillary services”—are competitive. For example, the market monitor said the markup of locational marginal energy prices last year averaged only 0.6 percent—a sign of competitive health because competition typically forces down...

#### **Soros, Dell, Albright Target Energy Investments**

Wealthy financier George Soros, an investment firm that manages computer mogul Michael Dell’s money and a fund led by former Secretary of State Madeline Albright last week announced separate investments in the energy sector that together will total \$1 billion. In a Securities and Exchange Committee...

#### **Duke Offers New Cost Cap Plan For Embattled Edwardsport Plant**

Duke Energy Indiana last week offered to state regulators a new cost cap for its proposed Edwardsport gasified coal plant, saying it would charge ratepayers no more than \$2.72 billion, excluding financing costs, for the state-of-art clean coal facility. Duke also proposed rate-related adjustments that would lower the overall customer rate increase related to the project from an average of about 19 percent to about 16 percent. The average residential homeowner impact would be about 14 percent, the company said Thursday. Duke also offered to waive a deferred tax incentive previously...

#### **Obama Stands Ready To Tap SPR; Defends Drilling Policies**

Amid more partisan crossfire over his administration’s actions on domestic oil production, President Obama said Friday he understands Americans’ pain about rising gasoline prices and that he stands ready to tap the Strategic Petroleum Reserve if there are “significant disruptions” in the global oil market. At a news conference, the president also said he had ordered the Justice Department to work with state attorneys general to prevent any price-gouging by service station operators, and that he was going to do everything possible to calm oil markets anxious about the crisis in Libya and unrest in other Middle East oil-producing nations. However, Obama suggested the loss of Libyan crude production did not represent a major supply disruption because it represented only a small percentage of world oil supply and could be easily replaced by increased output from Saudi Arabia or other big producers. “If we see significant disruptions or shifts in the market that are so disconcerting to...

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## Bozin, Sunny

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**From:** Ostendorff, William  
**Sent:** Saturday, March 12, 2011 8:09 AM  
**To:** Franovich, Mike  
**Cc:** Nieh, Ho; Warnick, Greg; Kock, Andrea; Zorn, Jason  
**Subject:** Re: UPDATE from the telecon at 7:30

Thanks Mike. WCO

---

**From:** Franovich, Mike  
**To:** Ostendorff, William  
**Cc:** Nieh, Ho; Warnick, Greg; Kock, Andrea; Zorn, Jason  
**Sent:** Sat Mar 12 08:01:21 2011  
**Subject:** UPDATE from the telecon at 7:30

Marty Virgilio didn't have much more to offer. The explosion may have been a steam explosion in secondary containment and not primary containment. He said the ET/RST were making that deduction by what they know of similar plants. If secondary containment is failed, then there is a pathway for spent fuel (in the pool) to be exposed to the environment (no filtering).

NRC has a thermal hydraulic expert (Ulses) on his way to Japan part of the USAID contingent (DART (relief team)).

As an aside, I believe the secondary containment scenario is plausible as the plant operator would have tried venting the primary containment to relieve pressure thru the secondary containment to allow for some filtering of rad gas. If this plant does not have a hardened vent (a retrofit many US BWRs Mark I containment did about 20 years ago), then the explosion scenario makes sense.

Also, I understand that OIP has made attempts to get IAEA info but IAEA is not return calls at the moment.

Next CA briefing at 15:30.

2/11/11

---

**From:** Burnell, Scott  
**Sent:** Wednesday, April 06, 2011 9:16 AM  
**To:** ET07 Hoc  
**Subject:** RE: Quick statement on 3/26 assessment

THANKS!

---

**From:** ET07 Hoc  
**Sent:** Wednesday, April 06, 2011 9:16 AM  
**To:** Burnell, Scott  
**Subject:** RE: Quick statement on 3/26 assessment

By ET decision, yes.

---

**From:** Burnell, Scott  
**Sent:** Wednesday, April 06, 2011 9:14 AM  
**To:** ET07 Hoc  
**Subject:** RE: Quick statement on 3/26 assessment

I'm fine with that. Is that the only input from the ET/RST?

---

**From:** ET07 Hoc  
**Sent:** Wednesday, April 06, 2011 9:13 AM  
**To:** Burnell, Scott  
**Subject:** RE: Quick statement on 3/26 assessment  
**Importance:** High

There is some sensitivity to saying (implying) that the plants are stable. It would be far better to say that the "conditions have improved" rather than what's in yellow below.

---

**From:** Burnell, Scott  
**Sent:** Wednesday, April 06, 2011 9:07 AM  
**To:** ET07 Hoc  
**Subject:** FW: Quick statement on 3/26 assessment  
**Importance:** High

---

**From:** Burnell, Scott  
**Sent:** Wednesday, April 06, 2011 9:05 AM  
**To:** RST01 Hoc; RST12 Hoc; Wiggins, Jim  
**Subject:** Quick statement on 3/26 assessment  
**Importance:** High

Please provide your input on this "quick response" statement:

The March 26 document represented an interim snapshot of what NRC staff and other experts proposed as possible conditions inside the damaged units at Fukushima. This snapshot changed over the next few days as additional information and analysis became available. The staff's recommendations are considered prudent

YXY/ / / /

measures; they are not offered as the only possible solutions. Conditions at the site have stabilized even further since the assessment was completed, so it is inappropriate to treat the March 26 document as the current understanding of the situation.

OFFICE OF THE SECRETARY  
CORRESPONDENCE CONTROL TICKET

Date Printed: Mar 24, 2011 12:00

PAPER NUMBER: LTR-11-0149

LOGGING DATE: 03/23/2011

ACTION OFFICE: ED/GC.

AUTHOR: Sandra Galef

AFFILIATION: NY-AG

ADDRESSEE: Gregory Jaczko

SUBJECT: Concerns seismic risk at Indian Point....request public meeting

ACTION: Direct Reply

DISTRIBUTION: OGC, RF, SECY to Ack

LETTER DATE: 03/22/2011

ACKNOWLEDGED No

SPECIAL HANDLING: Commission should review response prior to dispatch

NOTES:

FILE LOCATION: ADAMS

DATE DUE: 04/08/2011

DATE SIGNED:

YYY/112

EDO --G20110203

EDO Principal Correspondence Control

FROM: DUE: 04/08/11

EDO CONTROL: G20110203  
DOC DT: 03/22/11  
FINAL REPLY:

Sandra Galef, Assemblywoman  
The Assembly, State of New York, Albany

TO:

Chairman Jaczko

FOR SIGNATURE OF :

\*\* PRI \*\*

CRC NO: 11-0149

Dean

DESC:

Seismic Risk at Indian Point  
(EDATS: SECY-2011-0161)

ROUTING:

Borchardt  
Weber  
Virgilio  
Ash  
Muessle  
OGC/GC  
Leeds, NRR  
Sheron, RES  
Trapp, OEDO  
Wittick, OEDO

DATE: 03/24/11

ASSIGNED TO:

CONTACT:

RI

Dean

SPECIAL INSTRUCTIONS OR REMARKS:

Commission should review response prior to  
dispatch. Coordinate response with NRR and RES, as  
needed.

*Template: SECY-017*

*E-Recs: SECY-01*

**EDATS Number:** SECY-2011-0161

**Source:** SECY

**General Information**

**Assigned To:** RegionI

**OEDO Due Date:** 4/8/2011 11:00 PM

**Other Assignees:**

**SECY Due Date:** 4/8/2011 11:00 PM

**Subject:** Seismic Risk at Indian Point

**Description:**

**CC Routing:** NRR; OGC; RES

**ADAMS Accession Numbers - Incoming:** NONE

**Response/Package:** NONE

**Other Information**

**Cross Reference Number:** G20110203, LTR-11-0149

**Staff Initiated:** NO

**Related Task:**

**Recurring Item:** NO

**File Routing:** EDATS

**Agency Lesson Learned:** NO

**OEDO Monthly Report Item:** NO

**Process Information**

**Action Type:** Letter

**Priority:** Medium

**Sensitivity:** None

**Urgency:** NO

**Signature Level:** RegionI

**Approval Level:** No Approval Required

**OEDO Concurrence:** NO

**OCM Concurrence:** NO

**OCA Concurrence:** NO

**Special Instructions:** Commission should review response prior to dispatch. Coordinate response with NRR and RES, as needed.

**Document Information**

**Originator Name:** Sandra Galef

**Date of Incoming:** 3/22/2011

**Originating Organization:** The Assembly, State of New York, Albany

**Document Received by SECY Date:** 3/24/2011

**Addressee:** Chairman Jaczko

**Date Response Requested by Originator:** NONE

**Incoming Task Received:** Letter



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SANDRA R. GALEF  
Assemblywoman 90<sup>th</sup> District

March 22, 2011

Gregory Jaczko  
Chairman  
U. S. Nuclear Regulatory Commission  
11555 Rockville Pike, Mail Stop O-16G4  
Rockville, MD 20852

Dear Chairman Jaczko,

As you continue to evaluate the catastrophic damage from which Japan is trying to recover, I understand you are also evaluating lessons for the U.S., specifically how the impact of natural disasters relates to emergency plans for our own nuclear power plants. The power plant in our country which your organization has rated most at risk for core damage from an earthquake, Indian Point, sits squarely in the center of the 90<sup>th</sup> New York State Assembly District, which I represent.

I have already placed a call to the Commission asking for a meeting with elected officials in the area. Now I would also respectfully request that you organize a public meeting in my area to address some of the questions that are arising as the disaster in Japan continues to play out. These questions include:

- What is the status of the seismic risk at Indian Point? I understand it has changed, so I would like to know what potential impact the two fault lines that are now known to be there could have in a worst case scenario, and if the power plant is prepared for such a disaster.
- What, if any, are the risks of a tsunami in the area? What would the impact be on Indian Point?
- What type of protection of the spent fuel rod pools is there at Indian Point? What kind of an emergency could compromise that protection?
- I understand the electricity responsible for cooling the spent fuel rod pools is dependent on the electrical grid? Should there be a requirement that it have independent back up as well?
- Where are we in terms of a timeline to eventually rid the Buchanan site of these rods?
- In the interim, are we at greater risk because we are trying to maximize use of the small space that is available for the spent fuel rods? Is the cask plan an effective interim?
- How many hours of back up do we have in the event of an electrical outage?
- How many hours of independent protection can the plant offer?
- What is the condition of the underground pipes that supply Indian Point? What effect have minor quakes had on those pipes, and what would happen in the event of a worse quake?
- How would an evacuation plan of a 50 mile radius around Indian Point be realized if we are not even sure that the plan for a 10 mile radius is feasible?
- What are we learning about our own evacuation plans as we evaluate Japan?

I look forward to the NRC responding to these questions, as well as hearing back from you in response to my request for a public meeting to address these and other safety concerns. Thank you for your kind attention to my requests.

Sincerely,

Sandra Galef, NYS Assemblywoman, 90<sup>th</sup> A.D.

ALBANY OFFICE: Room 841, Legislative Office Building, Albany, New York 12248, (518) 455-5348, FAX (518) 455-5728  
DISTRICT OFFICE: 2 Church Street, Ossining, New York 10582, (914) 941-1111, FAX (914) 941-6132  
E-MAIL: galef@sassembly.state.ny.us WEBSITE: www.assembly.state.ny.us



**SANDRA R. GALEF**  
Assemblywoman 60<sup>th</sup> District

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**From:** Brenner, Eliot  
**To:** Sheehan, Neil; Dean, Bill; Lew, David  
**Cc:** Harrington, Holly; Hayden, Elizabeth; Screnci, Diane  
**Subject:** RE: Media calls today on Japan reactor event  
**Date:** Saturday, March 12, 2011 3:57:54 PM

---

Nothing fresh. Press releases parallel our talking points.

As for tomorrow, I would like you come down and work the overnight tomorrow night in the Ops Center and be prepared to also work Monday night. There is a reservation for you at the Marriott across the street in your name, on my credit card. Strongly suggest you substitute your own card. If you wake up at 4 p.m. and I tell you it is not necessary to work a second night ... the Marriott will only charge for a single night.

-----Original Message-----

From: Sheehan, Neil  
Sent: Saturday, March 12, 2011 3:55 PM  
To: Brenner, Eliot; Dean, Bill; Lew, David  
Subject: Media calls today on Japan reactor event

So far today I have received calls from the Union Leader (of Manchester, N.H.), the York (Pa.) Daily Record, the Journal News (of Westchester, N.Y.) and the Pottstown (Pa.) Daily Record.

Any updates of the talking points would be appreciated.

Neil Sheehan  
NRC Public Affairs Officer  
Sent from NRC Blackberry

HY/113

## Bozin, Sunny

---

**From:** Ostendorff, William  
**Sent:** Saturday, March 12, 2011 4:38 PM  
**To:** Franovich, Mike  
**Cc:** Nieh, Ho; Warnick, Greg; Kock, Andrea; Zorn, Jason  
**Subject:** Re: UPDATE on Fukushima Daiichi - 15:30 telecon

Mike- thanks I did participate in a 3 pm call with other Commissioners. WCO

---

**From:** Franovich, Mike  
**To:** Ostendorff, William  
**Cc:** Nieh, Ho; Warnick, Greg; Kock, Andrea; Zorn, Jason  
**Sent:** Sat Mar 12 16:33:48 2011  
**Subject:** UPDATE on Fukushima Daiichi - 15:30 telecon

Borchardt led the call. (44 folks on the call)

- Focus on Fukushima Daiichi Unit 1. The belief is the explosion occurred in the reactor building (secondary containment) either from a steam or hydrogen explosion. Possible the operators choose to depressurize the containment through the standby gas treatment system (in secondary containment). Steam or hydrogen may have accumulated in the upper part of the reactor building and blew off a thin roof. Seawater possibly being used in two ways and that the reactor is now stable:
  1. Borated seawater being injected into the reactor vessel and/or
  2. Seawater is pumped to flood the lower part of the reactor building (secondary containment) around the outside of the torus/suppression pool. This would be done to provide external cooling to the torus and lower primary containment.
- There was a Deputy Principals meeting today and focus of discussion was on nuclear event. The USAID Disaster Assistance Response Team (DART) is on its way to Japan. NRC sending two experts to support.
- NRC posture continues to be White House is lead for U.S. response. NRC available to support.
- On media front, Eliot said the strategy is to follow the above hierarchy in communications. Regarding NRC, he noted that news cycle is slow (weekend) now but will pickup with respect to wanting more NRC visibility by Monday.
- Former Chairman Diaz and Klein to make media circuit and essentially carrying NRC key messages as private citizens.
- Borchardt noted that the Chairman has spoken to each Commissioner regarding comm. strategies and other matters.
- U.S. Industry/NEI had a telecom/meeting this afternoon to discuss any needs to support Japanese.
- Ops center had no info on Daiichi than the media reports.

### NRC actions:

1. Continue to monitor events in Japan

2. Reach out to IAEA (again) and get IAEA to be the central lead in response. NRC unsuccessful so far. Attempting to get Denis Flory at IAEA. Looking to not burden Japanese with multiple nation support that is not coordinated.
3. Further develop Q&A as the attention will start to turn to US plants and our level of preparedness/protection from seismic and floods.
4. Keep interacting with DHS on potential plume plots and modeling capability, etc...

NEXT Telcon updates will be at 23:30 and 07:30.

**From:** [Hayden, Elizabeth](#)  
**To:** [Hardy, Sally](#)  
**Cc:** [Couret, Ivonne](#); [Harrington, Holly](#); [Janbergs, Holly](#)  
**Subject:** FW: Photo  
**Date:** Saturday, March 12, 2011 5:15:00 PM  
**Attachments:** [Japan photo.JPG](#)  
**Importance:** High

---

Please post immediately with the following caption:

Here at the NRC's headquarters Operations Center, operating on a 24-hour basis, staff are examining available information to analyze the earthquake and tsunami event and understand their implications both for Japan and the United States. [more](#)

Link [more](#) to <http://www.nrc.gov/reading-rm/doc-collections/news/2011/11-045.pdf>

MY/115

**From:** [Bryant, Felix](#)  
**To:** [Hayden, Elizabeth](#)  
**Date:** Saturday, March 12, 2011 5:12:59 PM  
**Attachments:** [\\_MG\\_2959r.jpg](#)

---

YYY/116

**From:** [LIA07 Hoc](#)  
**To:** [Borchardt, Bill](#); [Bradford, Anna](#); [Cohen, Shari](#); [Cooper, LaToya](#); [Flory, Shirley](#); [Gibbs, Catina](#); [Haney, Catherine](#); [Johnson, Michael](#); [Leeds, Eric](#); [Loyd, Susan](#); [Pace, Patti](#); [Schwarz, Sherry](#); [Sheron, Brian](#); [Speiser, Herald](#); [Virgilio, Martin](#); [Walls, Lorena](#); [Weber, Michael](#)  
**Subject:** Update for Go Books - 1800 EDT, March 18, 2011  
**Date:** Friday, March 18, 2011 6:41:07 PM  
**Attachments:** [Talking Points 10.pdf](#)  
[TEPCO Press Release 61.pdf](#)  
[TEPCO Press Release 64.pdf](#)  
[TEPCO Press Release 63.pdf](#)  
[TEPCO Press Release 62.pdf](#)  
[ET Chronology 3-18-11 559pm.pdf](#)  
[USNRC Earthquake-Tsunami Update.031811.1800EDT.pdf](#)  
**Importance:** High

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Please find attached updated information for the "Go Books".

The updates include:

- The 1800, 03/18/11 Status Update
- The latest ET Chronology (1800, 03/18/11)
- The latest TEPCO Press Releases

Please note that the ET decided last night to discontinue the issuing of the talking points/ two pager document in favor of a more streamlined status update.

Please let me know if you have any questions or concerns.

-Sara

Sara K. Mroz  
Office of Nuclear Security and Incident Response  
US Nuclear Regulatory Commission  
[Sara.Mroz@nrc.gov](mailto:Sara.Mroz@nrc.gov)  
[LIA07.HOC@nrc.gov](mailto:LIA07.HOC@nrc.gov) (Operations Center)

444/117

# OPA

## TALKING POINTS

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### JAPAN NUCLEAR SITUATION

As of 3/18/2011 3:15p.m. EDT

**Update: Addition of bullets on Information Notice and Detectable Levels of Radiation at  
Diablo Canyon**

- Based on calculations performed by NRC experts, we now 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.

- 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. The NRC is aware of various internet postings depicting modeled radiation plumes for the ongoing events at the nuclear power plants in Japan. All of the models the NRC has seen are based on generic assumptions regarding the potential radiation release from the plants and as such are unable to predict actual radiation levels away from the site. The NRC is working closely with our federal partners to monitor radiation releases from the Japanese nuclear power plants.
- [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.
- [Planned to be issued by COB; confirm before use] The NRC today issued an Information Notice 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.
- The NRC continues to work with other U.S. agencies to monitor radioactive releases from Japan and to predict their path.

- 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 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.
- 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.
- 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.
- 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.
- 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 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.

## Press Releases

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**Press Release (Mar 18,2011)**

**Stationing Vice President at Fukushima City and Managing Director at J Village**

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We would like to express our great regret at the loss of people by the Tohoku-Chihou-Taiheiyo-Okai Earthquake occurred on March 11, and our deep sympathy to the people and their families suffering damage.

Besides, we would like to make our deep apologies for concern and nuisance about the incident of Fukushima Daiichi Nuclear Power Station and the leakage of radioactive substances to the people living in the surrounding area of the power station, the people of Fukushima Prefecture, and the people of society.

Currently TEPCO has jointly established the Joint Headquarters for Response for the Tohoku-Chihou-Taiheiyo-Okai Earthquake (Head: Prime Minister Naoto Kan) and endeavored to prevent further damages and secure the safety of our facilities as early as possible. In order to strengthen our response, we will appoint Vice President Norio Tuzumi and Managing Director Akio Komori to station at Fukushima City and J Village respectively from March 22, 2011.

Vice President Tuzumi will direct to collect voices from the people of living in the surrounding area of the power station and the people of Fukushima Prefecture regarding the incident of Fukushima Daiichi Nuclear Power Station, etc. Managing Director Komori will direct to prevent further damages and secure the safety of Fukushima Daiichi and Daini Nuclear Power Stations as early as possible.

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## Press Releases

Press Release (Mar 19,2011)

Status of TEPCO's Facilities and its services after Tohoku-Taiheiyu-Oki Earthquake (as of 1:00AM)

Due to the Tohoku-Taiheiyu-Oki Earthquake which occurred on March 11th 2011, TEPCO's facilities including our nuclear power stations have been severely damaged. We deeply apologize for the anxiety and inconvenience caused.

Below is the status of TEPCO's major facilities.

\*new items are underlined

### [Nuclear Power Station]

#### Fukushima Daiichi Nuclear Power Station:

**Units 1 to 3: shutdown due to earthquake**

(Units 4 to 6: outage due to regular inspection)

\* The national government has instructed to evacuate for those local residents within 20km radius of the site periphery and to remain indoors for those local residents between 20km and 30km radius of the site periphery.

#### \* Unit 1

The explosive sound and white smoke was confirmed near Unit 1 when the big quake occurred at 3:36pm, March 12th. We have started injection of sea water at 8:20 pm and then boric acid into the reactor afterwards.

#### \*Unit 2

At 1:25 pm, March 14th, since the Reactor Core Isolation Cooling System has failed, it was determined that a specific incident stipulated in article 15, clause 1 of Act on Special Measures Concerning Nuclear Emergency Preparedness occurred (failure of reactor cooling function).

At 5:17 pm, while the water level in the reactor reached the top of the fuel rod, we have restarted the water injection with the valve operation.

At approximately 6:14 am, March 15th, the abnormal sound was confirmed near the suppression chamber and the pressure inside the chamber decreased afterwards. It was determined that there is a possibility that something happened in the suppression chamber. While sea water injection to the reactor continued, TEPCO employees and workers from other companies not in charge of injection work started tentative evacuation to a safe location.

Sea water injection to the reactor is still under operation.

As of March 18th, power from offsite transmission line has received until temporary substation for backup power. Now, cabling to unit receiving facility is underway.

#### \*Unit 3

At 6:50 am, March 14th, while water injection to the reactor was under operation, the pressure in the reactor containment vessel increased to 530 kPa. As a result, at 7:44 am, it was determined that a specific incident stipulated in article 15, clause 1 occurred (abnormal increase of the pressure of reactor containment vessel). Afterwards, the pressure has gradually decreased (as of 9:05 am, 490 kPa).

At approximately 11:01 am, March 14th, an explosion followed by white smoke occurred near Unit 3. 4 TEPCO employees and 3 workers from other companies (all of them are conscious) have sustained injuries and they were already dispatched to the hospital by ambulances.

As the temperature of water in the spent fuel pool rose, spraying water by helicopters with the support of the Self Defense Force was considered, however the works on March 16th was cancelled.

At 6:15 am, March 17th, the pressure of the Suppression Chamber temporarily increased, but currently it is stable in a certain range. Monitoring will be continued.

In order to cool spent fuel pool, water discharge by helicopters has been conducted on March 17th with the cooperation of Self-Defense Force.

At approximately past 7:00 pm, March 17th, Self-Defense Forces and the police had started water discharge by water cannon trucks upon our request for the cooperation. At 8:09 pm, March 17th, they had finished water discharge.

At 2:00 pm, March 18th, water discharge by fire engine has started with the cooperation of Self-Defense Forces and Military of United States of America. At 2:45 pm, March 18th, they had finished water discharge.

At 0:45 am, March 19th, water discharge by hyper rescue troop has started with the cooperation of Tokyo Fire Department. At 1:10 am, March 19th, they had finished water discharge.

\* Unit 4

At approximately 6:00 am, March 15th, an explosive sound occurred and the damage in the 5th floor roof of Unit 4 reactor building was confirmed. At 9:38 am, the fire near the north-west part of 4th floor of Unit 4 reactor building was confirmed. At approximately 11:00 am, TEPCO employee confirmed that the fire was off.

At approximately 5:45 am, a TEPCO employee discovered a fire at the northwest corner of the Nuclear Reactor Building. TEPCO immediately reported this incident to the fire department and the local government and proceeded with the extinction of fire. At approximately 6:15 am, TEPCO staff confirmed at the site that there are no signs of fire.

\*On March 18th, regarding the spent fuel in the common spent fuel pool, we have confirmed that the water level of the pool is secured. A detailed inspection is under preparation.

\*common spent fuel pool: a spent fuel pool for common use set in a separate building in a plant site in order to preserve spent fuel which are transferred from the spent fuel pool in each Unit building.

\*On March 17th, we patrolled buildings for dry casks and found no signs of abnormal situation for the casks by visual observation. A detailed inspection is under preparation.

\*dry cask: a measure to store spent fuel in a dry storage casks in storages. Fukushima Daiichi Nuclear Power Station started to utilize the measure from August 1995.

\*We will continuously endeavor to securing safety, and monitoring of the surrounding environment.

#### **Fukushima Daini Nuclear Power Station:**

##### **Units 1 to 4: shutdown due to earthquake**

\*The national government has instructed evacuation for those local residents within 10km radius of the periphery.

\*In order to achieve cold shutdown, reactor cooling function was restored and cooling of reactors was conducted. As a result, all reactors achieved cold shutdown: Unit 1 at 5:00 pm, March 14th, Unit 2 at 6:00 pm, March 14th, Unit 3 at 0:15 pm, March 12th, Unit 4 at 7:15 am, March 16th.

\*Since March 12th, we had been preparing measures for reducing the pressure of reactor containment vessels (partial discharge of air containing radioactive materials to outside), but on March 17th, we released such preparation in all Units.

\* (Unit 1)

As it is confirmed that the temperature of the Emergency Equipment Cooling Water System <sup>\*1</sup> has increased, at 3:20 pm, March 15th, we stopped the

Residual Heat Removal System (B) for the inspection. Subsequently, failure was detected in the power supply facility associated with the pumps of the Emergency Equipment Cooling Water System. At 4:25 pm, March 15th, after replacing the power facility, the pumps and the Residual Heat Removal System (B) have been reactivated.

\* (Unit 4)

As it is confirmed that the pressure at the outlet of the pumps of the Emergency Equipment Cooling Water System\*1 has been decreased, at 8:05 pm, March 15th, we stopped the Residual Heat Removal System (B) for the inspection. Subsequently, failure was detected in the power supply facility associated with the pumps of the Emergency Equipment Cooling Water System. At 9:25 pm, March 15th, after replacing the relevant facility, the pumps and the Residual Heat Removal System (B) have been reactivated.

\*1: emergency water system in which cooling water (pure water) circulates which exchanged the heat with sea water in order to cool down bearing pumps and/or heat exchangers etc.

**Kashiwazaki Kariwa Nuclear Power Station:**

**Units 1, 5, 6, 7: normal operation**

(Units 2 to 4: outage due to regular inspection)

**[Thermal Power Station]**

Hirono Thermal Power Station Units 2 and 4: shutdown due to earthquake

Hitachinaka Thermal Power Station Unit 1: shutdown due to earthquake

Kashima Thermal Power Station Units 2, 3, 5, 6: shutdown due to earthquake

Higashi-Ogishima Thermal Power Station Unit 1: shutdown due to earthquake

**[Hydro Power Station]**

\* All the stations have been restored.

**[Transmission System, etc.]**

All substation failed due to the earthquake have been restored.

**[Blackout in TEPCO's Service Area]**

Total of approximately 2,600 households are out of power (as of 9:00PM, March 17, 2011).

Tokyo: 0

Kanagawa Pref.: 0

Tochigi Pref.: 0

Chiba Pref.: 0

Saitama Pref.: 0

Gunma Pref.: 0

Ibaraki Pref.: 0

Yamanashi Pref.: 0

Shizuoka Pref.: 0 (east of Fuji River)

**[Supply and Demand Status within TEPCO's Service Area to Secure Stable Power Supply]**

Backup supply from Shinshinano Conversion Station: 600MW

Backup supply from Sakuma Conversion Station: 300MW

Backup supply from Higashi Shimizu Conversion Station: 100MW

Considering the critical balance of our power supply capacity and expected power demand forward, in order to avoid unexpected blackout, TEPCO has implemented rolling blackout (planned blackout alternates from one area to another) since yesterday. We will make our utmost to secure the stable power supply as early as possible.

For customers who will be subject to rolling blackout, please be prepared for the announced blackout periods. Also for customers who are not subject to blackouts, TEPCO appreciates your continuous cooperation in reducing electricity usage by avoiding using unnecessary lighting and electrical equipment.

**[Others]**

Please do NOT touch cut-off electric wires.

In order to prevent fire, please make sure to switch off the electric appliances such as hair drier and to shut down the breaker of distribution board when you leave your house.

For the customer who has in-house power generation, please secure fuel for generator.

[back to page top](#)

## Press Releases

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**Press Release (Mar 18,2011)**

**Assessment of INES (International Nuclear and Radiological Event Scale) on the incident at Fukushima Daiichi and Fukushima Daini Nuclear Power Station**

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March 18, 2011  
Tokyo Electric Power Company  
Masataka Shimizu, President

It has been announced that the assessment of INES (International Nuclear and Radiological Event Scale) on the incident at Unit 1, 2, and 3 of Fukushima Daiichi Nuclear Power Station caused by Tohoku-Taiheiyou-Okai Earthquake resulted in "Level 5". We are taking this assessment very seriously.

We sincerely apologize to all the people living in the surrounding area of the power station and people in Fukushima Prefecture, as well as to the people of society for causing such great concern and nuisance.

We are taking this reality as an extreme regret, although it was caused by the marvels of nature such as tsunami due to large scale earthquake that we have never experienced before.

While receiving support and cooperation from the Japanese government and related department and local authority, we will continue our maximum effort to converge current situation.

[Back to page top](#)

## Press Releases

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### Press Release (Mar 18,2011)

#### Plant Status of Fukushima Daini Nuclear Power Station (as of 9:00 pm March 18th)

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[No Latest Developments since 6:00pm, 18th March]

#### Unit Status

- 1
- Reactor cold shutdown, stable water level, offsite power is available.
  - No refrigerant is leaked in the reactor contaminant vessel.
  - Maintain average water temperature at 100°C in the pressure restraint.
- 2
- Reactor cold shutdown, stable water level, offsite power is available.
  - No refrigerant is leaked in the reactor contaminant vessel.
  - Maintain average water temperature at 100°C in the pressure restraint.
- 3
- Reactor cold shutdown, stable water level, offsite power is available.
  - No refrigerant is leaked in the reactor contaminant vessel.
  - Maintain average water temperature at 100°C in the pressure restraint.
- 4
- Reactor cold shutdown, stable water level, offsite power is available.
  - No refrigerant is leaked in the reactor contaminant vessel.
  - Maintain average water temperature at 100°C in the pressure restraint.
- other
- In the Unit 1, 2, 3 and 4, which automatically shut down due to the Tohoku-Chihou-Taiheiyo-Okai Earthquake on March 11th, 2011, we had been preparing measures for decreasing the pressure of each reactor containment vessel since March 12th. However, on March 17th, we released such preparation in all of the Units.

[The next information in regard to the plant is planned to be released at 9:00 am, 19th March. ]

 [Back to page top](#)

**From:** [Hayden, Elizabeth](#)  
**To:** [Brenner, Eliot](#); [Harrington, Holly](#)  
**Subject:** Re: scott is fading fast  
**Date:** Saturday, March 12, 2011 11:10:30 AM

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On my way in. Should I come to ofc or Ops Ctr.?

---

**From:** Brenner, Eliot  
**To:** Harrington, Holly; Hayden, Elizabeth  
**Sent:** Sat Mar 12 10:42:26 2011  
**Subject:** scott is fading fast

Need someone up here to help with the writing, etc.

YHY/118

**From:** [Google Alerts](#)  
**To:** [Hayden, Elizabeth](#)  
**Subject:** Google Alert - Nuclear Regulatory Commission  
**Date:** Monday, April 11, 2011 9:49:53 PM

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**News**

**3 new results for Nuclear Regulatory Commission**

[PG&E Continuing Its \*\*Nuclear\*\* License Renewal Application](#)

Bloomberg

If its application is approved, PG&E asked the US **Nuclear Regulatory Commission** to hold off issuing the final licenses until the company has received the results of the seismic analysis, the company said in a statement today. ...

[See all stories on this topic »](#)

[Three Workers at Nebraska Plant Exposed to Radiation](#)

Wall Street Journal

The Nebraska Public Power District, which owns and operates the plant, says the workers weren't exposed to radiation levels in excess of limits set by the **Nuclear Regulatory Commission**, the **NRC** said Monday. The event took place when the workers removed ...

[See all stories on this topic »](#)

[NRC: Japan nuke crisis 'static' but not yet stable](#)

Centre Daily Times

... even as he declared that the crisis in that country remains "static." AP Photo **Nuclear Regulatory Commission** Chairman Gregory B. Jaczko speaks to reporters during an interview with The Associated Press in Washington, Monday, April 11, 2011.

[See all stories on this topic »](#)



[Centre Daily Times](#)

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6/11/11  
YXX

**From:** [The Washington Post](#)  
**To:** [Hayden, Elizabeth](#)  
**Subject:** Breaking News: Explosion rocks Japanese nuclear power plant  
**Date:** Saturday, March 12, 2011 5:12:38 AM

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Breaking News Alert: Explosion rocks Japanese nuclear power plant  
March 12, 2011 5:10:15 AM  
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An explosion rocked one of Japan's nuclear power plants Saturday, causing a portion of a building to crumble, sending white smoke billowing into the air and prompting Japanese officials to warn those in the vicinity to cover their mouths and stay indoors.

In what may be the most serious nuclear power crisis since the Chernobyl disaster, the explosion followed large tremors at the Fukushima Daiichi number one reactor Saturday afternoon, injuring four workers who were struggling to get the quake-stricken unit under control.

<http://link.email.washingtonpost.com/r/YLCS8G/EWI1K8/5CBEP8/CLXV09/NVH1X/YT/h>

For more information, visit [washingtonpost.com](http://washingtonpost.com)

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**From:** [NEWS Administration](#)  
**To:** [NEWS.Contact-Point@iaea.org](mailto:NEWS.Contact-Point@iaea.org)  
**Subject:** New Event on NEWS, Japan, Power Reactor  
**Date:** Monday, April 11, 2011 10:14:04 PM

---

Dear NEWS User,

This is to notify you as a registered user of the NEWS Web site that a new Event with the title:

"Re-evaluation of INES rating; Effect to the Nuclear Facilities from the earthquake on east area of Japan"

has as of today, Tuesday, 12 April 2011, 04:00:13 UTC, been added to the NEWS Web site. Additional information regarding the new Event is as follows:

Sender Country: Japan  
Date of Event: 2011-04-12  
Facility/Place: Fukushima Daiichi

For more detailed information about the Event including related documents, press releases and on-site participation in forum discussions, please visit the NEWS Web site at:

<http://www-news.iaea.org/news/>

NEWS Administration

12/11/11

**From:** [Google Alerts](#)  
**To:** [Hayden, Elizabeth](#)  
**Subject:** Google Alert - Nuclear Regulatory Commission  
**Date:** Monday, April 11, 2011 11:05:51 PM

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## News

2 new results for **Nuclear Regulatory Commission**

### Riverkeeper criticizes **NRC** over Indian Point relicensing procedure

[EmpireStateNews.net](#)

WHITE PLAINS – The executive director of the Riverkeeper environmental group Monday criticized the **Nuclear Regulatory Commission**, claiming the agency that will determine whether or not to relicense Indian Point, is not willing to budge on its criteria. ...

[See all stories on this topic »](#)

### Nuclear Nation

The BQB

It's been precisely a month to the day since the earthquake that led to the devastation of Japan, however mere days since President Obama ordered the **Nuclear Regulatory Commission (NRC)** to evaluate the earthquake risk to every nuclear power plant in ...

[See all stories on this topic »](#)

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YHY/122

**From:** [NEWS Administration](#)  
**To:** [NEWS.Contact-Point@iaea.org](mailto:NEWS.Contact-Point@iaea.org)  
**Subject:** New ERF on NEWS, INES Rating: 7, Japan, Power Reactor  
**Date:** Monday, April 11, 2011 11:31:00 PM

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Dear NEWS User,

This is to notify you as a registered user of the NEWS Web site that an Event Rating Form (ERF) for the Event titled:

"Re-evaluation of INES rating; Effect to the Nuclear Facilities from the earthquake on east area of Japan"

has as of today, Tuesday, 12 April 2011, 05:17:22 UTC, been added to the NEWS Web site. Additional information regarding the ERF is as follows:

Country: Japan  
Location/Facility: FUKUSHIMA-DAIICHI-3  
Event Type: Power Reactor  
Event Date: 2011.03.11

Rating Date: 2011.04.12  
ERF Version: Provisional  
INES Rating Level: 7

For more detailed information about the ERF, including the related Event and press releases as well as on-site participation in forum discussions, please visit the NEWS Web site at:

<http://www-news.iaea.org/news/>

NEWS Administration

YY/123

**From:** Jean.GAUVAIN@oecd.org  
**To:** amcgarry@rpil.ie; besenyei@haea.gov.hu; vc@aerb.gov.in; valentina.ionescu@cncan.ro; david.tredinnick@arpansa.gov.au; roberto.ranieri@isprambiente.it; marli.vogels@minvrom.nl; fgrande@cnsns.gob.mx; moisiibogdan@cncan.ro; miyake-ryo@meti.go.jp; risto.isaksson@stuk.fi; anton.treier@ensi.ch; sunni.locatelli@cncs-ccsn.gc.ca; kees.jansen@minvrom.nl; dagmar.zemanova@ujd.gov.sk; anneli.hallgren@ssm.se; deniz.yueksel@bmu.bund.de; watanabe-makoto@meti.go.jp; mkelly@rpil.ie; schwang@kins.re.kr; mcle@csn.es; emmanuel.bouchot@asn.fr; i.sokolova@gosnadzor.ru; otake-fumie@jnes.go.jp; stanislaw.janikowski@paa.gov.pl; jean.gauvain@oecd.org; brafferty@rpil.ie; anne.marit.ostreng@nrpa.no; wolfgang.hilden@ec.europa.eu; niina.yliknuussi@ec.europa.eu; yhhah@kins.re.kr; karina.debeule@fanc.fgov.be; r.spiegelberg-planer@iaea.org; soaresic@ci.fc.ul.pt; camelia.liutiev@cncan.ro; Hayden, Elizabeth; aurele.gervais@cncs-ccsn.gc.ca; marek.bozenhard@sujb.cz; gerard.westerhof@minvrom.nl; lise.roberts@hse.gsi.gov.uk; ddawson@rpil.ie  
**Subject:** NEA/CNRA - WGPC-12 meeting will be held as scheduled but with flexibility  
**Date:** Saturday, March 12, 2011 9:41:55 AM

---

Dear WGPC Members,

Probably most of you are exceptionally on duty during this week-end. All our thoughts are with our Japanese colleagues severely affected by the Tohoku Pacific Ocean earthquake and the subsequent Tsunami.

With the Chair we have considered the possibility to postpone our annual WGPC meeting.

However, after considering advantages (unique opportunity to discuss NRO real-life issues) and disadvantage (problem should be only in countries with a single staff in charge of public communication), and also considering that it would be strange not to use the situation to discuss "Crisis communication" it was decided to maintain the meeting as scheduled, taking into account the necessary flexibility in case one member could not attend the whole meeting.

At the NEA you will have Internet connexion and we can also facilitate telephone access to your Capital during the meeting if needed.

Tuesday Afternoon there will be a preparatory meeting with the Chair and the Team Leaders. The Regular meeting will be from Wednesday to Friday.

IN case you cannot be replaced in your organisation we will fully understand, but we would appreciate that you let us know.

Best Regards

Jean Gauvain  
NEA/NSD

---

From: [k195hyh@kins.re.kr]  
Sent: 12 March 2011 15:28  
To: REIG Javier, NEA/SURN  
Cc: GAUVAIN Jean, NEA/SURN; yhhah@kins.re.kr  
Subject: Re: WGPC meeting will be held as scheduled?

Thank you, Javier and Jean,

I've just come back home from the office where key KINS staff members including President are still working at the KINS Emergency Response Center.

Fortunately, Korea will not be impacted from Japan accident because their wind direction is working the opposite way toward the Pacific Ocean.

On my side, no change with my travel plan is expected. So Jean, no problem to meet you at the NEA office around 12:00 next Tuesday as originally scheduled.

YY/124

Enjoy your weekend and see you soon.

Best regards,  
Yeonhee

**From:** [Brenner, Eliot](#)  
**To:** [Couret, Ivonne](#); [Hayden, Elizabeth](#); [Harrington, Holly](#); [Burnell, Scott](#); [McIntyre, David](#); [Lee, Jun](#)  
**Cc:** [Hardy, Sally](#)  
**Subject:** web stuff  
**Date:** Saturday, March 12, 2011 9:43:02 AM

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To follow up on the fact sally hardy will be available., Jun Lee is going to be working web posting issues through the day, and Sally will pick up in the afternoon. June is at 415-1337. And sally we know how to track down.

Meanwhile, I have a boatload of PDFs of BWRs should we need them. They could be linked with a blog.

YHY/125

**From:** [Hayden, Elizabeth](mailto:Hayden.Elizabeth)  
**To:** [Brenner, Eliot](mailto:Brenner.Eliot)  
**Subject:** Fw: NEA/CNRA - WGPC-12 meeting will be held as scheduled but with flexibility  
**Date:** Saturday, March 12, 2011 11:14:45 AM

---

Should I continue w/Paris plans? I am head of a new team on social media that will meet Tues p.m.

----- Original Message -----

**From:** [Jean.GAUVAIN@oecd.org](mailto:Jean.GAUVAIN@oecd.org) <[Jean.GAUVAIN@oecd.org](mailto:Jean.GAUVAIN@oecd.org)>  
**To:** [amcgarry@rpii.ie](mailto:amcgarry@rpii.ie) <[amcgarry@rpii.ie](mailto:amcgarry@rpii.ie)>; [besenyei@haea.gov.hu](mailto:besenyei@haea.gov.hu) <[besenyei@haea.gov.hu](mailto:besenyei@haea.gov.hu)>;  
[vc@aerb.gov.in](mailto:vc@aerb.gov.in) <[vc@aerb.gov.in](mailto:vc@aerb.gov.in)>; [valentina.ionescu@cncan.ro](mailto:valentina.ionescu@cncan.ro) <[valentina.ionescu@cncan.ro](mailto:valentina.ionescu@cncan.ro)>;  
[david.tredinnick@arpansa.gov.au](mailto:david.tredinnick@arpansa.gov.au) <[david.tredinnick@arpansa.gov.au](mailto:david.tredinnick@arpansa.gov.au)>; [roberto.ranieri@isprambiente.it](mailto:roberto.ranieri@isprambiente.it)  
<[roberto.ranieri@isprambiente.it](mailto:roberto.ranieri@isprambiente.it)>; [marli.vogels@minvrom.nl](mailto:marli.vogels@minvrom.nl) <[marli.vogels@minvrom.nl](mailto:marli.vogels@minvrom.nl)>;  
[fgrande@cnsns.gob.mx](mailto:fgrande@cnsns.gob.mx) <[fgrande@cnsns.gob.mx](mailto:fgrande@cnsns.gob.mx)>; [moisiibogdan@cncan.ro](mailto:moisiibogdan@cncan.ro) <[moisiibogdan@cncan.ro](mailto:moisiibogdan@cncan.ro)>;  
[miyake-ryo@meti.go.jp](mailto:miyake-ryo@meti.go.jp) <[miyake-ryo@meti.go.jp](mailto:miyake-ryo@meti.go.jp)>; [risto.isaksson@stuk.fi](mailto:risto.isaksson@stuk.fi) <[risto.isaksson@stuk.fi](mailto:risto.isaksson@stuk.fi)>;  
[anton.treier@ensi.ch](mailto:anton.treier@ensi.ch) <[anton.treier@ensi.ch](mailto:anton.treier@ensi.ch)>; [sunni.locatelli@cncs-ccsn.gc.ca](mailto:sunni.locatelli@cncs-ccsn.gc.ca) <[sunni.locatelli@cncs-ccsn.gc.ca](mailto:sunni.locatelli@cncs-ccsn.gc.ca)>;  
[kees.jansen@minvrom.nl](mailto:kees.jansen@minvrom.nl) <[kees.jansen@minvrom.nl](mailto:kees.jansen@minvrom.nl)>; [dagmar.zemanova@ujd.gov.sk](mailto:dagmar.zemanova@ujd.gov.sk)  
<[dagmar.zemanova@ujd.gov.sk](mailto:dagmar.zemanova@ujd.gov.sk)>; [anneli.hallgren@ssm.se](mailto:anneli.hallgren@ssm.se) <[anneli.hallgren@ssm.se](mailto:anneli.hallgren@ssm.se)>;  
[deniz.yueksel@bmu.bund.de](mailto:deniz.yueksel@bmu.bund.de) <[deniz.yueksel@bmu.bund.de](mailto:deniz.yueksel@bmu.bund.de)>; [watanabe-makoto@meti.go.jp](mailto:watanabe-makoto@meti.go.jp)  
<[watanabe-makoto@meti.go.jp](mailto:watanabe-makoto@meti.go.jp)>; [mkelly@rpii.ie](mailto:mkelly@rpii.ie) <[mkelly@rpii.ie](mailto:mkelly@rpii.ie)>; [schwang@kins.re.kr](mailto:schwang@kins.re.kr)  
<[schwang@kins.re.kr](mailto:schwang@kins.re.kr)>; [mcle@csn.es](mailto:mcle@csn.es) <[mcle@csn.es](mailto:mcle@csn.es)>; [emmanuel.bouchot@asn.fr](mailto:emmanuel.bouchot@asn.fr)  
<[emmanuel.bouchot@asn.fr](mailto:emmanuel.bouchot@asn.fr)>; [i.sokolova@gosnadzor.ru](mailto:i.sokolova@gosnadzor.ru) <[i.sokolova@gosnadzor.ru](mailto:i.sokolova@gosnadzor.ru)>; [otake-fumie@jnes.go.jp](mailto:otake-fumie@jnes.go.jp)  
<[otake-fumie@jnes.go.jp](mailto:otake-fumie@jnes.go.jp)>; [stanislaw.janikowski@paa.gov.pl](mailto:stanislaw.janikowski@paa.gov.pl)  
<[stanislaw.janikowski@paa.gov.pl](mailto:stanislaw.janikowski@paa.gov.pl)>; [jean.gauvain@oecd.org](mailto:jean.gauvain@oecd.org) <[jean.gauvain@oecd.org](mailto:jean.gauvain@oecd.org)>;  
[brafferty@rpii.ie](mailto:brafferty@rpii.ie) <[brafferty@rpii.ie](mailto:brafferty@rpii.ie)>; [anne.marit.ostreng@nrpa.no](mailto:anne.marit.ostreng@nrpa.no) <[anne.marit.ostreng@nrpa.no](mailto:anne.marit.ostreng@nrpa.no)>;  
[wolfgang.hilden@ec.europa.eu](mailto:wolfgang.hilden@ec.europa.eu) <[wolfgang.hilden@ec.europa.eu](mailto:wolfgang.hilden@ec.europa.eu)>; [niina.yliknuussi@ec.europa.eu](mailto:niina.yliknuussi@ec.europa.eu)  
<[niina.yliknuussi@ec.europa.eu](mailto:niina.yliknuussi@ec.europa.eu)>; [yhhah@kins.re.kr](mailto:yhhah@kins.re.kr) <[yhhah@kins.re.kr](mailto:yhhah@kins.re.kr)>; [karina.debeule@fanc.fgov.be](mailto:karina.debeule@fanc.fgov.be)  
<[karina.debeule@fanc.fgov.be](mailto:karina.debeule@fanc.fgov.be)>; [r.spiegelberg-planer@iaea.org](mailto:r.spiegelberg-planer@iaea.org) <[r.spiegelberg-planer@iaea.org](mailto:r.spiegelberg-planer@iaea.org)>;  
[soaresjc@cii.fc.ul.pt](mailto:soaresjc@cii.fc.ul.pt) <[soaresjc@cii.fc.ul.pt](mailto:soaresjc@cii.fc.ul.pt)>; [camelia.liutiev@cncan.ro](mailto:camelia.liutiev@cncan.ro) <[camelia.liutiev@cncan.ro](mailto:camelia.liutiev@cncan.ro)>;  
Hayden, Elizabeth; [aurele.gervais@cncs-ccsn.gc.ca](mailto:aurele.gervais@cncs-ccsn.gc.ca) <[aurele.gervais@cncs-ccsn.gc.ca](mailto:aurele.gervais@cncs-ccsn.gc.ca)>;  
[marek.bozenhard@sujb.cz](mailto:marek.bozenhard@sujb.cz) <[marek.bozenhard@sujb.cz](mailto:marek.bozenhard@sujb.cz)>; [gerard.westerhof@minvrom.nl](mailto:gerard.westerhof@minvrom.nl)  
<[gerard.westerhof@minvrom.nl](mailto:gerard.westerhof@minvrom.nl)>; [lise.roberts@hse.gsi.gov.uk](mailto:lise.roberts@hse.gsi.gov.uk) <[lise.roberts@hse.gsi.gov.uk](mailto:lise.roberts@hse.gsi.gov.uk)>;  
[ddawson@rpii.ie](mailto:ddawson@rpii.ie) <[ddawson@rpii.ie](mailto:ddawson@rpii.ie)>  
**Sent:** Sat Mar 12 09:41:47 2011  
**Subject:** NEA/CNRA - WGPC-12 meeting will be held as scheduled but with flexibility

Dear WGPC Members,

Probably most of you are exceptionally on duty during this week-end. Al out thoughts arec with our Japanese colleagues severely affected by the Tohoku pacific ocean earthquake and the subsequent Tsunami.

With the Chair we have considered the possibility to postpone our annual WGPC meeting.

However, after considering advantages (unique opportunity to discus NRO real-life issues) and disadvantage (problem should be only in countries with a single staf in charge of public communication), and also considering that it would be strange not to use the situation to discuss "Crisis communication" it was decided to maintain the meeting as scheduled, taking into account the necessary flexibility in case one member coul not attend the whole meeting.

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Tuesday Afternoen there wil be a preparatory meeting with the Chair and the Team Leaders. The Regular meeting will be from Wednesday to Friday.

IN case you cannot be replaced in your organisation we wil fully understand, but we would appreciate that you let us know.

XYX / 126

Best Regards

Jean Gauvain  
NEA/NSD

---

From: [k195hyh@kins.re.kr]  
Sent: 12 March 2011 15:28  
To: REIG Javier, NEA/SURN  
Cc: GAUVAIN Jean, NEA/SURN; yhhah@kins.re.kr  
Subject: Re: WGPC meeting will be held as scheduled?

Thank you, Javier and Jean,

I've just came back home from the office where key KINS staff members including President are still working at the KINS Emergency Response Center.

Fortunately, Korea will not be impacted from Japan accident because their wind direction is working the opposite way toward the Pacific Ocean.

On my side, no change with my travel plan is expected. So Jean, no problem to meet you at the NEA office around 12:00 next Tuesday as originally scheduled.

Enjoy your weekend and see you soon.

Best regards,  
Yeonhee

**From:** [NEWS Administration](#)  
**To:** [NEWS.Contact-Point@iaea.org](mailto:NEWS.Contact-Point@iaea.org)  
**Subject:** New ERF on NEWS, INES Rating: 7, Japan, Power Reactor  
**Date:** Monday, April 11, 2011 11:45:28 PM

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Dear NEWS User,

This is to notify you as a registered user of the NEWS Web site that an Event Rating Form (ERF) for the Event titled:

"Re-evaluation of INES rating; Effect to the Nuclear Facilities from the earthquake on east area of Japan"

has as of today, Tuesday, 12 April 2011, 05:43:32 UTC, been added to the NEWS Web site. Additional information regarding the ERF is as follows:

Country: Japan  
Location/Facility: Fukushima Daiichi  
Event Type: Power Reactor  
Event Date: 2011.04.12

Rating Date: 2011.04.12  
ERF Version: Provisional  
INES Rating Level: 7

For more detailed information about the ERF, including the related Event and press releases as well as on-site participation in forum discussions, please visit the NEWS Web site at:

<http://www-news.iaea.org/news/>

NEWS Administration

YY/127

**From:** Brenner, Eliot  
**To:** Hayden, Elizabeth  
**Subject:** RE: NEA/CNRA - WGPC-12 meeting will be held as scheduled but with flexibility  
**Date:** Saturday, March 12, 2011 11:16:12 AM

---

For the moment, yes, because if I recall you are not due to fly out until Monday night, correct?

-----Original Message-----

From: Hayden, Elizabeth  
Sent: Saturday, March 12, 2011 11:15 AM  
To: Brenner, Eliot  
Subject: Fw: NEA/CNRA - WGPC-12 meeting will be held as scheduled but with flexibility

Should I continue w/Paris plans? I am head of a new team on social media that will meet Tues p.m.

----- Original Message -----

From: Jean.GAUVAIN@oecd.org <Jean.GAUVAIN@oecd.org>  
To: amcgarry@rpil.ie <amcgarry@rpil.ie>; besenyei@haea.gov.hu <besenyei@haea.gov.hu>;  
vc@aerb.gov.in <vc@aerb.gov.in>; valentina.ionescu@cncan.ro <valentina.ionescu@cncan.ro>;  
david.tredinnick@arpansa.gov.au <david.tredinnick@arpansa.gov.au>; roberto.ranieri@isprambiente.it  
<roberto.ranieri@isprambiente.it>; marli.vogels@minvrom.nl <marli.vogels@minvrom.nl>;  
fgrande@cnsns.gob.mx <fgrande@cnsns.gob.mx>; moisiibogdan@cncan.ro <moisiibogdan@cncan.ro>;  
miyake-ryo@meti.go.jp <miyake-ryo@meti.go.jp>; risto.isaksson@stuk.fi <risto.isaksson@stuk.fi>;  
anton.treier@ensi.ch <anton.treier@ensi.ch>; sunni.locatelli@cncs-ccsn.gc.ca <sunni.locatelli@cncs-  
ccsn.gc.ca>; kees.jansen@minvrom.nl <kees.jansen@minvrom.nl>; dagmar.zemanova@ujd.gov.sk  
<dagmar.zemanova@ujd.gov.sk>; anneli.hallgren@ssm.se <anneli.hallgren@ssm.se>;  
deniz.yueksel@bmu.bund.de <deniz.yueksel@bmu.bund.de>; watanabe-makoto@meti.go.jp  
<watanabe-makoto@meti.go.jp>; mkelly@rpil.ie <mkelly@rpil.ie>; schwang@kins.re.kr  
<schwange@kins.re.kr>; mcle@csn.es <mcle@csn.es>; emmanuel.bouchot@asn.fr  
<emmanuel.bouchot@asn.fr>; i.sokolova@gosnadzor.ru <i.sokolova@gosnadzor.ru>; otake-  
fumie@jnes.go.jp <otake-fumie@jnes.go.jp>; stanislaw.janikowski@paa.gov.pl  
<stanislaw.janikowski@paa.gov.pl>; jean.gauvain@oecd.org <jean.gauvain@oecd.org>;  
brafferty@rpil.ie <brafferty@rpil.ie>; anne.marit.ostreng@nrpa.no <anne.marit.ostreng@nrpa.no>;  
wolfgang.hilden@ec.europa.eu <wolfgang.hilden@ec.europa.eu>; niina.yliknuussi@ec.europa.eu  
<niina.yliknuussi@ec.europa.eu>; yhhah@kins.re.kr <yhhah@kins.re.kr>; karina.debeule@fanc.fgov.be  
<karina.debeule@fanc.fgov.be>; r.spiegelberg-planer@iaea.org <r.spiegelberg-planer@iaea.org>;  
soaresjc@cii.fc.ul.pt <soaresjc@cii.fc.ul.pt>; camelia.liutiev@cncan.ro <camelia.liutiev@cncan.ro>;  
Hayden, Elizabeth; aurele.gervais@cncs-ccsn.gc.ca <aurele.gervais@cncs-ccsn.gc.ca>;  
marek.bozenhard@sujb.cz <marek.bozenhard@sujb.cz>; gerard.westerhof@minvrom.nl  
<gerard.westerhof@minvrom.nl>; lise.roberts@hse.gsi.gov.uk <lise.roberts@hse.gsi.gov.uk>;  
ddawson@rpil.ie <ddawson@rpil.ie>  
Sent: Sat Mar 12 09:41:47 2011  
Subject: NEA/CNRA - WGPC-12 meeting will be held as scheduled but with flexibility

Dear WGPC Members,

Probably most of you are exceptionally on duty during this week-end. All our thoughts are with our Japanese colleagues severely affected by the Tohoku Pacific Ocean earthquake and the subsequent Tsunami.

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YY/128

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Tuesday Afternoon there will be a preparatory meeting with the Chair and the Team Leaders. The Regular meeting will be from Wednesday to Friday.

IN case you cannot be replaced in your organisation we will fully understand, but we would appreciate that you let us know.

Best Regards

Jean Gauvain  
NEA/NSD

---

From: [k195hyh@kins.re.kr]  
Sent: 12 March 2011 15:28  
To: REIG Javier, NEA/SURN  
Cc: GAUVAIN Jean, NEA/SURN; yhhah@kins.re.kr  
Subject: Re: WGPC meeting will be held as scheduled?

Thank you, Javier and Jean,

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Enjoy your weekend and see you soon.

Best regards,  
Yeonhee

**From:** [Google Alerts](#)  
**To:** [Hayden, Elizabeth](#)  
**Subject:** Google Alert - Nuclear Regulatory Commission  
**Date:** Monday, April 11, 2011 11:58:15 PM

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**News**

**2 new results for Nuclear Regulatory Commission**

**NRC: Japan nuke crisis 'static' but not yet stable**

Argus Press

**Nuclear Regulatory Commission** Chairman Gregory B. Jaczko speaks to reporters during an interview with The Associated Press in Washington, Monday, April 11, 2011. (AP Photo/Susan Walsh) 1 Keep it Clean. Please avoid obscene, vulgar, lewd, ...

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**Massachusetts nuclear sites face increased scrutiny**

The Massachusetts Daily Collegian

Governor Deval Patrick, Massachusetts Senate President Therese Murray, and House Speaker Robert DeLeo have signed a letter calling for the United States **Nuclear Regulatory Commission (NRC)** not to proceed with the Plymouth, Mass., Pilgrim Nuclear ...

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[The  
Massachusetts  
Daily Collegian](#)

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[Manage your alerts.](#)

YHY/129-

**From:** [Google Alerts](#)  
**To:** [Hayden, Elizabeth](#)  
**Subject:** Google Alert - Nuclear Regulatory Commission  
**Date:** Monday, April 11, 2011 6:45:35 PM

---

**News**

**3** new results for **Nuclear Regulatory Commission**

[US Inspects Cooper \*\*Nuclear\*\* Plant After Radiation Exposures](#)

Bloomberg

By Simon Lomax - Mon Apr 11 20:22:41 GMT 2011 The US **Nuclear Regulatory Commission** is inspecting a reactor at a Nebraska power plant after three workers received "unplanned radiation exposures" last week, the agency said. The Nebraska Public Power ...  
[See all stories on this topic »](#)

[NRC: Japan nuke crisis 'static' but not yet stable](#)

San Jose Mercury News

By MATTHEW DALY AP **Nuclear Regulatory Commission** Chairman Gregory B. Jaczko speaks to reporters during an interview with The Associated Press in Washington, Monday, April 11, 2011. WASHINGTON—The top US nuclear regulator says he will not change a ...  
[See all stories on this topic »](#)

[PG&E asks for delay in license renewal for Diablo Canyon \*\*nuclear\*\* power plant](#)

San Luis Obispo Tribune

By David Sneed Pacific Gas and Electric Co. has sent a letter to the federal **Nuclear Regulatory Commission** asking it to delay final implementation of license renewal at Diablo Canyon nuclear power plant until the utility can complete advanced seismic ...  
[See all stories on this topic »](#)

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Tip: Use a plus sign (+) to match a term in your query exactly as is. [Learn more.](#)

[Remove](#) this alert.  
[Create](#) another alert.  
[Manage](#) your alerts.

Y.Y./130

**From:** [Hayden, Elizabeth](#)  
**To:** [Brenner, Eliot](#)  
**Subject:** Re: NEA/CNRA - WGPC-12 meeting will be held as scheduled but with flexibility  
**Date:** Saturday, March 12, 2011 11:21:36 AM

---

Mon afternoon

----- Original Message -----

**From:** Brenner, Eliot  
**To:** Hayden, Elizabeth  
**Sent:** Sat Mar 12 11:16:10 2011  
**Subject:** RE: NEA/CNRA - WGPC-12 meeting will be held as scheduled but with flexibility

For the moment, yes, because if I recall you are not due to fly out until Monday night, correct?

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----- Original Message -----

**From:** Jean.GAUVAIN@oecd.org <Jean.GAUVAIN@oecd.org>  
**To:** amcgarry@rpii.ie <amcgarry@rpii.ie>; besenyei@haea.gov.hu <besenyei@haea.gov.hu>; vc@aerb.gov.in <vc@aerb.gov.in>; valentina.ionescu@cncan.ro <valentina.ionescu@cncan.ro>; david.tredinnick@arpansa.gov.au <david.tredinnick@arpansa.gov.au>; roberto.ranieri@isprambiente.it <roberto.ranieri@isprambiente.it>; marli.vogels@minvrom.nl <marli.vogels@minvrom.nl>; fgrande@cnsns.gob.mx <fgrande@cnsns.gob.mx>; moisibogdan@cncan.ro <moisibogdan@cncan.ro>; miyake-ryo@meti.go.jp <miyake-ryo@meti.go.jp>; risto.isaksson@stuk.fi <risto.isaksson@stuk.fi>; anton.treier@ensi.ch <anton.treier@ensi.ch>; sunni.locatelli@cncs-ccsn.gc.ca <sunni.locatelli@cncs-ccsn.gc.ca>; kees.jansen@minvrom.nl <kees.jansen@minvrom.nl>; dagmar.zemanova@ujd.gov.sk <dagmar.zemanova@ujd.gov.sk>; anneli.hallgren@ssm.se <anneli.hallgren@ssm.se>; deniz.yueksel@bmu.bund.de <deniz.yueksel@bmu.bund.de>; watanabe-makoto@meti.go.jp <watanabe-makoto@meti.go.jp>; mkelly@rpii.ie <mkelly@rpii.ie>; schwang@kins.re.kr <schwang@kins.re.kr>; mcle@csn.es <mcle@csn.es>; emmanuel.bouchot@asn.fr <emmanuel.bouchot@asn.fr>; i.sokolova@gosnadzor.ru <i.sokolova@gosnadzor.ru>; otake-fumie@jnes.go.jp <otake-fumie@jnes.go.jp>; stanislaw.janikowski@paa.gov.pl <stanislaw.janikowski@paa.gov.pl>; jean.gauvain@oecd.org <jean.gauvain@oecd.org>; brafferty@rpii.ie <brafferty@rpii.ie>; anne.marit.ostreng@nrpa.no <anne.marit.ostreng@nrpa.no>; wolfgang.hilden@ec.europa.eu <wolfgang.hilden@ec.europa.eu>; niina.yliknuussi@ec.europa.eu <niina.yliknuussi@ec.europa.eu>; yhhah@kins.re.kr <yhhah@kins.re.kr>; karina.debeule@fanc.fgov.be <karina.debeule@fanc.fgov.be>; r.spiegelberg-planer@iaea.org <r.spiegelberg-planer@iaea.org>; soaresjc@cii.fc.ul.pt <soaresjc@cii.fc.ul.pt>; camelia.liutiev@cncan.ro <camelia.liutiev@cncan.ro>; Hayden, Elizabeth; aurele.gervais@cncs-ccsn.gc.ca <aurele.gervais@cncs-ccsn.gc.ca>; marek.bozenhard@sujb.cz <marek.bozenhard@sujb.cz>; gerard.westerhof@minvrom.nl <gerard.westerhof@minvrom.nl>; lise.roberts@hse.gsi.gov.uk <lise.roberts@hse.gsi.gov.uk>; ddawson@rpii.ie <ddawson@rpii.ie>  
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YY/131

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Yeonhee

**From:** Brenner, Eliot  
**To:** Couret, Ivonne; Burnell, Scott; Akstulewicz, Brenda  
**Cc:** Harrington, Holly; Hayden, Elizabeth  
**Subject:** new blog  
**Date:** Saturday, March 12, 2011 11:23:50 AM

---

The Nuclear Regulatory Commission continues to monitor the unfolding developments in Japan in the aftermath of Friday's earthquake/tsunami and problems at a nuclear power complex. It is a serious and very fluid situation that is being watched by a variety of government agencies who can provide assistance. The NRC is prepared to provide reactor experts should a request be made. In our communications with the Japanese government both the NRC and other elements of the U.S. government have offered our condolences to the Japanese people over the tragedy that has occurred.

The NRC's Rockville, Md., headquarters Operations Center is operating on an around-the-clock basis.

The NRC is not in a position to confirm reports that come from Japan on a minute by minute basis and it would be irresponsible of the agency to speculate on a crisis unfolding half a world away. We will provide information we consider pertinent domestically when necessary.

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 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.

One of the items we have been asked about is how does a boiling water reactor operate. For background information on generic operations at a boiling-water reactor, including an animated graphic, visit the NRC's website at [www.nrc.gov](http://www.nrc.gov).

Eliot Brenner  
Director of Public Affairs.

---

**From:** Couret, Ivonne  
**Sent:** Saturday, March 12, 2011 10:52 AM  
**To:** Burnell, Scott; Akstulewicz, Brenda  
**Cc:** Brenner, Eliot  
**Subject:** RE: New press release for posting on Web and EOC

Scott are you doing the blog Post, just spoke with Holly and she provided guidance on this. I'm also going to have OIS lift the BWR design on to the Hot Topics section on the Web and include the PDF of designs. We should link these additional designs to press release and new blog post. Thoughts? Ivonne

Ivonne L. Couret

1/12/132

Public Affairs Officer  
Office of Public Affairs



 (301) 415-8205

 [ivonne.couret@nrc.gov](mailto:ivonne.couret@nrc.gov)

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/>

NRC Employees can read interesting insight on the OPA Blog  
<http://portal.nrc.gov/OCM/opa/blog/default.aspx>

 Please consider the environmental impact before printing this email.

---

**From:** Burnell, Scott  
**Sent:** Saturday, March 12, 2011 10:44 AM  
**To:** Akstulewicz, Brenda; Couret, Ivonne  
**Cc:** Brenner, Eliot  
**Subject:** New press release for posting on Web and EOC

Brenda;

Please set this up for immediate release. Ivonne, once it's final can you post it to WebEOC? Thanks.

Scott

**From:** OPA Resource  
**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; Hanev, 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: NRC in Communication with Japanese Regulations  
**Date:** Saturday, March 12, 2011 11:29:35 AM  
**Attachments:** 11-044.docx

---

Attached for immediate release and posting.

Office of Public Affairs  
US Nuclear Regulatory Commission  
301-415-8200  
opa.resource@nrc.gov

NY/133



# 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](mailto:opa.resource@nrc.gov) Site: [www.nrc.gov](http://www.nrc.gov)

Blog: <http://public-blog.nrc-gateway.gov>

No. 11-044

March 12, 2011

## NRC IN COMMUNICATION WITH JAPANESE REGULATORS

Officials at Nuclear Regulatory Commission headquarters in Rockville, Md., have spoken with the agency's counterpart in Japan, offering the assistance of U.S. technical experts. Should the Japanese want to make use of this expertise, NRC staffers with extensive background in boiling-water reactors are available to assist ongoing efforts.

The NRC is coordinating its actions with other Federal agencies as part of the U.S. government response. The NRC is examining all available information as part of the effort to analyze the event and understand its implications both for Japan and the United States. The NRC's headquarters Operations Center is operating on a 24-hour basis.

U.S. nuclear power plants are built to withstand environmental hazards, including earthquakes and tsunamis. 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 estimated for the site and surrounding area.

For background information on generic operations at a boiling-water reactor, including an animated graphic, visit the NRC's website at [www.nrc.gov](http://www.nrc.gov).

###

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](http://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:** [Harrington, Holly](#)  
**To:** [Akstulewicz, Brenda](#); [Brenner, Eliot](#); [Hayden, Elizabeth](#)  
**Subject:** RE: FYI  
**Date:** Saturday, March 12, 2011 12:33:55 PM

---

I'm writing a script for Brenda to say to these people

---

**From:** Akstulewicz, Brenda  
**Sent:** Saturday, March 12, 2011 12:33 PM  
**To:** Brenner, Eliot; Hayden, Elizabeth; Harrington, Holly  
**Subject:** FYI

Don't know if it makes a difference in your decision making, but I'm beginning to receive calls from people who are very disappointed, concerned, uncertain of the information they're receiving on TV, etc. and would like/feel more comfortable if there was a statement/information from the NRC.

**Brenda Akstulewicz**  
Administrative Assistant  
Office of Public Affairs  
301-415-8209  
[brenda.akstulewicz@nrc.gov](mailto:brenda.akstulewicz@nrc.gov)



1/1/134

**From:** Harrington, Holly  
**To:** Hayden, Elizabeth; Burnell, Scott; Brenner, Eliot; Couret, Ivonne  
**Subject:** I'm here and at my desk. If you want me at the op Center let me know  
**Date:** Saturday, March 12, 2011 12:34:15 PM

---

NY/135

**From:** Brenner, Eliot  
**To:** Harrington, Holly; Akstulewicz, Brenda  
**Cc:** Hayden, Elizabeth  
**Subject:** RE: FYI  
**Date:** Saturday, March 12, 2011 12:44:49 PM

---

Ok ... update the blog now and include a line about the NRC has reactor experts with the U.S. AID team, available to provide assistance if requested. Let me see the final product.

---

**From:** Harrington, Holly  
**Sent:** Saturday, March 12, 2011 12:40 PM  
**To:** Akstulewicz, Brenda  
**Cc:** Brenner, Eliot; Hayden, Elizabeth  
**Subject:** RE: FYI

This is what I suggest we say to these folks:

The NRC is in consultation with the Japanese nuclear authorities and offering our assistance to them. However, we cannot speak for them nor provide information on their status or situation. Please follow the NRC efforts on our Web site and on our blog. Other good sources of information are:

[www.state.gov](http://www.state.gov)

[www.fema.gov](http://www.fema.gov)

[www.whitehouse.gov](http://www.whitehouse.gov)

[www.nei.org](http://www.nei.org)

<http://www.iaea.org/press/>

BTW – I'm going to suggest we add these links to the next blog post.

And if they try to offer assistance or idea of how to fix the problem (promise me, they will) This additional statement:

Thank you for your suggestion and interest in this situation. Rest assured that some of the most expert people in this field in the world work for the NRC and are able to assist the Japanese nuclear authorities.

---

**From:** Akstulewicz, Brenda  
**Sent:** Saturday, March 12, 2011 12:33 PM  
**To:** Brenner, Eliot; Hayden, Elizabeth; Harrington, Holly  
**Subject:** FYI

Don't know if it makes a difference in your decision making, but I'm beginning to receive calls from people who are very disappointed, concerned, uncertain of the information they're receiving on TV, etc. and would like/feel more comfortable if there was a statement/information from the

YVY/136

NRC.

**Brenda Akstulewicz**  
Administrative Assistant  
Office of Public Affairs  
301-415-8209  
[brenda.akstulewicz@nrc.gov](mailto:brenda.akstulewicz@nrc.gov)



**From:** [Akstulewicz, Brenda](#)  
**To:** [Harrington, Holly](#)  
**Cc:** [Brenner, Eliot](#); [Hayden, Elizabeth](#)  
**Subject:** RE: FYI  
**Date:** Saturday, March 12, 2011 12:46:43 PM

---

Thanks!

---

**From:** Harrington, Holly  
**Sent:** Saturday, March 12, 2011 12:40 PM  
**To:** Akstulewicz, Brenda  
**Cc:** Brenner, Eliot; Hayden, Elizabeth  
**Subject:** RE: FYI

This is what I suggest we say to these folks:

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<http://www.iaea.org/press/>

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---

**From:** Akstulewicz, Brenda  
**Sent:** Saturday, March 12, 2011 12:33 PM  
**To:** Brenner, Eliot; Hayden, Elizabeth; Harrington, Holly  
**Subject:** FYI

Don't know if it makes a difference in your decision making, but I'm beginning to receive calls from people who are very disappointed, concerned, uncertain of the information they're receiving on TV, etc. and would like/feel more comfortable if there was a statement/information from the NRC.

YH/137

**Brenda Akstulewicz**  
Administrative Assistant  
Office of Public Affairs  
301-415-8209  
[brenda.akstulewicz@nrc.gov](mailto:brenda.akstulewicz@nrc.gov)



**From:** [Schmidt, Rebecca](#)  
**To:** [Schmidt, Rebecca](#); [Shane, Raeann](#); [Dacus, Eugene](#); [Droggitis, Spiros](#); [Decker, David](#); [Powell, Amy](#); [Riley \(OCA\), Timothy](#)  
**Cc:** [Brenner, Eliot](#); [Hayden, Elizabeth](#)  
**Subject:** RE: Schedule for Ops Center -- OCA participation  
**Date:** Saturday, March 12, 2011 12:48:03 PM

---

The Ops Center has to check a box so I need volunteers to man the following hours:

Sun night 9pm – 7am Monday morning

Mon 7am – 2PM

Mon 2pm – 9 pm

Mon 9 pm – Tues 7am

Tues 7am to 2pm

First come, first serve!!!

---

**From:** Schmidt, Rebecca  
**Sent:** Friday, March 11, 2011 5:08 PM  
**To:** Shane, Raeann; Dacus, Eugene; Schmidt, Rebecca; Droggitis, Spiros; Decker, David; Powell, Amy; Riley (OCA), Timothy  
**Cc:** Batkin, Joshua; Brenner, Eliot; Hayden, Elizabeth  
**Subject:** Schedule for Ops Center -- OCA participation

Thanks for all your help. Here is a schedule for our participation at the Ops Center:

Friday

Raeann 10:00 am to 10:00 pm

Gene 10:00 pm to 7:00 am

Saturday

Becky 7:00 am to 2:00 pm

Spiros 2:00 pm to 9:00 pm

David 9:00 pm to 7:00 am

Sunday

Amy 7:00 am to 2:00 pm

Tim 2:00pm to 9:00pm

We will figure out if we need to cycle again later in the weekend. Also, I will send the list of who we are sending the press releases to in my next email

YYY/138

**From:** [Harrington, Holly](#)  
**To:** [Brenner, Eliot](#); [Akstulewicz, Brenda](#)  
**Cc:** [Hayden, Elizabeth](#)  
**Subject:** RE: FYI  
**Date:** Saturday, March 12, 2011 12:48:09 PM

---

Will do

---

**From:** Brenner, Eliot  
**Sent:** Saturday, March 12, 2011 12:45 PM  
**To:** Harrington, Holly; Akstulewicz, Brenda  
**Cc:** Hayden, Elizabeth  
**Subject:** RE: FYI

Ok ... update the blog now and include a line about the NRC has reactor experts with the U.S. AID team, available to provide assistance if requested. Let me see the final product.

---

**From:** Harrington, Holly  
**Sent:** Saturday, March 12, 2011 12:40 PM  
**To:** Akstulewicz, Brenda  
**Cc:** Brenner, Eliot; Hayden, Elizabeth  
**Subject:** RE: FYI

This is what I suggest we say to these folks:

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---

**From:** Akstulewicz, Brenda

4/11/139

**Sent:** Saturday, March 12, 2011 12:33 PM  
**To:** Brenner, Eliot; Hayden, Elizabeth; Harrington, Holly  
**Subject:** FYI

Don't know if it makes a difference in your decision making, but I'm beginning to receive calls from people who are very disappointed, concerned, uncertain of the information they're receiving on TV, etc. and would like/feel more comfortable if there was a statement/information from the NRC.

**Brenda Akstulewicz**  
Administrative Assistant  
Office of Public Affairs  
301-415-8209  
[brenda.akstulewicz@nrc.gov](mailto:brenda.akstulewicz@nrc.gov)



**From:** Burnell, Scott  
**To:** Russell, Andrea; Stuchell, Sheldon; Couret, Ivonne  
**Cc:** Hayden, Elizabeth  
**Subject:** RE: ACTION: Development of a RIS: LICENSE RENEWAL SUBMITTAL INFORMATION FOR REACTOR INTERNALS AGING MANAGEMENT  
**Date:** Monday, April 11, 2011 7:00:26 PM

---

Andrea;

Given the increased interest in LR activities following the Japan earthquake, it's quite likely we'll need a press release on this to avoid confusion. I'll review the RIS in the next couple of days and suggest a course of action. Thanks.

Scott

---

**From:** Russell, Andrea  
**Sent:** Monday, April 11, 2011 9:32 AM  
**To:** McIntosh, Angela; Doolittle, Elizabeth; Willis, Joseph; Tabatabai, Omid  
**Cc:** Cupidon, Les; OGCMailCenter Resource; Mensah, Tanya; Rosenberg, Stacey; Stuchell, Sheldon; Williamson, Edward; Hilton, Nick; Hill, Leslie; Donnell, Tremaine; QTE Resource; Burnell, Scott; Hawes, Cathy  
**Subject:** ACTION: Development of a RIS: LICENSE RENEWAL SUBMITTAL INFORMATION FOR REACTOR INTERNALS AGING MANAGEMENT

Good morning:

NRR/DPR is developing a RIS in consultation with NRR/DCI. Sheldon Stuchell is the technical contact for this RIS. The planned issuance date for this RIS is around May 1st (the RIS will not be published in the Federal Register for public comment).

The RIS is still in development, but attached is a rough draft. If you believe your licensees would be impacted by issuance of this RIS (based upon the intent provided below), please advise us so that you can be added on concurrence.

In the meantime, please advise your senior management, as NRR will need expedited support (if the RIS is applicable to your licensees) to facilitate parallel concurrence.

I am also copying the contacts that normally review and concur on a RIS from OGC, OE, PMDA, OIS, and technical editor. OPA is copied for awareness only.

#### INTENT

The U.S. Nuclear Regulatory Commission (NRC) is issuing this regulatory issue summary (RIS) to inform addressees of new NRC internal procedures for license renewal (LR) reviews. LRs for commercial power reactors are required to contain a reactor internals aging management program (AMP) in accordance with 10 CFR Part 54. This RIS requires no action or written response on the part of addressees.

The purpose of this RIS is to facilitate a predictable and consistent method for reviewing the AMP of commercial power reactor LRs. This RIS does not transmit or imply any new or changed requirements or staff positions. Although no specific action or written response is required, the information contained in this RIS will enable licensees to plan effectively for anticipated LRs and inspection activities.

OK / KX

Thanks for your time and support.

Andrea Russell  
Project Manager  
Nuclear Regulatory Commission  
NRR/DPR/PGCB  
Ph: 301-415-8553

**From:** [Harrington, Holly](#)  
**To:** [Brenner, Eliot](#); [Akstulewicz, Brenda](#)  
**Cc:** [Hayden, Elizabeth](#)  
**Subject:** RE: FYI  
**Date:** Saturday, March 12, 2011 1:01:43 PM

---

## Where to Get Accurate Information on the Japanese Situation

The NRC has reactor experts in Japan or en route as part of a U.S. Agency for International Development (USAID) team of federal officials from various areas of expertise. USAID is the federal government agency primarily responsible for providing assistance to countries recovering from disaster administering.

Even with "boots on the ground" in Japan and ongoing consultations between our experts and Japanese nuclear officials, the NRC cannot provide information on the status of that country's nuclear power plants. Check back to this blog or [www.nrc.gov](http://www.nrc.gov) for updates on what actions we're taking. Other good sources of information are:

USAID -- [www.usaid.gov/](http://www.usaid.gov/)  
U.S. Dept. of State -- [www.state.gov](http://www.state.gov)  
FEMA -- [www.fema.gov](http://www.fema.gov)  
White House -- [www.whitehouse.gov](http://www.whitehouse.gov)  
Nuclear Energy Institute --- [www.nei.org](http://www.nei.org)  
International Atomic Energy Agency -- [www.iaea.org/press/](http://www.iaea.org/press/)

For those calling to offer your advice or guidance on how this situation should be handled, rest assured that some of the most expert people in this field in the world work for the NRC and we are on the job.

Eliot Brenner  
Public Affairs Director

---

**From:** Brenner, Eliot  
**Sent:** Saturday, March 12, 2011 12:45 PM  
**To:** [Harrington, Holly](#); [Akstulewicz, Brenda](#)  
**Cc:** [Hayden, Elizabeth](#)  
**Subject:** RE: FYI

Ok ... update the blog now and include a line about the NRC has reactor experts with the U.S. AID team, available to provide assistance if requested. Let me see the final product.

---

**From:** [Harrington, Holly](#)  
**Sent:** Saturday, March 12, 2011 12:40 PM  
**To:** [Akstulewicz, Brenda](#)  
**Cc:** [Brenner, Eliot](#); [Hayden, Elizabeth](#)  
**Subject:** RE: FYI

YFY/141

This is what I suggest we say to these folks:

The NRC is in consultation with the Japanese nuclear authorities and offering our assistance to them. However, we cannot speak for them nor provide information on their status or situation. Please follow the NRC efforts on our Web site and on our blog. Other good sources of information are:

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[www.whitehouse.gov](http://www.whitehouse.gov)

[www.nei.org](http://www.nei.org)

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**From:** Akstulewicz, Brenda  
**Sent:** Saturday, March 12, 2011 12:33 PM  
**To:** Brenner, Eliot; Hayden, Elizabeth; Harrington, Holly  
**Subject:** FYI

Don't know if it makes a difference in your decision making, but I'm beginning to receive calls from people who are very disappointed, concerned, uncertain of the information they're receiving on TV, etc. and would like/feel more comfortable if there was a statement/information from the NRC.

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Administrative Assistant  
Office of Public Affairs  
301-415-8209  
[brenda.akstulewicz@nrc.gov](mailto:brenda.akstulewicz@nrc.gov)



**From:** [Hayden, Elizabeth](#)  
**To:** [Harrington, Holly](#)  
**Subject:** RE: I'm here and at my desk. If you want me at the op Center let me know  
**Date:** Saturday, March 12, 2011 1:08:00 PM

---

Do you have the NEI and ANS phone numbers handy? I found the off-hours NEI # in my e-mails, but I thought you had given us 2 #s.

---

**From:** Harrington, Holly  
**Sent:** Saturday, March 12, 2011 12:34 PM  
**To:** Hayden, Elizabeth; Burnell, Scott; Brenner, Eliot; Couret, Ivonne  
**Subject:** I'm here and at my desk. If you want me at the op Center let me know

YY/142

**From:** [Bryant, Felix](#)  
**To:** [Hayden, Elizabeth](#)  
**Subject:** Photo  
**Date:** Saturday, March 12, 2011 5:12:18 PM  
**Attachments:** [\\_MG\\_2959r.jpg](#)

---

XY/143



**To:** [Hardy, Sally](#)  
**Subject:** RE: Removal of RIC on public website  
**Date:** Saturday, March 12, 2011 5:10:51 PM

---

Ok. Let NRR squawk next week and we can put it back up.

---

**From:** Hardy, Sally  
**Sent:** Saturday, March 12, 2011 5:00 PM  
**To:** Hayden, Elizabeth; Hoffman, Joan; Lee, Jun; Couret, Ivonne  
**Subject:** Re: Removal of RIC on public website

Beth I will remove it now

Sally

Sent from NRC Blackberry  
Sally Hardy

---

**From:** Hayden, Elizabeth  
**To:** Lee, Jun; Hardy, Sally  
**Cc:** Couret, Ivonne  
**Sent:** Sat Mar 12 16:57:24 2011  
**Subject:** RE: Removal of RIC on public website

I would like to remove it, but then again, I think all the Highlights are weak in comparison to the press releases and blog on the Japan Earthquake which are not visible when you arrive at the homepage.

---

**From:** Lee, Jun  
**Sent:** Saturday, March 12, 2011 2:16 PM  
**To:** Hayden, Elizabeth; Hardy, Sally  
**Cc:** Couret, Ivonne  
**Subject:** RE: Removal of RIC on public website

Do we still want to keep the words NRC Regulatory Information Conference up there or remove all references to RIC?

Thanks,

Jun

---

**From:** Hayden, Elizabeth  
**Sent:** Saturday, March 12, 2011 2:14 PM  
**To:** Lee, Jun; Hardy, Sally  
**Cc:** Couret, Ivonne

441/144

**Subject:** Removal of RIC on public website.

In order to see the press releases on the Japan situation, can you please remove the RIC banner and link?

**From:** [Hayden, Elizabeth](#)  
**To:** [Lee, Jun](#)  
**Subject:** RE: web stuff  
**Date:** Saturday, March 12, 2011 4:53:00 PM

---

Thank you

---

**From:** Lee, Jun  
**Sent:** Saturday, March 12, 2011 4:16 PM  
**To:** Brenner, Eliot; Couret, Ivonne; Hayden, Elizabeth; Harrington, Holly; Burnell, Scott; McIntyre, David  
**Cc:** Hardy, Sally  
**Subject:** RE: web stuff

Just wanted to let everyone know that Sally will be picking things up and she can be reached via her cell or Blackberry.

Thanks,

Jun

---

**From:** Brenner, Eliot  
**Sent:** Saturday, March 12, 2011 9:43 AM  
**To:** Couret, Ivonne; Hayden, Elizabeth; Harrington, Holly; Burnell, Scott; McIntyre, David; Lee, Jun  
**Cc:** Hardy, Sally  
**Subject:** web stuff

To follow up on the fact sally hardy will be available., Jun Lee is going to be working web posting issues through the day, and Sally will pick up in the afternoon. June is at 415-1337. And sally we know how to track down.

Meanwhile, I have a boatload of PDFs of BWRs should we need them. They could be linked with a blog.

YYY/145

**From:** [Hayden, Elizabeth](#)  
**To:** [Lee, Jun](#); [Hardy, Sally](#)  
**Cc:** [Couret, Ivonne](#)  
**Subject:** RE: Removal of RIC on public website  
**Date:** Saturday, March 12, 2011 4:57:00 PM

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**Sent:** Saturday, March 12, 2011 2:16 PM  
**To:** Hayden, Elizabeth; Hardy, Sally  
**Cc:** Couret, Ivonne  
**Subject:** RE: Removal of RIC on public website

Do we still want to keep the words NRC Regulatory Information Conference up there or remove all references to RIC?

Thanks,

Jun

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**From:** Hayden, Elizabeth  
**Sent:** Saturday, March 12, 2011 2:14 PM  
**To:** Lee, Jun; Hardy, Sally  
**Cc:** Couret, Ivonne  
**Subject:** Removal of RIC on public website

In order to see the press releases on the Japan situation, can you please remove the RIC banner and link?

YYY/146

**From:** LIA07 Hoc  
**To:** Borchardt, Bill; Bradford, Anna; Cohen, Shari; Cooper, LaToya; Flory, Shirley; Gibbs, Catina; Haney, Catherine; Johnson, Michael; Leeds, Eric; Loyd, Susan; Pace, Patti; Schwarz, Sherry; Sheron, Brian; Speiser, Herald; Virgilio, Martin; Walls, Lorena; Weber, Michael  
**Subject:** Update for Go Books - 0600 EDT, March 19, 2011  
**Date:** Saturday, March 19, 2011 6:20:25 AM  
**Attachments:** TEPCO Press Release 64.pdf  
TEPCO Press Release 66.pdf  
TEPCO Press Release 65.pdf  
TEPCO Press Release 67.pdf  
TEPCO Press Release 68.pdf  
USNRC Earthquake-Tsunami Update.031911.0600EDT.pdf  
ET Chronology 3-19-11 600am.pdf  
**Importance:** High

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Please find attached updated information for the "Go Books".

The updates include:

- The 0600, 03/19/11 Status Update
- The latest ET Chronology (0600, 03/19/11)
- The latest TEPCO Press Releases

Please note that the ET decided to discontinue the issuing of the talking points/ two pager document in favor of a more streamlined status update.

Please let me know if you have any questions or concerns.

Thanks,  
Christine

Christine A. Steger  
US Nuclear Regulatory Commission  
[Christine.Steger@nrc.gov](mailto:Christine.Steger@nrc.gov)  
[LIA07.HOC@nrc.gov](mailto:LIA07.HOC@nrc.gov) (Operations Center)

444/147

WITH  
HOC

## Press Releases

Press Release (Mar 19,2011)

Status of TEPCO's Facilities and its services after Tohoku-Taiheiyou-Oki Earthquake (as of 1:00AM)

Due to the Tohoku-Taiheiyou-Oki Earthquake which occurred on March 11th 2011, TEPCO's facilities including our nuclear power stations have been severely damaged. We deeply apologize for the anxiety and inconvenience caused.

Below is the status of TEPCO's major facilities.

\*new items are underlined

### [Nuclear Power Station]

**Fukushima Daiichi Nuclear Power Station:**

**Units 1 to 3: shutdown due to earthquake**

(Units 4 to 6: outage due to regular inspection)

\* The national government has instructed to evacuate for those local residents within 20km radius of the site periphery and to remain indoors for those local residents between 20km and 30km radius of the site periphery.

\* Unit 1

The explosive sound and white smoke was confirmed near Unit 1 when the big quake occurred at 3:36pm, March 12th. We have started injection of sea water at 8:20 pm and then boric acid into the reactor afterwards.

\*Unit 2

At 1:25 pm, March 14th, since the Reactor Core Isolation Cooling System has failed, it was determined that a specific incident stipulated in article 15, clause 1 of Act on Special Measures Concerning Nuclear Emergency Preparedness occurred (failure of reactor cooling function).

At 5:17 pm, while the water level in the reactor reached the top of the fuel rod, we have restarted the water injection with the valve operation.

At approximately 6:14 am, March 15th, the abnormal sound was confirmed near the suppression chamber and the pressure inside the chamber decreased afterwards. It was determined that there is a possibility that something happened in the suppression chamber. While sea water injection to the reactor continued, TEPCO employees and workers from other companies not in charge of injection work started tentative evacuation to a safe location.

Sea water injection to the reactor is still under operation.

As of March 18th , power from offsite transmission line has received until temporary substation for backup power. Now, cabling to unit receiving facility is underway.

\*Unit 3

At 6:50 am, March 14th, while water injection to the reactor was under operation, the pressure in the reactor containment vessel increased to 530 kPa. As a result, at 7:44 am, it was determined that a specific incident stipulated in article 15, clause 1 occurred (abnormal increase of the pressure of reactor containment vessel). Afterwards, the pressure has gradually decreased (as of 9:05 am, 490 kPa).

At approximately 11:01 am, March 14th, an explosion followed by white smoke occurred near Unit 3. 4 TEPCO employees and 3 workers from other companies (all of them are conscious) have sustained injuries and they were already dispatched to the hospital by ambulances.

As the temperature of water in the spent fuel pool rose, spraying water by helicopters with the support of the Self Defense Force was considered, however the works on March 16th was cancelled.

At 6:15 am, March 17th, the pressure of the Suppression Chamber temporarily increased, but currently it is stable in a certain range. Monitoring will be continued.

In order to cool spent fuel pool, water discharge by helicopters has been conducted on March 17th with the cooperation of Self-Defense Force.

At approximately past 7:00 pm, March 17th, Self-Defense Forces and the police had started water discharge by water cannon trucks upon our request for the cooperation. At 8:09 pm, March 17th, they had finished water discharge.

At 2:00 pm, March 18th, water discharge by fire engine has started with the cooperation of Self-Defense Forces and Military of United States of America. At 2:45 pm, March 18th, they had finished water discharge.

At 0:45 am, March 19th, water discharge by hyper rescue troop has started with the cooperation of Tokyo Fire Department. At 1:10 am, March 19th, they had finished water discharge.

\* Unit 4

At approximately 6:00 am, March 15th, an explosive sound occurred and the damage in the 5th floor roof of Unit 4 reactor building was confirmed. At 9:38 am, the fire near the north-west part of 4th floor of Unit 4 reactor building was confirmed. At approximately 11:00 am, TEPCO employee confirmed that the fire was off.

At approximately 5:45 am, a TEPCO employee discovered a fire at the northwest corner of the Nuclear Reactor Building. TEPCO immediately reported this incident to the fire department and the local government and proceeded with the extinction of fire. At approximately 6:15 am, TEPCO staff confirmed at the site that there are no signs of fire.

\*On March 18th, regarding the spent fuel in the common spent fuel pool, we have confirmed that the water level of the pool is secured. A detailed inspection is under preparation.

\*common spent fuel pool: a spent fuel pool for common use set in a separate building in a plant site in order to preserve spent fuel which are transferred from the spent fuel pool in each Unit building.

\*On March 17th, we patrolled buildings for dry casks and found no signs of abnormal situation for the casks by visual observation. A detailed inspection is under preparation.

\*dry cask: a measure to store spent fuel in a dry storage casks in storages. Fukushima Daiichi Nuclear Power Station started to utilize the measure from August 1995.

\*We will continuously endeavor to securing safety, and monitoring of the surrounding environment.

#### **Fukushima Daiichi Nuclear Power Station:**

##### **Units 1 to 4: shutdown due to earthquake**

\*The national government has instructed evacuation for those local residents within 10km radius of the periphery.

\*In order to achieve cold shutdown, reactor cooling function was restored and cooling of reactors was conducted. As a result, all reactors achieved cold shutdown: Unit 1 at 5:00 pm, March 14th, Unit 2 at 6:00 pm, March 14th, Unit 3 at 0:15 pm, March 12th, Unit 4 at 7:15 am, March 16th.

\*Since March 12th, we had been preparing measures for reducing the pressure of reactor containment vessels (partial discharge of air containing radioactive materials to outside), but on March 17th, we released such preparation in all Units.

\* (Unit 1)

As it is confirmed that the temperature of the Emergency Equipment Cooling Water System \*1 has increased, at 3:20 pm, March 15th, we stopped the

Residual Heat Removal System (B) for the inspection. Subsequently, failure was detected in the power supply facility associated with the pumps of the Emergency Equipment Cooling Water System. At 4:25 pm, March 15th, after replacing the power facility, the pumps and the Residual Heat Removal System (B) have been reactivated.

\* (Unit 4)

As it is confirmed that the pressure at the outlet of the pumps of the Emergency Equipment Cooling Water System<sup>\*1</sup> has been decreased, at 8:05 pm, March 15th, we stopped the Residual Heat Removal System (B) for the inspection. Subsequently, failure was detected in the power supply facility associated with the pumps of the Emergency Equipment Cooling Water System. At 9:25 pm, March 15th, after replacing the relevant facility, the pumps and the Residual Heat Removal System (B) have been reactivated.

\*1: emergency water system in which cooling water (pure water) circulates which exchanged the heat with sea water in order to cool down bearing pumps and/or heat exchangers etc.

**Kashiwazaki Kariwa Nuclear Power Station:**

**Units 1, 5, 6, 7: normal operation**

(Units 2 to 4: outage due to regular inspection)

**[Thermal Power Station]**

Hirono Thermal Power Station Units 2 and 4: shutdown due to earthquake

Hitachinaka Thermal Power Station Unit 1: shutdown due to earthquake

Kashima Thermal Power Station Units 2, 3, 5, 6: shutdown due to earthquake

Higashi-Ogishima Thermal Power Station Unit 1: shutdown due to earthquake

**[Hydro Power Station]**

\* All the stations have been restored.

**[Transmission System, etc.]**

All substation failed due to the earthquake have been restored.

**[Blackout in TEPCO's Service Area]**

Total of approximately 2,600 households are out of power (as of 9:00PM, March 17, 2011).

Tokyo: 0

Kanagawa Pref.: 0

Tochigi Pref.: 0

Chiba Pref.: 0

Saitama Pref.: 0

Gunma Pref.: 0

Ibaraki Pref.: 0

Yamanashi Pref.: 0

Shizuoka Pref.: 0 (east of Fuji River)

**[Supply and Demand Status within TEPCO's Service Area to Secure Stable Power Supply]**

Backup supply from Shinshinano Conversion Station: 600MW

Backup supply from Sakuma Conversion Station: 300MW

Backup supply from Higashi Shimizu Conversion Station: 100MW

Considering the critical balance of our power supply capacity and expected power demand forward, in order to avoid unexpected blackout, TEPCO has implemented rolling blackout (planned blackout alternates from one area to another) since yesterday. We will make our utmost to secure the stable power supply as early as possible.

For customers who will be subject to rolling blackout, please be prepared for the announced blackout periods. Also for customers who are not subject to blackouts, TEPCO appreciates your continuous cooperation in reducing electricity usage by avoiding using unnecessary lighting and electrical equipment.

**[Others]**

Please do NOT touch cut-off electric wires.

In order to prevent fire, please make sure to switch off the electric appliances such as hair drier and to shut down the breaker of distribution board when you leave your house.

For the customer who has in-house power generation, please secure fuel for generator.

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## Press Releases

### Press Release (Mar 19,2011)

#### Plant Status of Fukushima Daiichi Nuclear Power Station (as of 9:00 AM Mar 19th)

\*new items are underlined

**All 6 units of Fukushima Daiichi Nuclear Power Station have been shut down.**

#### Unit 1 (Shut down)

- Reactor has been shut down. However, the explosive sound and white smoke were confirmed after the big quake occurred at 3:36PM Mar 12th. It was assumed to be hydrogen explosion.
- We have been injecting sea water into the reactor pressure vessel.

#### Unit 2 (Shut down)

- Reactor has been shut down and the level of reactor coolant had dropped and the reactor pressure had increased because the Reactor Core Isolation Cooling System stopped. Measures were taken to lower the pressure within the Reactor Containment Vessel and to inject sea water into the Reactor while carefully confirming safety. The level of reactor coolant and the pressure of the Reactor resumed.
- At approximately 6:00AM on March 15, 2011, an abnormal noise began emanating from nearby Pressure Suppression Chamber and the pressure within this chamber decreased.
- We completed receiving electricity from the external transmission line up to the auxiliary transformer. We are installing the power cable from that transformer to the temporary power panel.
- We have been injecting sea water into the reactor pressure vessel.

#### Unit 3 (Shut down)

- Reactor has been shut down. However, the explosive sound and white smoke were confirmed at 11:01AM Mar 14th. It was assumed to be hydrogen explosion.
- At 8:30AM on March 16th, fog like steam was confirmed arising from the reactor building.
- At approximately 6:15AM on March 17th the pressure of the Suppression Chamber has temporarily increased.
- We are working on receiving external power supply to Units 3 and 4.
- We have been injecting sea water into the reactor pressure vessel.

#### Unit 4 (outage due to regular inspection)

- Reactor has been shut down. However, at approximately 6AM on March 15th. We have confirmed the explosive sound and the sustained damage around the 5th floor rooftop area of the Nuclear Reactor Building.
- On March 15th and 16th, we respectively confirmed the outbreak of fire at the 4th floor of the northwestern part of the Nuclear Reactor Building. We immediately reported this matter to the fire department and the related authorities. TEPCO employees confirmed that each fire had already died down by itself.
- At this moment, we do not consider any reactor coolant leakage inside the reactor containment vessel happened.

#### Unit 5 (outage due to regular inspection)

- Reactor has been shut down and the sufficient level of reactor coolant to ensure safety is maintained.
- At this moment, we do not consider any reactor coolant leakage inside the reactor containment vessel happened.

**Unit 6 (outage due to regular inspection)**

- Reactor has been shut down and the sufficient level of reactor coolant to ensure safety is maintained.
- We are working on receiving external power supply to Units 5 and 6. We completed the repair work on the emergency diesel generator (A).
- At this moment, we do not consider any reactor coolant leakage inside the reactor containment vessel happened.

**Cooling of spent fuel pools**

- In Unit 3, water discharge by Self-Defense Force's helicopters was conducted from 9:48 AM in the morning on March 17th. Also water discharge by the riot police's high-pressure water cannon trucks and Self-Defense Force's fire engines was conducted from 7PM on March 17th and finished at 8:09PM.
- In Unit 3, water discharge by Self-Defense Force's fire engines and US army's fire engines was conducted from 2 PM and completed a quarter to 3 PM.
- After that, from 0:30 AM, Mar 19th, water discharge by Tokyo Fire Department's Hyper Rescue was conducted and completed at 1:10 AM.
- We are considering further water discharge at Unit 3 and others subject to the conditions of spent fuel pools.

**Casualty**

- 2 workers of cooperative firm were injured at the occurrence of the earthquake, and were transported to the hospital.
- 1 TEPCO employee who was not able to stand by his own holding left chest with his hand, was transported to the hospital by an ambulance.
- 1 subcontract worker at the key earthquake-proof building was unconscious and transported to the hospital by an ambulance.
- The radiation exposure of 1 TEPCO employee, who was working inside the reactor building, exceeded 100mSv and he was transported to the hospital.
- 2 TEPCO employees felt bad during their operation in the central control rooms of Unit 1 and 2 while wearing full masks, and were transferred to Fukushima Daini Power Station for consultation with a medical advisor.
- 4 workers were injured and transported to the hospital after explosive sound and white smoke were confirmed around the Unit 1.
- 11 workers were injured and transported to Fukushima Daini Nuclear Power Station etc. after explosive sound and white smoke were confirmed around the Unit 3. One of the workers was transported to the FUKUSHIMA Medical University Hospital at 10:56AM
- Presence of 2 TEPCO employees at the site is not confirmed.

**Others**

- We measured radioactive materials (iodine etc.) inside of the nuclear power station area (outdoor) by monitoring car and confirmed that radioactive materials level is getting higher than ordinary level. As listed below, we have determined that specific incidents stipulated in article 15, clause 1 of Act on Special Measures Concerning Nuclear Emergency Preparedness (Abnormal increase in radiation dose measured at site boundary) have occurred.
  - Determined at 4:17 PM Mar 12th (Around Monitoring Post 4 )
  - Determined at 8:56 AM Mar 13th (Around Monitoring Post 4 )
  - Determined at 2:15 PM Mar 13th (Around Monitoring Post 4 )
  - Determined at 3:50 AM Mar 14th (Around Monitoring Post 6 )
  - Determined at 4:15 AM Mar 14th (Around Monitoring Post 2 )
  - Determined at 9:27 AM Mar 14th (Around Monitoring Post 3 )
  - Determined at 9:37 PM Mar 14th (Around main entrance )
  - Determined at 6:51 AM Mar 15th (Around main entrance )
  - Determined at 8:11 AM Mar 15th (Around main entrance )
  - Determined at 4:17 PM Mar 15th (Around main entrance )
  - Determined at 11:05 PM Mar 15th (Around main entrance )
  - Determined at 8:58 AM Mar 19th (Around MP5)
- The national government has instructed evacuation for those local residents within 20km radius of the periphery and evacuation to inside for those residents from 20km to 30km radius of the periphery, because it's possible that radioactive materials are discharged.
- At approximately 10AM on March 15th, we observed 400mSv/h at the inland side of the Unit 3 reactor building and 100mSv/h at the inland side of the Unit 4 reactor building.
- We found no signs of abnormal situation for the casks by visual observation during the patrol activity. A detailed inspection is under preparation.

- We will continue to take all measures to ensure the safety and to continue monitoring the surrounding environment around the Power Station.

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## Press Releases

Press Release (Mar 19,2011)

Status of TEPCO's Facilities and its services after Tohoku-Taiheiyou-Okai Earthquake (as of 9:00AM)

Due to the Tohoku-Taiheiyou-Okai Earthquake which occurred on March 11th 2011, TEPCO's facilities including our nuclear power stations have been severely damaged. We deeply apologize for the anxiety and inconvenience caused.

Below is the status of TEPCO's major facilities.

\*new items are underlined

### [Nuclear Power Station]

**Fukushima Daiichi Nuclear Power Station:**

**Units 1 to 3: shutdown due to earthquake**

(Units 4 to 6: outage due to regular inspection)

\* The national government has instructed to evacuate for those local residents within 20km radius of the site periphery and to remain indoors for those local residents between 20km and 30km radius of the site periphery.

\* The level of radioactive materials ( iodine etc.) inside the nuclear power station area (outdoor) measured by the monitoring exceeded the normal level. We have determined that specific incidents stipulated in article 15, clause 1 of the Act on Special Measures Concerning Nuclear Emergency Preparedness (Abnormal increase in radiation dose measured at site boundary) have occurred.

-Determined at 8:58am, Mar 19th (Around Monitoring Post 5)

#### \* Unit 1

The explosive sound and white smoke was confirmed near Unit 1 when the bigquake occurred at 3:36pm, March 12th. We have started injection of sea water at 8:20 pm and then boric acid into the reactor afterwards.

#### \* Unit 2

At 1:25 pm, March 14th, since the Reactor Core Isolation Cooling System has failed, it was determined that a specific incident stipulated in article 15, clause 1 of Act on Special Measures Concerning Nuclear Emergency Preparedness occurred (failure of reactor cooling function).

At 5:17 pm, while the water level in the reactor reached the top of the fuel rod, we have restarted the water injection with the valve operation.

At approximately 6:14 am, March 15th, the abnormal sound was confirmed near the suppression chamber and the pressure inside the chamber decreased afterwards. It was determined that there is a possibility that something happened in the suppression chamber. While sea water injection to the reactor continued, TEPCO employees and workers from other companies not in charge of injection work started tentative evacuation to a safe location.

Sea water injection to the reactor is still under operation.

As of March 18th, power from offsite transmission line has received until temporary substation for backup power. Now, cabling to unit receiving facility is underway.

\* Unit 3

At 6:50 am, March 14th, while water injection to the reactor was under operation, the pressure in the reactor containment vessel increased to 530 kPa. As a result, at 7:44 am, it was determined that a specific incident stipulated in article 15, clause 1 occurred (abnormal increase of the pressure of reactor containment vessel). Afterwards, the pressure has gradually decreased (as of 9:05 am, 490 kPa).

At approximately 11:01 am, March 14th, an explosion followed by white smoke occurred near Unit 3. 4 TEPCO employees and 3 workers from other companies (all of them are conscious) have sustained injuries and they were already dispatched to the hospital by ambulances.

As the temperature of water in the spent fuel pool rose, spraying water by helicopters with the support of the Self Defense Force was considered, however the works on March 16th was cancelled.

At 6:15 am, March 17th, the pressure of the Suppression Chamber temporarily increased, but currently it is stable in a certain range. Monitoring will be continued.

In order to cool spent fuel pool, water discharge by helicopters has been conducted on March 17th with the cooperation of Self-Defense Force.

At approximately past 7:00 pm, March 17th, Self-Defense Forces and the police had started water discharge by water cannon trucks upon our request for the cooperation. At 8:09 pm, March 17th, they had finished water discharge.

At 2:00 pm, March 18th, water discharge by fire engine has started with the cooperation of Self-Defense Forces and Military of United States of America. At 2:45 pm, March 18th, they had finished water discharge.

At 0:45 am, March 19th, water discharge by hyper rescue troop has started with the cooperation of Tokyo Fire Department. At 1:10 am, March 19th, they had finished water discharge.

\* Unit 4

At approximately 6:00 am, March 15th, an explosive sound occurred and the damage in the 5th floor roof of Unit 4 reactor building was confirmed.

At 9:38 am, the fire near the north-west part of 4th floor of Unit 4 reactor building was confirmed. At approximately 11:00 am, TEPCO employee confirmed that the fire was off.

At approximately 5:45 am, a TEPCO employee discovered a fire at the northwest corner of the Nuclear Reactor Building. TEPCO immediately reported this incident to the fire department and the local government and proceeded with the extinction of fire. At approximately 6:15 am, TEPCO staff confirmed at the site that there are no signs of fire.

\* On March 18th, regarding the spent fuel in the common spent fuel pool, we have confirmed that the water level of the pool is secured. A detailed inspection is under preparation.

\* common spent fuel pool: a spent fuel pool for common use set in a separate building in a plant site in order to preserve spent fuel which are transferred from the spent fuel pool in each Unit building.

\* On March 17th, we patrolled buildings for dry casks and found no signs of abnormal situation for the casks by visual observation. A detailed inspection is under preparation.

\* dry cask: a measure to store spent fuel in a dry storage casks in storages. Fukushima Daiichi Nuclear Power Station started to utilize the measure from August 1995.

\* The resumption of electricity supply from external source for Unit 3, 4, 5 and 6 are being implemented. And the repair of emergency diesel generator A of Unit 6 is completed.

\* We will continuously endeavor to securing safety, and monitoring of the surrounding environment.

**Fukushima Daiichi Nuclear Power Station:**

**Units 1 to 4: shutdown due to earthquake**

\* The national government has instructed evacuation for those local residents within 10km radius of the periphery.

\* In order to achieve cold shutdown, reactor cooling function was

restored and cooling of reactors was conducted. As a result, all reactors achieved cold shutdown: Unit 1 at 5:00 pm, March 14th, Unit 2 at 6:00 pm, March 14th, Unit 3 at 0:15 pm, March 12th, Unit 4 at 7:15 am, March 16th.

\* Since March 12th, we had been preparing measures for reducing the pressure of reactor containment vessels (partial discharge of air containing radioactive materials to outside), but on March 17th, we released such preparation in all Units.

\* (Unit 1)

As it is confirmed that the temperature of the Emergency Equipment Cooling Water System \*1 has increased, at 3:20 pm, March 15th, we stopped the Residual Heat Removal System (B) for the inspection. Subsequently, failure was detected in the power supply facility associated with the pumps of the Emergency Equipment Cooling Water System. At 4:25 pm, March 15th, after replacing the power facility, the pumps and the Residual Heat Removal System (B) have been reactivated.

\* (Unit 4)

As it is confirmed that the pressure at the outlet of the pumps of the Emergency Equipment Cooling Water System\*1 has been decreased, at 8:05 pm, March 15th, we stopped the Residual Heat Removal System (B) for the inspection. Subsequently, failure was detected in the power supply facility associated with the pumps of the Emergency Equipment Cooling Water System. At 9:25 pm, March 15th, after replacing the relevant facility, the pumps and the Residual Heat Removal System (B) have been reactivated.

\*1: emergency water system in which cooling water (pure water) circulates which exchanged the heat with sea water in order to cool down bearing pumps and/or heat exchangers etc.

**Kashiwazaki Kariwa Nuclear Power Station:**

**Units 1, 5, 6, 7: normal operation**

(Units 2 to 4: outage due to regular inspection)

**[Thermal Power Station]**

Hirono Thermal Power Station Units 2 and 4: shutdown due to earthquake

Hitachinaka Thermal Power Station Unit 1: shutdown due to earthquake

Kashima Thermal Power Station Units 2, 3, 5, 6: shutdown due to earthquake

Higashi-Ohgishima Thermal Power Station Unit 1: shutdown due to earthquake

**[Hydro Power Station]**

\* All the stations have been restored.

**[Transmission System, etc.]**

All substation failed due to the earthquake have been restored.

**[Blackout in TEPCO's Service Area]**

All the blackouts are resolved.

**[Supply and Demand Status within TEPCO's Service Area to Secure Stable Power Supply]**

Backup supply from Shinshinano Conversion Station: 600MW

Backup supply from Sakuma Conversion Station: 300MW

Backup supply from Higashi Shimizu Conversion Station: 100MW

Considering the critical balance of our power supply capacity and expected power demand forward, in order to avoid unexpected blackout, TEPCO has been implementing rolling blackout (planned blackout alternates from one area to another) since Mar 14th. We will make our utmost to secure the stable power supply as early as possible.

For customers who will be subject to rolling blackout, please be prepared for the announced blackout periods. Also for customers who are not subject to blackouts, TEPCO appreciates your continuous cooperation in reducing electricity usage by avoiding using unnecessary lighting and electrical equipment.

**[Others]**

Please do NOT touch cut-off electric wires.

In order to prevent fire, please make sure to switch off the electric appliances such as hair drier and to shut down the breaker of

distribution board when you leave your house.  
For the customer who has in-house power generation, please secure fuel  
for generator.

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## Press Releases

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### Press Release (Mar 19,2011)

#### Plant Status of Fukushima Daiichi Nuclear Power Station (as of 0:00 PM Mar 19th)

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\*new items are underlined

**All 6 units of Fukushima Daiichi Nuclear Power Station have been shut down.**

#### Unit 1 (Shut down)

- Reactor has been shut down. However, the explosive sound and white smoke were confirmed after the big quake occurred at 3:36PM Mar 12th. It was assumed to be hydrogen explosion.
- We have been injecting sea water into the reactor pressure vessel.

#### Unit 2 (Shut down)

- Reactor has been shut down and the level of reactor coolant had dropped and the reactor pressure had increased because the Reactor Core Isolation Cooling System stopped. Measures were taken to lower the pressure within the Reactor Containment Vessel and to inject sea water into the Reactor while carefully confirming safety. The level of reactor coolant and the pressure of the Reactor resumed.
- At approximately 6:00AM on March 15, 2011, an abnormal noise began emanating from nearby Pressure Suppression Chamber and the pressure within this chamber decreased.
- We completed receiving electricity from the external transmission line up to the auxiliary transformer. We are installing the power cable from that transformer to the temporary power panel.
- We have been injecting sea water into the reactor pressure vessel.

#### Unit 3 (Shut down)

- Reactor has been shut down. However, the explosive sound and white smoke were confirmed at 11:01AM Mar 14th. It was assumed to be hydrogen explosion.
- At 8:30AM on March 16th, fog like steam was confirmed arising from the reactor building.
- At approximately 6:15AM on March 17th the pressure of the Suppression Chamber has temporarily increased.
- We are working on receiving external power supply to Units 3 and 4.
- We have been injecting sea water into the reactor pressure vessel.

#### Unit 4 (outage due to regular inspection)

- Reactor has been shut down. However, at approximately 6AM on March 15th. We have confirmed the explosive sound and the sustained damage around the 5th floor rooftop area of the Nuclear Reactor Building.
- On March 15th and 16th, we respectively confirmed the outbreak of fire at the 4th floor of the northwestern part of the Nuclear Reactor Building. We immediately reported this matter to the fire department and the related authorities. TEPCO employees confirmed that each fire had already died down by itself.
- At this moment, we do not consider any reactor coolant leakage inside the reactor containment vessel happened.

#### Unit 5 (outage due to regular inspection)

- Reactor has been shut down and the sufficient level of reactor coolant to ensure safety is maintained.
- At 5 AM, Mar 19th, we started the Residual Heat Removal System Pump (C) in order to cool the spent fuel pool.

- At this moment, we do not consider any reactor coolant leakage inside the reactor containment vessel happened.

#### Unit 6 (outage due to regular inspection)

- Reactor has been shut down and the sufficient level of reactor coolant to ensure safety is maintained.
- We are working on receiving external power supply to Units 5 and 6. We completed the repair work on the emergency diesel generator (A).
- At this moment, we do not consider any reactor coolant leakage inside the reactor containment vessel happened.

#### Cooling of spent fuel pools

- In Unit 3, water discharge by Self-Defense Force's helicopters was conducted from 9:48 AM in the morning on March 17th. Also water discharge by the riot police's high-pressure water cannon trucks and Self-Defense Force's fire engines was conducted from 7PM on March 17th and finished at 8:09PM.
- In Unit 3, water discharge by Self-Defense Force's fire engines and US army's fire engines was conducted from 2 PM and completed a quarter to 3 PM.
- After that, from 0:30 AM, Mar 19th, water discharge by Tokyo Fire Department's Hyper Rescue was conducted and completed at 1:10 AM.
- We are considering further water discharge at Unit 3 and others subject to the conditions of spent fuel pools.

#### Casualty

- 2 workers of cooperative firm were injured at the occurrence of the earthquake, and were transported to the hospital.
- 1 TEPCO employee who was not able to stand by his own holding left chest with his hand, was transported to the hospital by an ambulance.
- 1 subcontract worker at the key earthquake-proof building was unconscious and transported to the hospital by an ambulance.
- The radiation exposure of 1 TEPCO employee, who was working inside the reactor building, exceeded 100mSv and he was transported to the hospital.
- 2 TEPCO employees felt bad during their operation in the central control rooms of Unit 1 and 2 while wearing full masks, and were transferred to Fukushima Daini Power Station for consultation with a medical advisor.
- 4 workers were injured and transported to the hospital after explosive sound and white smoke were confirmed around the Unit 1.
- 11 workers were injured and transported to Fukushima Daini Nuclear Power Station etc. after explosive sound and white smoke were confirmed around the Unit 3. One of the workers was transported to the FUKUSHIMA Medical University Hospital at 10:56AM
- Presence of 2 TEPCO employees at the site is not confirmed.

#### Others

- We measured radioactive materials (iodine etc.) inside of the nuclear power station area (outdoor) by monitoring car and confirmed that radioactive materials level is getting higher than ordinary level. As listed below, we have determined that specific incidents stipulated in article 15, clause 1 of Act on Special Measures Concerning Nuclear Emergency Preparedness (Abnormal increase in radiation dose measured at site boundary) have occurred.
  - Determined at 4:17 PM Mar 12th (Around Monitoring Post 4 )
  - Determined at 8:56 AM Mar 13th (Around Monitoring Post 4 )
  - Determined at 2:15 PM Mar 13th (Around Monitoring Post 4 )
  - Determined at 3:50 AM Mar 14th (Around Monitoring Post 6 )
  - Determined at 4:15 AM Mar 14th (Around Monitoring Post 2 )
  - Determined at 9:27 AM Mar 14th (Around Monitoring Post 3 )
  - Determined at 9:37 PM Mar 14th (Around main entrance )
  - Determined at 6:51 AM Mar 15th (Around main entrance )
  - Determined at 8:11 AM Mar 15th (Around main entrance )
  - Determined at 4:17 PM Mar 15th (Around main entrance )
  - Determined at 11:05 PM Mar 15th (Around main entrance )
  - Determined at 8:58 AM Mar 19th (Around MP5)

From now on, if the measured figure fluctuates and goes above and below 500 micro Sv/h, we deem that as the continuous same event and will not regard that as a new specific incidents stipulated in article 15, clause 1 of the Act on Special Measures Concerning Nuclear Emergency Preparedness (Abnormal increase in radiation dose measured at site boundary) has occurred. In the interim, if we measure a manifestly abnormal figure and it is evident that the event is not the continuous same event, we will determine and notify.

- The national government has instructed evacuation for those local residents within 20km radius of the periphery and evacuation to inside for those residents from 20km to 30km radius of the periphery, because it's possible that radioactive materials are discharged.
- At approximately 10AM on March 15th, we observed 400mSv/h at the inland side of the Unit 3 reactor building and 100mSv/h at the inland side of the Unit 4 reactor building.
- We checked the status of spent fuel in the common pool, and confirmed that the water level secured. We are planning to conduct a detailed inspection.
- We found no signs of abnormal situation for the casks by visual observation during the patrol activity. A detailed inspection is under preparation.
- At Units 5 and 6, in order to prevent hydrogen gas from accumulating within the buildings, we have made three holes on the roof of the reactor building for each unit
- We will continue to take all measures to ensure the safety and to continue monitoring the surrounding environment around the Power Station.

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## Press Releases

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### Press Release (Mar 19,2011)

#### Plant Status of Fukushima Daini Nuclear Power Station (as of 0:00 pm March 19th)

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No New Developments since 9:00pm, 19th March

Unit	Status
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- |       |  |
|-------|--|
| 1     | <ul style="list-style-type: none"><li>• Reactor cold shutdown, stable water level, offsite power is available.</li><li>• No cooling water is leaked to the reactor containment vessel.</li><li>• Maintain average water temperature at 100°C in the pressure restraint.</li></ul>  |
| 2     | <ul style="list-style-type: none"><li>• Reactor cold shutdown, stable water level, offsite power is available.</li><li>• No cooling water is leaked to the reactor containment vessel.</li><li>• Maintain average water temperature at 100°C in the pressure restraint.</li></ul>  |
| 3     | <ul style="list-style-type: none"><li>• Reactor cold shutdown, stable water level, offsite power is available.</li><li>• No cooling water is leaked to the reactor containment vessel.</li><li>• Maintain average water temperature at 100°C in the pressure restraint.</li></ul>  |
| 4     | <ul style="list-style-type: none"><li>• Reactor cold shutdown, stable water level, offsite power is available.</li><li>• No cooling water is leaked to the reactor containment vessel.</li><li>• Maintain average water temperature at 100°C in the pressure restraint.</li></ul>  |
| other | <ul style="list-style-type: none"><li>• In the Unit 1, 2, 3 and 4, which automatically shut down due to the Tohoku-Chihou-Taiheiyo-Oki Earthquake on March 11th, 2011, we had been preparing measures for decreasing the pressure of each reactor containment vessel since March 12th. However, on March 17th, we released such preparation in all of the Units.</li></ul> |

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**From:** [Library Resource](#)  
**To:** [EPUB - Nuclear News Flashes](#)  
**Subject:** FW: Platts Nuclear News Flashes  
**Date:** Monday, April 11, 2011 8:18:33 PM  
**Attachments:** [NNF\\_20110411.txt](#)

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**From:** Platts[SMTP:SUPPORT@PLATTS.COM]  
**Sent:** Monday, April 11, 2011 8:18:03 PM  
**To:** Library Resource  
**Subject:** Platts Nuclear News Flashes  
**Auto forwarded by a Rule**



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  - \*\* B&W receives \$5 million state grant for mPower development
  - \*\* Yucca Mt. visit still on Shimkus' agenda
  - \*\* Once again, Reid says, 'Yucca Mountain is dead'
- 
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\*\*\* Earthquake aftershock briefly stops water-pumping to Fukushima I

841 / 11/11

A magnitude 6.6 earthquake off Japan's coast about 5 pm local time April 11 briefly halted the pumping of cooling water to units 1, 2 and 3 at the Fukushima I nuclear power plant, NHK reported.

The earthquake, whose epicenter was about 50 miles (about 80.5 km) south of the plant, knocked out the power supply that had been installed for the plant's six units after the magnitude 9.0 earthquake and tsunami that occurred March 11, NHK reported.

Tokyo Electric Power Co. also briefly evacuated workers from the site, after a tsunami warning was issued, NHK reported. The power supply was reinstated and pumping resumed after about 50 minutes, NHK said.

Yukio Edano, the government's chief cabinet secretary, said April 11 the government would order residents in areas 12 to 18 miles from Fukushima I to evacuate due to concerns about radiation exposure, the Japan Atomic Industrial Forum reported April 11. The government ordered an evacuation of people living within a 12-mile radius of the plant shortly after the March 11 earthquake and tsunami.

Tohoku Electric's three-unit Onagawa plant in Japan and Japan Nuclear Fuel Ltd.'s Rokkasho reprocessing plant were operating April 11 on grid-supplied power, following a disruption from a magnitude 7.1 earthquake off the country's northeast coast April 6, the IAEA said April 11. That earthquake severed all offsite power to Rokkasho, but cooling was maintained via use of emergency diesel generators, and Onagawa maintained cooling capability using one power line, after two others were knocked out by the earthquake, IAEA said.

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\*\*\* Greenpeace activists protest at Olkiluoto site

Two Greenpeace activists were arrested for trespassing April 11 after they broke into the Olkiluoto nuclear power plant site, the group said.

Greenpeace said in a statement on its website that the two climbed the roof of a building in a restricted area near the reactors. But a plant spokesman said in a statement that the activists were not near the reactors.

Greenpeace said the protest was intended to urge voters in the April 17 national election to choose candidates who oppose nuclear power.

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Beaver Valley-2 returned to service early April 11 and was at 27% power that morning, FirstEnergy Nuclear Operating Co. said in a statement. The unit was shut March 7 for refueling and maintenance. As the reactor was restarting April 10, it was manually tripped so a water leak from a vent valve could be fixed, according to an NRC event notification report.

Beaver Valley-1 will return to full power by April 12 after reducing output to 82% April 8 for scheduled maintenance, FirstEnergy Nuclear Operating Co. spokesman Todd Schneider said in an April 11 interview. Fenoc reduced power to clean water boxes in order to "improve plant reliability and efficiency in preparation for the warmer summertime temperatures," Schneider also said in an e-mail.

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Equipment to facilitate the uprate was installed at Limerick-1 during its refueling outage last year and is being installed at Limerick-2 during an outage that began February 25, Szafran said.

Exelon Nuclear hopes to have the uprates fully implemented in the next 60 days, he said.

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NRC began a special inspection at Cooper April 11 into circumstances surrounding a maintenance procedure that led to radiation exposures of three workers.

NRC said in a statement April 11 that inspectors will review the circumstances and decision making by Nebraska Public Power District officials that led to the exposures. The agency said it also will review NPPD's response to the event, will calculate the dose workers received and will review the corrective actions taken. NPPD "does not believe the workers received radiation exposures in excess of NRC limits," the agency said.

"The incident occurred on April 3, when workers removed a long tube contaminated with highly radioactive material through the bottom of the reactor vessel, rather than through the top as is usually done, triggering radiation alarms," NRC said. "The workers set the tube down and immediately left the area."

NRC Region IV Administrator Elmo Collins said in the statement that the agency wants to understand "why normal work practices were not followed."

NRC said the two inspectors will probably spend several days at the plant and will write a report on their findings within 45 days of the end of the inspection.

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\*\*\* B&W receives \$5 million state grant for mPower development

Babcock & Wilcox said it received a \$5 million grant from a Virginia government agency for the development of the company's mPower small modular reactor design.

The grant, given by the Virginia Tobacco Indemnification and Community Revitalization Commission, will be used to purchase equipment for a B&W test facility in Bedford County, Virginia, B&W said in an April 11 statement. The company said the test program at the Bedford facility "will collect data to verify the reactor design and safety performance in support of B&W's licensing activities." B&W spokesman Jud Simmons said in an e-mail that the company plans "to begin testing activities later this summer."

The commission awarded B&W a \$2.4 million grant last year for the construction of the test facility. According to its website, the commission is dedicated to "the promotion of economic growth and development in tobacco-dependent communities."

B&W, together with Bechtel Power, is designing the 125-MW mPower light water reactor design, which B&W said is "on track to be deployed by 2020."

In a letter to NRC last week, B&W said it plans to apply for design certification for mPower in fourth-quarter 2013.

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Tomaszewski said in an interview that Shimkus, the Illinois Republican chairman of the Energy and Commerce Subcommittee on Environment and Economy, wants committee members to see the actual site and "its remoteness." Shimkus supports the nuclear waste disposal facility proposed for the site, roughly 95 miles outside Las Vegas.

His plan to visit the site was criticized April 8 by Representative Henry Waxman of California, the Energy and Commerce Committee's top Democrat. Citing DOE estimates, Waxman said the visit could cost taxpayers at least \$200,000. The cost of opening Yucca's test tunnel and checking the equipment and air quality would be about \$175,000, plus another \$25,000 to transport lawmakers

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People have used the March 11 accident at the Fukushima I nuclear power plant in Japan to support their argument on why a repository at Yucca Mountain is needed, when the spent stored in casks at the site is safe, Reid said.

The language added to the continuing resolution that lawmakers approved late April 8 to avert a government shutdown did not contain any funding for the project. But it would have barred the NRC from spending any money to further close out any agency activities associated with the Yucca Mountain project.

President Barack Obama's administration canceled the program, citing Nevada's opposition to the facility. By the time fiscal 2011 began October 1, both the Yucca Mountain project and the DOE office that oversaw it had been dismantled. In October, NRC Chairman Gregory Jaczko terminated NRC's licensing activities associated with the DOE's Yucca Mountain repository license application.

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| To reach Platts |  
| E-mail: support@platts.com |

| North America |  
| Tel: 800-PLATTS-8 (toll-free) |  
| +1-212-904-3070 (direct) |

| Latin America |  
| Tel: + 54-11-4804-1890 |

| Europe & Middle East |  
| Tel: +44-20-7176-6111 |

| Asia Pacific |  
| Tel: +65-6530-6430 |

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| Europe & Middle East |  
| Tel: +44-20-7176-6111 |

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| Tel: +65-6530-6430 |

**From:** Operations Center Bulletin  
**To:** OST02\_HOC  
**Subject:** NRC IS RESPONDING TO AN EMERGENCY OUTSIDE of the United States  
**Date:** Saturday, March 12, 2011 4:22:15 PM

---

**THIS IS NOT A DRILL.**

The NRC and other Federal agencies are continuing to follow an emergency occurring outside of the United States. Press releases about NRC actions are posted on [www.nrc.gov](http://www.nrc.gov). Information is also available on the NRC External Blog at: <http://public-blog.nrc-gateway.gov>. Employees contacted by the media are asked to refer the calls to the Office of Public Affairs at 301-415-8200

Two important reminders:

It is possible that some of us will be requested by colleagues in another country to provide technical advice and assistance during this emergency. It is essential that all such communications be handled through the NRC Operations Center. Any assistance to a foreign government or entity must be coordinated through the NRC Operations Center and the U.S. Department of State (DOS). If you receive such a request, contact the NRC Operations Officer (301-816-5100 or via the NRC Operator) immediately.

If you receive information regarding this or any emergency (foreign or domestic) and you are not certain that the NRC's Incident Response Operations Officer is already aware of that information, you should contact the NRC Operations Officer (301-816-5100 or via the NRC Operator) and provide that information.

No response to this message is required.

**THIS IS NOT A DRILL**

HH/149

**From:** [Hayden, Elizabeth](#)  
**To:** [Akstulewicz, Brenda](#)  
**Subject:** RE: Are you available to come to Ofc. Sunday?  
**Date:** Saturday, March 12, 2011 6:24:00 PM

---

No, but thanks for asking.

---

**From:** Akstulewicz, Brenda  
**Sent:** Saturday, March 12, 2011 6:24 PM  
**To:** Hayden, Elizabeth  
**Subject:** RE: Are you available to come to Ofc. Sunday?

You're more than welcome – I'm leaving in a few minutes – do you need anything before I go?

---

**From:** Hayden, Elizabeth  
**Sent:** Saturday, March 12, 2011 6:23 PM  
**To:** Akstulewicz, Brenda  
**Subject:** RE: Are you available to come to Ofc. Sunday?

Thanks for all your help!

---

**From:** Akstulewicz, Brenda  
**Sent:** Saturday, March 12, 2011 6:22 PM  
**To:** Hayden, Elizabeth  
**Subject:** RE: Are you available to come to Ofc. Sunday?

Sorry, 9am. If anything should change and I'm needed don't hesitate to call me.

---

**From:** Hayden, Elizabeth  
**Sent:** Saturday, March 12, 2011 6:21 PM  
**To:** Akstulewicz, Brenda  
**Subject:** RE: Are you available to come to Ofc. Sunday?

OK. Thanks. What time is Val coming in?

---

**From:** Akstulewicz, Brenda  
**Sent:** Saturday, March 12, 2011 6:21 PM  
**To:** Hayden, Elizabeth  
**Subject:** RE: Are you available to come to Ofc. Sunday?

Yes and Eliot has been informed.

---

**From:** Hayden, Elizabeth  
**Sent:** Saturday, March 12, 2011 6:20 PM  
**To:** Akstulewicz, Brenda  
**Subject:** RE: Are you available to come to Ofc. Sunday?

Instead of you?

---

**From:** Akstulewicz, Brenda

YHY/150

**Sent:** Saturday, March 12, 2011 6:20 PM  
**To:** Hayden, Elizabeth  
**Subject:** RE: Are you available to come to Ofc. Sunday?

Beth – FYI, Val will be here tomorrow at 9am.

---

**From:** Hayden, Elizabeth  
**Sent:** Saturday, March 12, 2011 6:17 PM  
**To:** beth.janbergs@gmail.com  
**Cc:** Brenner, Eliot; Akstulewicz, Brenda; Harrington, Holly  
**Subject:** Are you available to come to Ofc. Sunday?

Bethany,

We have been staffing the office and Ops Center round the clock since Friday when the Japanese earthquake and tsunami hit. Can you come in tomorrow around 9 am until 6 or 7 pm to help out in the office? Brenda will be in after church.

Beth

---

**From:** LIA08 Hoc  
**Sent:** Monday, April 11, 2011 11:40 AM  
**To:** Dyer, Jim  
**Cc:** OST01 HOC  
**Subject:** Sending the Status Update to the States

Jim-

There has been inconsistency in whether or not the Status Update was shared with the States through the Regional State Liaison Officers in the Region. Most of the time it was NOT shared, but in the past week or so it was shared a few times. This inconsistency has caused confusion.

Would you be willing to draft a proposal to submit to Marty, Mike Weber and the other ET Directors regarding sending the NRC Status Update (Sit Rep) out to the States?

The suggested proposal is that the Status Update NOT be shared with the States as the audience for the Status Update is **those agencies who are providing direct support** to the Japan disaster. The reasoning for discontinuing sharing with the States should be made available to the RSLO's who will most likely still get requests from the States for the document.

Thank you-  
LisaG

Lisa Gibney Wright  
Liaison Team Coordinator  
US Nuclear Regulatory Commission  
Email: [lia08.hoc@nrc.gov](mailto:lia08.hoc@nrc.gov)  
Desk Ph: 301-816-5185

44/151

**From:** Hayden, Elizabeth  
**To:** Couret, Ivonne  
**Subject:** Thanks for all the food and help!  
**Date:** Saturday, March 12, 2011 6:25:00 PM

---

NY/152

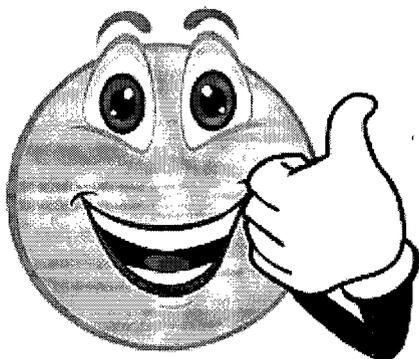
**From:** [Hayden, Elizabeth](#)  
**To:** [Akstulewicz, Brenda](#)  
**Subject:** RE: Are you available to come to Ofc. Sunday?  
**Date:** Saturday, March 12, 2011 6:31:00 PM  
**Attachments:** [image001.png](#)

---

Yes, but I was hoping to come in later in the evening rather than noon since it appears we will have quite a few folks here tomorrow and it appears to be quiet (at least right now). I need to pack etc for my trip. I'll talk to Eliot to see how things are going.

---

**From:** Akstulewicz, Brenda  
**Sent:** Saturday, March 12, 2011 6:27 PM  
**To:** Hayden, Elizabeth  
**Subject:** RE: Are you available to come to Ofc. Sunday?



---

**From:** Hayden, Elizabeth  
**Sent:** Saturday, March 12, 2011 6:25 PM  
**To:** Akstulewicz, Brenda  
**Subject:** RE: Are you available to come to Ofc. Sunday?

No, but thanks for asking.

---

**From:** Akstulewicz, Brenda  
**Sent:** Saturday, March 12, 2011 6:24 PM  
**To:** Hayden, Elizabeth  
**Subject:** RE: Are you available to come to Ofc. Sunday?

You're more than welcome – I'm leaving in a few minutes – do you need anything before I go?

---

**From:** Hayden, Elizabeth  
**Sent:** Saturday, March 12, 2011 6:23 PM  
**To:** Akstulewicz, Brenda  
**Subject:** RE: Are you available to come to Ofc. Sunday?

Thanks for all your help!

---

**From:** Akstulewicz, Brenda  
**Sent:** Saturday, March 12, 2011 6:22 PM  
**To:** Hayden, Elizabeth  
**Subject:** RE: Are you available to come to Ofc. Sunday?

YY/153

Sorry, 9am. If anything should change and I'm needed don't hesitate to call me.

---

**From:** Hayden, Elizabeth  
**Sent:** Saturday, March 12, 2011 6:21 PM  
**To:** Akstulewicz, Brenda  
**Subject:** RE: Are you available to come to Ofc. Sunday?

OK. Thanks. What time is Val coming in?

---

**From:** Akstulewicz, Brenda  
**Sent:** Saturday, March 12, 2011 6:21 PM  
**To:** Hayden, Elizabeth  
**Subject:** RE: Are you available to come to Ofc. Sunday?

Yes and Eliot has been informed.

---

**From:** Hayden, Elizabeth  
**Sent:** Saturday, March 12, 2011 6:20 PM  
**To:** Akstulewicz, Brenda  
**Subject:** RE: Are you available to come to Ofc. Sunday?

Instead of you?

---

**From:** Akstulewicz, Brenda  
**Sent:** Saturday, March 12, 2011 6:20 PM  
**To:** Hayden, Elizabeth  
**Subject:** RE: Are you available to come to Ofc. Sunday?

Beth – FYI, Val will be here tomorrow at 9am.

---

**From:** Hayden, Elizabeth  
**Sent:** Saturday, March 12, 2011 6:17 PM  
**To:** beth.janbergs@gmail.com  
**Cc:** Brenner, Eliot; Akstulewicz, Brenda; Harrington, Holly  
**Subject:** Are you available to come to Ofc. Sunday?

Bethany,

We have been staffing the office and Ops Center round the clock since Friday when the Japanese earthquake and tsunami hit. Can you come in tomorrow around 9 am until 6 or 7 pm to help out in the office? Brenda will be in after church.

Beth

**From:** [Droggitis, Spiros](#)  
**To:** [Brenner, Eliot](#); [Hayden, Elizabeth](#); [Harrington, Holly](#)  
**Subject:** FW: Fwd: NEI has just posted the following fact sheet  
**Date:** Saturday, March 12, 2011 6:28:38 PM

---

**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.

451/1111

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 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](#)
- [World Nuclear News](#)
- [International Atomic Energy Agency](#)



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---

Sent through [mail.messaging.microsoft.com](mailto:mail.messaging.microsoft.com)

**From:** Couret, Ivonne  
**To:** Hayden, Elizabeth  
**Subject:** REPORTER QUESTION - FW: 23 US reactors are same design as Fukushima-1  
**Date:** Saturday, March 12, 2011 4:24:54 PM

---

Reporter has this question – do we have a response? Ivonne

Ivonne L. Couret  
Public Affairs Officer  
Office of Public Affairs



(301) 415-8205

[ivonne.couret@nrc.gov](mailto:ivonne.couret@nrc.gov)

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/>

NRC Employees can read interesting insight on the OPA Blog  
<http://portal.nrc.gov/OCM/opa/blog/default.aspx>

Please consider the environmental impact before printing this email.

---

**From:** scott.disavino@thomsonreuters.com [mailto:scott.disavino@thomsonreuters.com]  
**Sent:** Saturday, March 12, 2011 4:17 PM  
**To:** Couret, Ivonne  
**Subject:** Re: 23 US reactors are same design as Fukushima-1

Hi

Wondering if there are any examples of using sea water to cool a reactor in us

Or if u have ever heard of something like that

Also how would that work where would u put it in the vessel. Around the vessel

Thanks

Scott

---

**From:** Couret, Ivonne <Ivonne.Couret@nrc.gov>  
**To:** DiSavino, Scott P. (M Edit Ops)  
**Sent:** Sat Mar 12 13:11:53 2011  
**Subject:** RE: 23 US reactors are same design as Fukushima-1

Scott Disavino –  
Please send further email/questions to my email. Thanks, Ivonne

---

**From:** Burnell, Scott  
**Sent:** Saturday, March 12, 2011 1:09 PM

551 / KIX

---

**From:** Morris, Scott  
**Sent:** Tuesday, April 12, 2011 5:11 PM  
**To:** Marshall, Jane  
**Cc:** ET02 Hoc  
**Subject:** RE: Transition plan with J. Wiggins' comments

Does this version contain the comments from Mike Weber, Jim Dyer and Cyndy Carpenter?

---

**From:** Marshall, Jane  
**Sent:** Tuesday, April 12, 2011 3:26 PM  
**To:** Evans, Michele  
**Cc:** McDermott, Brian; Morris, Scott  
**Subject:** Transition plan with J. Wiggins' comments

Attached is the Transition plan with Jim's comments incorporated. I know Marty was interested in seeing it before the plan becomes final.

Jane

777/1156

**From:** Droggitis, Spiros  
**To:** Shane, Raeann; Schmidt, Rebecca; Dacus, Eugene; Decker, David; Powell, Amy; Riley (OCA), Timothy  
**Cc:** Brenner, Eliot; Hayden, Elizabeth  
**Subject:** RE: Schedule for Ops Center -- OCA participation  
**Date:** Saturday, March 12, 2011 3:41:16 PM

---

I can do Tues. am

You got it. Right now we have:

Sun – 9pm-7am – Gene  
Mon – 7am-2pm – Raeann  
Mon – 2pm-9pm – open  
Mon – 9pm-7am – Tim  
Tues – 7am-2pm - Spiros

---

**From:** Shane, Raeann  
**Sent:** Saturday, March 12, 2011 3:31 PM  
**To:** Schmidt, Rebecca; Dacus, Eugene; Droggitis, Spiros; Decker, David; Powell, Amy; Riley (OCA), Timothy  
**Cc:** Brenner, Eliot; Hayden, Elizabeth  
**Subject:** Re: Schedule for Ops Center -- OCA participation

I will take Mon 7am to 2 If it's still open

---

**From:** Schmidt, Rebecca  
**To:** Schmidt, Rebecca; Shane, Raeann; Dacus, Eugene; Droggitis, Spiros; Decker, David; Powell, Amy; Riley (OCA), Timothy  
**Cc:** Brenner, Eliot; Hayden, Elizabeth  
**Sent:** Sat Mar 12 12:48:01 2011  
**Subject:** RE: Schedule for Ops Center -- OCA participation

The Ops Center has to check a box so I need volunteers to man the following hours:

Sun night 9pm – 7am Monday morning  
Mon 7am – 2PM  
Mon 2pm – 9 pm  
Mon 9 pm – Tues 7am  
Tues 7am to 2pm

First come, first serve!!!

---

**From:** Schmidt, Rebecca  
**Sent:** Friday, March 11, 2011 5:08 PM  
**To:** Shane, Raeann; Dacus, Eugene; Schmidt, Rebecca; Droggitis, Spiros; Decker, David; Powell, Amy; Riley (OCA), Timothy  
**Cc:** Batkin, Joshua; Brenner, Eliot; Hayden, Elizabeth  
**Subject:** Schedule for Ops Center -- OCA participation

Thanks for all your help. Here is a schedule for our participation at the Ops Center:

ES1/XXX

Friday

Raeann 10:00 am to 10:00 pm  
Gene 10:00 pm to 7:00 am

Saturday

Becky 7:00 am to 2:00 pm  
Spiros 2:00 pm to 9:00 pm  
David 9:00 pm to 7:00 am

Sunday

Amy 7:00 am to 2:00 pm  
Tim 2:00pm to 9:00pm

We will figure out if we need to cycle again later in the weekend. Also, I will send the list of who we are sending the press releases to in my next email

**From:** Shane, Raeann  
**To:** Schmidt, Rebecca; Dacus, Eugene; Droggitis, Spiros; Decker, David; Powell, Amy; Riley (OCA), Timothy  
**Cc:** Brenner, Eliot; Hayden, Elizabeth  
**Subject:** Re: Schedule for Ops Center -- OCA participation  
**Date:** Saturday, March 12, 2011 3:30:53 PM

---

I will take Mon 7am to 2 If it's still open

---

**From:** Schmidt, Rebecca  
**To:** Schmidt, Rebecca; Shane, Raeann; Dacus, Eugene; Droggitis, Spiros; Decker, David; Powell, Amy; Riley (OCA), Timothy  
**Cc:** Brenner, Eliot; Hayden, Elizabeth  
**Sent:** Sat Mar 12 12:48:01 2011  
**Subject:** RE: Schedule for Ops Center -- OCA participation

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First come, first serve!!!

---

**From:** Schmidt, Rebecca  
**Sent:** Friday, March 11, 2011 5:08 PM  
**To:** Shane, Raeann; Dacus, Eugene; Schmidt, Rebecca; Droggitis, Spiros; Decker, David; Powell, Amy; Riley (OCA), Timothy  
**Cc:** Batkin, Joshua; Brenner, Eliot; Hayden, Elizabeth  
**Subject:** Schedule for Ops Center -- OCA participation

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Sunday  
Amy 7:00 am to 2:00 pm  
Tim 2:00pm to 9:00pm

We will figure out if we need to cycle again later in the weekend. Also, I will send the list of who we are sending the press releases to in my next email

851 / KKK

**From:** Droggitis, Spiros  
**To:** Shane, Raeann; Schmidt, Rebecca; Dacus, Eugene; Decker, David; Powell, Amy; Riley (OCA), Timothy  
**Cc:** Brenner, Eliot; Hayden, Elizabeth  
**Subject:** RE: Schedule for Ops Center -- OCA participation  
**Date:** Saturday, March 12, 2011 3:35:56 PM

---

You got it. Right now we have:

Sun – 9pm-7am – Gene  
Mon – 7am-2pm – Raeann  
Mon – 2pm-9pm – open  
Mon – 9pm-7am – Tim  
Tues – 7am-2pm - open

---

**From:** Shane, Raeann  
**Sent:** Saturday, March 12, 2011 3:31 PM  
**To:** Schmidt, Rebecca; Dacus, Eugene; Droggitis, Spiros; Decker, David; Powell, Amy; Riley (OCA), Timothy  
**Cc:** Brenner, Eliot; Hayden, Elizabeth  
**Subject:** Re: Schedule for Ops Center -- OCA participation

I will take Mon 7am to 2 If it's still open

---

**From:** Schmidt, Rebecca  
**To:** Schmidt, Rebecca; Shane, Raeann; Dacus, Eugene; Droggitis, Spiros; Decker, David; Powell, Amy; Riley (OCA), Timothy  
**Cc:** Brenner, Eliot; Hayden, Elizabeth  
**Sent:** Sat Mar 12 12:48:01 2011  
**Subject:** RE: Schedule for Ops Center -- OCA participation

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Mon 7am – 2PM  
Mon 2pm – 9 pm  
Mon 9 pm – Tues 7am  
Tues 7am to 2pm

First come, first serve!!!

---

**From:** Schmidt, Rebecca  
**Sent:** Friday, March 11, 2011 5:08 PM  
**To:** Shane, Raeann; Dacus, Eugene; Schmidt, Rebecca; Droggitis, Spiros; Decker, David; Powell, Amy; Riley (OCA), Timothy  
**Cc:** Batkin, Joshua; Brenner, Eliot; Hayden, Elizabeth  
**Subject:** Schedule for Ops Center -- OCA participation

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Spiros 2:00 pm to 9:00 pm  
David 9:00 pm to 7:00 am

Sunday

Amy 7:00 am to 2:00 pm  
Tim 2:00pm to 9:00pm

We will figure out if we need to cycle again later in the weekend. Also, I will send the list of who we are sending the press releases to in my next email

**From:** Michael, Gretchen (HHS/ASPR/COO)  
**To:** Cox, Joanne D. (CDC/OPHPR); McCurley, Carol M. (CDC/ONDIEH/NCEH); Telfer, Jana L. (CDC/ONDIEH/NCEH); Briseno, Lisa (ATSDR/OCOM); Conley, Clarice (CDC/OPHPR) (CTR); Roebuck, Von (CDC/OD/OADC); Olivares, Dagny (CDC/OPHPR/DEO); Michael, Gretchen (HHS/ASPR/COO); Kane, Eileen (HHS/ASPR/COO); El-Hinnawy, Patricia (FDA/OC); ElHinnaway, Patricia (HHS/ASPR/OPEO); Harrington, Holly; "oster.seth@epa.gov"; "perry.dale@epa.gov"; "andy.adora@epa.gov"; Brenner, Eliot; Hayden, Elizabeth; Harrington, Holly  
**Subject:** WA State Message  
**Date:** Saturday, March 12, 2011 3:18:00 PM  
**Attachments:** 03-11-2011 WA RAD Secures message-draft-3 semifinal.docx

---

I am sending to everyone so everybody has everyone's contact.

This went out to local Health as a HAN last night at 5:00 pm PT.

651 / 159  
YKY

The state Department of Health is monitoring events in Japan regarding nuclear reactors that were affected by the earthquake. Only one reactor seems to be a concern — the oldest reactor at this multi-reactor site. The Japanese apparently will vent the reactor to relieve pressure.

Some people in Washington are concerned that the potential release of radioactive vapor from the reactor in Japan will send windblown radiation to our state. Our Radiation Protection Program doesn't expect any change in environmental measurements taken in our state.

Here are some messages that can be used to answer questions from concerned people:

- We understand people may be concerned about a possible health risk from the nuclear reactor in Japan, and while we're monitoring the situation, we expect no health risk.
- This is a very different type of situation than the Chernobyl event. The radioactive material will be released in a controlled method over a period of time.
- Radiation levels in Washington are not expected to increase as a result of Japan's actions. We don't expect to see any radioactive contamination in our state from this event.
- We will continue to monitor radiation levels in air and rainwater at Seattle, Tumwater, Spokane, and Richland.

**From:** Couret, Ivonne  
**To:** Harrington, Holly; Brenner, Eliot; Hayden, Elizabeth  
**Subject:** Updated - Media Interview Request for Chairman  
**Date:** Saturday, March 12, 2011 3:13:07 PM

---

Updated G:/Crisis Communication/Media Interview Request for Chairman.docx

Ivonne L. Couret  
Public Affairs Officer  
Office of Public Affairs



 (301) 415-8205

 [ivonne.couret@nrc.gov](mailto:ivonne.couret@nrc.gov)

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/>

NRC Employees can read interesting insight on the OPA Blog  
<http://portal.nrc.gov/OCM/opa/blog/default.aspx>

 Please consider the environmental impact before printing this email.

YYH/160

**From:** [Google Alerts](#)  
**To:** [Hayden, Elizabeth](#)  
**Subject:** Google Alert - Nuclear Regulatory Commission  
**Date:** Monday, April 11, 2011 8:20:18 PM

---

**News**

**2** new results for **Nuclear Regulatory Commission**

**NRC: Japan nuke crisis 'static' but not yet stable**

The Associated Press

Gregory Jaczko, the chairman of the **Nuclear Regulatory Commission**, acknowledged in an interview with The Associated Press that the month-old crisis in Japan has not yet stabilized. But he said conditions at the Fukushima Dai-ichi plant have not changed ...

[See all stories on this topic »](#)

**US Senate Majority Leader Reid says Yucca rider removed from CR**

Platts

US Senate Majority Leader Harry Reid said Monday that a rider barring the **Nuclear Regulatory Commission** from completing the closeout of the Yucca Mountain repository project was knocked out of a stop-gap spending measure last week. ...

[See all stories on this topic »](#)

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YXX/161



# 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](mailto:opa.resource@nrc.gov) Site: [www.nrc.gov](http://www.nrc.gov)

Blog: <http://public-blog.nrc-gateway.gov>

No. 11-064

April 11, 2011

## NRC APPROVES INCREASED POWER OUTPUT FOR LIMERICK NUCLEAR POWER PLANT

The Nuclear Regulatory Commission has approved a request by Exelon Generation Company to increase the power generating capacity of Limerick Generating Station, Units 1 and 2, by 1.65 percent each.

The NRC staff's careful evaluation determined that Exelon could safely increase the reactors' power output primarily through more accurate means of measuring feedwater flow. As part of its evaluation, NRC staff reviewed the company's analysis showing the plant's design can accommodate the increased power level.

The NRC's safety evaluation of the plant's proposed power uprate focused on several areas, including the nuclear steam supply systems, instrumentation and control systems, electrical systems, accident evaluations, radiological consequences, fire protection, operations and training, testing, and technical specification changes.

The power uprate for Limerick's boiling-water reactors, located approximately 21 miles northwest of Philadelphia, will increase each unit's power generating capacity from approximately 1,189 to 1,205 megawatts electric. Exelon intends to implement Unit 1's uprate within 90 days, and Unit 2's uprate within 90 days of the completion of its 2011 spring refueling outage.

The NRC previously published a notice about the power uprate application in the *Federal Register* (<http://edocket.access.gpo.gov/2010/pdf/2010-13617.pdf>, page 32512). The agency's evaluation of the Limerick power uprate will be available through the NRC's ADAMS electronic document database by entering ML110691095 under the "Simple Search" tab on this Web page: <http://wba.nrc.gov:8080/ves/>.

###

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](http://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:** [Hayden, Elizabeth](#)  
**To:** [Hardy, Sally](#)  
**Subject:** RE: Removal of RIC on public website  
**Date:** Saturday, March 12, 2011 5:17:00 PM

---

Ok. Let NRR squawk next week and we can put it back up.

---

**From:** Hardy, Sally  
**Sent:** Saturday, March 12, 2011 5:00 PM  
**To:** Hayden, Elizabeth; Hoffman, Joan; Lee, Jun; Couret, Ivonne  
**Subject:** Re: Removal of RIC on public website

Beth I will remove it now

Sally

Sent from NRC Blackberry  
Sally Hardy

---

**From:** Hayden, Elizabeth  
**To:** Lee, Jun; Hardy, Sally  
**Cc:** Couret, Ivonne  
**Sent:** Sat Mar 12 16:57:24 2011  
**Subject:** RE: Removal of RIC on public website

I would like to remove it, but then again, I think all the Highlights are weak in comparison to the press releases and blog on the Japan Earthquake which are not visible when you arrive at the homepage.

---

**From:** Lee, Jun  
**Sent:** Saturday, March 12, 2011 2:16 PM  
**To:** Hayden, Elizabeth; Hardy, Sally  
**Cc:** Couret, Ivonne  
**Subject:** RE: Removal of RIC on public website

Do we still want to keep the words NRC Regulatory Information Conference up there or remove all references to RIC?

Thanks,

Jun

---

**From:** Hayden, Elizabeth  
**Sent:** Saturday, March 12, 2011 2:14 PM  
**To:** Lee, Jun; Hardy, Sally

YH/162

**From:** [Hardy, Sally](#)  
**To:** [Hayden, Elizabeth](#)  
**Subject:** Re: Photo  
**Date:** Saturday, March 12, 2011 5:20:40 PM

---

Ok

Sent from NRC Blackberry  
Sally Hardy

---

**From:** Hayden, Elizabeth  
**To:** Hardy, Sally  
**Cc:** Couret, Ivonne; Harrington, Holly; Janbergs, Holly  
**Sent:** Sat Mar 12 17:15:34 2011  
**Subject:** FW: Photo

Please post immediately with the following caption:

Here at the NRC's headquarters Operations Center, operating on a 24-hour basis, staff are examining available information to analyze the earthquake and tsunami event and understand their implications both for Japan and the United States. [more](#)

Link [more](http://www.nrc.gov/reading-rm/doc-collections/news/2011/11-045.pdf) to <http://www.nrc.gov/reading-rm/doc-collections/news/2011/11-045.pdf>

YY/163

**From:** Hayden, Elizabeth  
**To:** CALVO LEYVA MARINA  
**Subject:** RE:  
**Date:** Saturday, March 12, 2011 5:44:00 PM

---

Right now I have the green light to go to Paris unless things turn worse in Japan.

-----Original Message-----

**From:** CALVO LEYVA MARINA [<mailto:mcle@csn.es>]  
**Sent:** Saturday, March 12, 2011 5:36 PM  
**To:** Hayden, Elizabeth  
**Subject:**

Dear Beth how terrible what is happening in Japan. I am devastated and have been working non stop hoping that things will not get worse. I am also following NRCs statements and news. Will you maintain your trip to Europe? I will not be able to address this issue internally until Monday, I guess. Hope to see you sometime soon,

With best regards, Marina

491/164

**From:** [Hayden, Elizabeth](#)  
**To:** [Akstulewicz, Brenda](#)  
**Subject:** FW: Are you available to come to Ofc. Sunday?  
**Date:** Saturday, March 12, 2011 6:21:00 PM

---

9 am. Sorry

---

**From:** Hayden, Elizabeth  
**Sent:** Saturday, March 12, 2011 6:21 PM  
**To:** Akstulewicz, Brenda  
**Subject:** RE: Are you available to come to Ofc. Sunday?

OK. Thanks. What time is Val coming in?

---

**From:** Akstulewicz, Brenda  
**Sent:** Saturday, March 12, 2011 6:21 PM  
**To:** Hayden, Elizabeth  
**Subject:** RE: Are you available to come to Ofc. Sunday?

Yes and Eliot has been informed.

---

**From:** Hayden, Elizabeth  
**Sent:** Saturday, March 12, 2011 6:20 PM  
**To:** Akstulewicz, Brenda  
**Subject:** RE: Are you available to come to Ofc. Sunday?

Instead of you?

---

**From:** Akstulewicz, Brenda  
**Sent:** Saturday, March 12, 2011 6:20 PM  
**To:** Hayden, Elizabeth  
**Subject:** RE: Are you available to come to Ofc. Sunday?

Beth – FYI, Val will be here tomorrow at 9am.

---

**From:** Hayden, Elizabeth  
**Sent:** Saturday, March 12, 2011 6:17 PM  
**To:** [beth.janbergs@gmail.com](mailto:beth.janbergs@gmail.com)  
**Cc:** Brenner, Eliot; Akstulewicz, Brenda; Harrington, Holly  
**Subject:** Are you available to come to Ofc. Sunday?

Bethany,

We have been staffing the office and Ops Center round the clock since Friday when the Japanese earthquake and tsunami hit. Can you come in tomorrow around 9 am until 6 or 7 pm to help out in the office? Brenda will be in after church.

Beth

YYY/165

## Bensi, Michelle

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**From:** Bensi, Michelle  
**Sent:** Thursday, April 14, 2011 11:08 AM  
**To:** Ibarra, Jose; Kauffman, John; Beasley, Benjamin; Rini, Brett  
**Subject:** RE: E-Mail to OPA and NRR on Posting of Q&As on Share Point Site

I suggest the following revision:

RES Division of Risk Analysis (DRA) is working on a document containing about 150 Q&As associated with seismic hazard. The document is a revision/restructuring of a previously prepared seismic Q&A document that was circulated internally after the Japanese Earthquake. We are currently working on the updates and plan to be finished next week. We will contact OPA and NRR for posting the Q&As in the Share Point Site when we complete the revision of the Q&As. If you have any questions call Jose Ibarra, DRA TA, 301 251-7612, or Shelby Bensi, DRA, Reliability and Risk Engineer, 301 251-7570.

Thanks,  
Shelby

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**From:** Ibarra, Jose  
**Sent:** Thursday, April 14, 2011 10:58 AM  
**To:** Bensi, Michelle; Kauffman, John; Beasley, Benjamin; Rini, Brett  
**Subject:** E-Mail to OPA and NRR on Posting of Q&As on Share Point Site

All,

To make sure OEDO knows that we are responding to their request for input on Q&As that are to be posted on the Share Point Site, I plan to send to Beth Hayden, OPA, and Eric Oestesle, NRR the e-mail below. Mary Muesse and Mindy Landau will be on cc:

RES Division of Risk Analysis (DRA) is working on about 150 Q&As associated with seismic hazard related Generic Issue-199. Since DRA has previously prepared Q&As due to the Japanese Nuclear Event, some of the original Q&As need to be updated. We are currently working on the updates and plan to be finished next week. We will contact OPA and NRR for posting the Q&As in the Share Point Site when we complete the Q&As. If you have any questions call Jose Ibarra, DRA TA, 301 251-7612, or Shelby Bensi, DRA, Reliability and Risk Engineer, 301 251-7570.

Thanks. Jose

4/14/11

## OIP\_ITServices Resource

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**From:** LIA02 Hoc  
**Sent:** Tuesday, April 12, 2011 7:06 PM  
**To:** Bloom, Steven  
**Subject:** FW: help with our Japan team computer network - As requested the folder has been created.

---

**From:** Bernhard, Rudolph  
**Sent:** Tuesday, April 12, 2011 7:05:37 PM  
**To:** ET02 Hoc; Liaison Japan  
**Cc:** LIA02 Hoc; LIA08 Hoc; OST01 HOC; Reyes, Debra; Turner, Joseph  
**Subject:** RE: help with our Japan team computer network - As requested the folder has been created.  
**Auto forwarded by a Rule**

The HQ based folks have the mapping. I do not have the N:drive on logon. I tried to map the network drive, and was successful at getting a map, but do not have rights to read or write. The regional users on the team may need something else to gain access to the folder.

Thanks.  
Rudy

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**From:** ET02 Hoc  
**Sent:** Tuesday, April 12, 2011 9:03 AM  
**To:** Liaison Japan  
**Cc:** LIA02 Hoc; LIA08 Hoc; OST01 HOC; Reyes, Debra; Turner, Joseph  
**Subject:** FW: help with our Japan team computer network - As requested the folder has been created.  
**Importance:** High

Japan Team:

Please read the information below provided by OIS (Debra Reyes) concerning access to a shared folder on the Citrix server for your use. If you have any questions or need help, please contact the CSC at 301-415-1234. Thanks...Karen Jackson

---

**From:** Reyes, Debra  
**Sent:** Tuesday, April 12, 2011 7:59 AM  
**To:** ET02 Hoc  
**Cc:** Reyes, Debra  
**Subject:** RE: help with our Japan team computer network - As requested the folder has been created.

Good morning,

The NOC has created a folder named 'Liaison Japan' and a control group 'G-OIS-Liaison\_Japan' on the existing HQ S: drive. Added the users from the spreadsheet provided to G-OIS-Liaison\_Japan. Added G-OIS-Liaison\_Japan to the folder Liaison Japan. Upon login the users in the group should receive an N: drive mapping to access the folder. The folder can also be accessed using the following link <\\nrc.gov.nrc\hq\Shared\Liaison Japan>. This can be copied to the desktop for use.

Please let me know if you need anything else.

debbie

4/11/11

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**From:** ET02 Hoc  
**Sent:** Monday, April 11, 2011 7:13 AM  
**To:** Turner, Joseph; Reyes, Debra  
**Subject:** FW: help with our Japan team computer network

Fyi...karen

---

**From:** Bernhard, Rudolph  
**Sent:** Monday, April 11, 2011 6:27 AM  
**To:** LIA08 Hoc; Rich, Thomas; Paradiso, Karen  
**Cc:** ET02 Hoc  
**Subject:** RE: help with our Japan team computer network

Jeff, thanks for kicking off the request. I had no clue who to ask.

A subdirectory that all in country Japan team members could be mapped to would be great. Since we are all from different offices, we have no common network drive that we share. We do not want to use Sharepoint, but want a subdirectory that we can map to a drive that all can reach when using Citrix. IT would have to be provided with names of those shipped over in the future, so they could be added to the access for the drive or subdirectory.

Thanks  
Rudy

---

**From:** LIA08 Hoc  
**Sent:** Monday, April 11, 2011 6:15 AM  
**To:** Rich, Thomas; Paradiso, Karen  
**Cc:** ET02 Hoc; Bernhard, Rudolph  
**Subject:** help with our Japan team computer network

Good morning

Our Japan site team called us this morning and asked if a separate network could be created for them to use to store documents created by and used by the NRC site team in Japan, similar I think to the way we use the M drive in the NRC Ops Center to capture event info at our end.

Please let us know if this is possible and what the procedure is for this to occur.

Thanks for any help you can provide

Jeff Temple  
NRC Operations Center  
Liaison Team Coordinator  
301-816-5185

---

**From:** LIA08 Hoc  
**Sent:** Sunday, March 13, 2011 6:12 AM  
**To:** NITOPS@nnsa.doe.gov  
**Subject:** US Nuclear Regulatory Commission: Mission Statement for Representatives Travelling to Japan

Hello Mr. Jung,

Please see the mission statement below which explains the presence of NRC Staff in Japan.

Thank You

**Mission Statement**

Two officials from the US Nuclear Regulatory Commission with expertise in boiling water nuclear reactors have deployed to Japan as part of a US International Agency for International Development (USAID) team. The NRC representatives are expected to advise the US Ambassador on the technical aspects of the emergencies involving the boiling water reactors at the Fukushima Daiichi Plant and to make contact with technical representatives of the Japanese Regulatory Authority to offer technical advice and assistance.

891/XXX

## **Bozin, Sunny**

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**From:** Ostendorff, William  
**Sent:** Sunday, March 13, 2011 9:03 AM  
**To:** Franovich, Mike  
**Cc:** Nieh, Ho; Warnick, Greg; Kock, Andrea; Zorn, Jason  
**Subject:** Re: UPDATE from 07:30 telecon

Mike- I deeply appreciate your close monitoring of these events. WCO

---

**From:** Franovich, Mike  
**To:** Ostendorff, William  
**Cc:** Nieh, Ho; Warnick, Greg; Kock, Andrea; Zorn, Jason  
**Sent:** Sun Mar 13 08:03:38 2011  
**Subject:** UPDATE from 07:30 telecon

Marty Virgilio led the call

### **Fukushima Sites Status**

#### ***Daiichi***

##### Unit 1

- No new news for the Daiichi unit1.
- Staff believe there was core damage.
- There was some level of release from the hydrogen explosion in the reactor building but the primary containment remains intact.

Unit 2 no fuel damage, core being cooled by RCIC, containment intact.

##### Unit 3

- believe there is core damage.
- sea water and boric acid into the reactor core.
- Primary containment intact

#### ***Daini***

Unit 1 venting primary containment. All other three units no change in status (stable).

#### **Other**

Tony Ulses (NRC) arrived in Tokyo. Will assist U. S. Ambassador  
Jim Trapp (NRC) still enroute but will also assist the U.S. Ambassador

White House plans to issue press release. Key message that U.S. government is support/assisting, continues to monitor, no risk to U.S.

NRC will issue PR only if needed to supplement the WH PR.

NEI/Marv Fertel may make the morning news shows.

691 / MK

NRC in contact with DOE/Naval Reactors. USS Ronald Reagan is 100 miles from Fukushima sites. They are picking up airborne through aerial sampling. Helicopters also show contamination. NRC getting info to confirm if amounts consistent with our models/predicted levels.

Net telecon at 15:30.

## **Ostendorff, William**

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**From:** Ostendorff, William  
**Sent:** Sunday, March 13, 2011 9:53 AM  
**To:** Franovich, Mike  
**Cc:** Nieh, Ho  
**Subject:** Re: UPDATE from 07:30 telecon

Mike- how do I convert millisievert into millirem?

---

**From:** Franovich, Mike  
**To:** Ostendorff, William  
**Cc:** Nieh, Ho; Warnick, Greg; Kock, Andrea; Zorn, Jason  
**Sent:** Sun Mar 13 08:03:38 2011  
**Subject:** UPDATE from 07:30 telecon

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XYX/170

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Net telecon at 15:30.

---

**From:** Tift, Doug  
**Sent:** Sunday, March 13, 2011 10:39 AM  
**To:** LIA04 Hoc  
**Cc:** McNamara, Nancy  
**Subject:** RE: Emailing: State Q&A Rev 1.pdf for Distribution to SLOs

Rich,

I've distributed the Q&A to the Region 1 SLOs.

-Doug

-----Original Message-----

From: LIA04 Hoc  
Sent: Sunday, March 13, 2011 3:38 AM  
To: McNamara, Nancy; Tift, Doug; Trojanowski, Robert; Woodruff, Gena; Barker, Allan; Logaras, Herral; Maier, Bill; Browder, Rachel; Turtill, Richard  
Cc: Hayden, Elizabeth; Harrington, Holly; Burnell, Scott; Thaggard, Mark; Blount, Tom; LIA06 Hoc; LIA04 Hoc; LIA02 Hoc; LIA03 Hoc; LIA12 Hoc; LIA11 Hoc; LIA01 Hoc; LIA10 Hoc  
Subject: FW: Emailing: State Q&A Rev 1.pdf for Distribution to SLOs

RSLOs - The information attached has been vetted with OPA and the NRC Executive Team and has been approved for dissemination to the Governor-appointed State Liaison Officers.

Rich Turtill will be reporting to the Ops Center @ 7:00 am Sunday 3/13 and will be your POC.

Thank you for your assistance today.

Rosetta

-----Original Message-----

From: LIA09 Hoc  
Sent: Sunday, March 13, 2011 3:28 AM  
To: LIA04 Hoc  
Subject: Emailing: State Q&A Rev 1.pdf

The message is ready to be sent with the following file or link attachments:

State Q&A Rev 1.pdf

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.

*Handwritten signature/initials*

## Ostendorff, William

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**From:** Ostendorff, William  
**Sent:** Sunday, March 13, 2011 11:39 AM  
**To:** Franovich, Mike  
**Subject:** Re: NRC IS RESPONDING TO AN EMERGENCY OUTSIDE of the United States

Mike- I have been getting these updates but thanks for checking with me.

---

**From:** Franovich, Mike  
**To:** Ostendorff, William; Nieh, Ho; Warnick, Greg  
**Cc:** Kock, Andrea; Zorn, Jason  
**Sent:** Sun Mar 13 11:31:56 2011  
**Subject:** FW: NRC IS RESPONDING TO AN EMERGENCY OUTSIDE of the United States

In case you didn't receive this notice...

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**From:** Operations Center Bulletin  
**Sent:** Sunday, March 13, 2011 11:12 AM  
**To:** OST02 HOC  
**Subject:** FW: NRC IS RESPONDING TO AN EMERGENCY OUTSIDE of the United States

### THIS IS NOT A DRILL

The NRC is coordinating its actions with other Federal agencies as part of the U.S. government response to the events in Japan. The NRC is examining all available information as part of the effort to analyze the event and understand its implications both for Japan and the United States. The NRC's Headquarters Operations Center in Rockville, MD has been stood up since the beginning of the emergency in Japan and is operating on a 24-hour basis.

NRC Incident Responders at Headquarters have spoken with the agency's counterpart in Japan and offered the assistance of U.S. technical experts. Two officials from the NRC with expertise on boiling water nuclear reactors have deployed to Japan as part of a U.S. International Agency for International Development (USAID) team. USAID is the Federal government agency primarily responsible for providing assistance to countries recovering from disasters.

U.S. nuclear power plants are built to withstand environmental hazards, including earthquakes and tsunamis. 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 in account the most severe natural phenomena historically estimated for the site and surrounding area.

The NRC will **not** provide information on the status of Japan's nuclear power plants. For the latest information on NRC actions see the NRC's web site at [www.nrc.gov](http://www.nrc.gov) or blog at <http://public-blog.nrc-gateway.gov>.

### Two important reminders:

It is possible that some of us will be requested by colleagues in another country to provide technical advice and assistance during this emergency. It is essential that all such communications be handled through the NRC Operations Center. Any assistance to a foreign government or entity must be coordinated through the NRC Operations Center and the U.S. Department of State (DOS). If you receive such a request, contact the NRC Operations Officer (301-816-5100 or via the NRC Operator) immediately.

YY/172

If you receive information regarding this or any emergency (foreign or domestic) and you are not certain that the NRC's Incident Response Operations Officer is already aware of that information, you should contact the NRC Operations Officer (301-816-5100 or via the NRC Operator) and provide that information.

**Other Sources of Information:**

USAID – [www.usaid.gov](http://www.usaid.gov)

U.S. Department of State – [www.state.gov](http://www.state.gov)

FEMA – [www.fema.gov](http://www.fema.gov)

White House – [www.whitehouse.gov](http://www.whitehouse.gov)

Nuclear Energy Institute – [www.nei.org](http://www.nei.org)

International Atomic Energy Agency – [www.iaea.org/press](http://www.iaea.org/press)

No response to this message is required.

**THIS IS NOT A DRILL**

## Bozin, Sunny

---

**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; 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 Being Published Shortly  
**Attachments:** 11-046.docx

Press Release – NRC Sees No Radiation At Harmful Levels Reaching U.S.

MM/173



# 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](mailto:opa.resource@nrc.gov) Site: [www.nrc.gov](http://www.nrc.gov)

Blog: <http://public-blog.nrc-gateway.gov>

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No. 11-046

March 13, 2011

## **NRC SEES NO RADIATION AT HARMFUL LEVELS REACHING U.S. FROM DAMAGED JAPANESE NUCLEAR POWER PLANTS**

The Nuclear Regulatory Commission is coordinating with the Department of Energy and other federal agencies in providing whatever assistance the Japanese government requests as they respond to conditions at several nuclear power plant sites following the March 11 earthquake and tsunami. The NRC has sent two boiling-water reactor experts to Japan as part of a U.S. Agency for International Development team.

In response to nuclear emergencies, the NRC works with other U.S. agencies to monitor radioactive releases and predict their path. All the available information indicates weather conditions have taken the small releases from the Fukushima reactors out to sea away from the population. Given the thousands of miles between the two countries, Hawaii, Alaska, the U.S. Territories and the U.S. West Coast are not expected to experience any harmful levels of radioactivity.

During a nuclear event the NRC has requirements to protect populations around reactors. For instance, the U.S. evacuation standard at 10 miles is roughly equivalent to the 20-kilometer distance recommended in some instances in Japan. The United States also uses sheltering in place and potassium iodide, protective measures also available in Japan.

The NRC will not comment on hour-to-hour developments at the Japanese reactors. This is an ongoing crisis for the Japanese who have primary responsibility.

###

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](http://www.nrc.gov) also offers a SUBSCRIBE link. E-mail notifications are sent to subscribers when news releases are posted to NRC's website.

## Bozin, Sunny

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**From:** Ostendorff, William  
**Sent:** Sunday, March 13, 2011 3:42 PM  
**To:** Franovich, Mike  
**Cc:** Nieh, Ho; Warnick, Greg; Kock, Andrea; Zorn, Jason  
**Subject:** Re: 1400 EDT (March 13, 2011) USNRC Earthquake/Tsunami SitRep

Thanks Mike. Commissioners have a conference call update at 4 pm.

---

**From:** Franovich, Mike  
**To:** Ostendorff, William  
**Cc:** Nieh, Ho; Warnick, Greg; Kock, Andrea; Zorn, Jason  
**Sent:** Sun Mar 13 14:56:09 2011  
**Subject:** FW: 1400 EDT (March 13, 2011) USNRC Earthquake/Tsunami SitRep

Sir,

I will get better info at the 15:30 brief. Some of this material is old but is showing up now in this approved update document.

For reference, the core fuel height is 12 ft (approximately 365 cm). Again, in BWRs, if there is water in the lower part of the core, then steam cooling occurs for the upper part of the core and is adequate assuming the core hasn't melted from earlier in the event. Also, these NRC reports and Japanese reports state some number of "cm below top of fuel." Perhaps they did a conversion for us, but the reference level zero point for U.S. BWRs is usually **not** at the top of fuel but much higher in the vessel but we will need assume the report is correct to be conservative.

Mike

---

**From:** LIA07 Hoc  
**Sent:** Sunday, March 13, 2011 2:33 PM  
**To:** Al Coons; Andersen, James; Anderson, Joseph; Barker, Allan; Batkin, Joshua; Bill King; Bill King 2; Brenner, Eliot; Bubar, Patrice; Castleman, Patrick; Charles Donnell; Coggins, Angela; Collins, Elmo; Conrad Burnside; D Feighert; D Hammons; Dean, Bill; Decker, David; DIA; DIA2; Dorman, Dan; DOT; Droggitis, Spiros; DTRA; Dudek; EOP; EPA; EPA2; Franovich, Mike; Hahn, Matthew; Haney, Catherine; Harrington, Holly; Harry Sherwood; HHS; Hipschman, Thomas; HOO Hoc; Howell, Linda; J H-L; Jaczko, Gregory; Jim Kish; Johanna Berkey; Johnson, Michael; Kahler, Robert; L Hammond; Leeds, Eric; Logaras, Herral; Loyd, Susan; Maier, Bill; Marshall, Michael; McCree, Victor; McDermott, Brian; McNamara, Nancy; Michelle Ralston; Miller, Charles; Miller, Chris; Monninger, John; Nan Calhoun; Navy; Nieh, Ho; NOC; Orders, William; Pace, Patti; Pearson, Laura; Peter Lyons; R McCabe; R Thomson; S Horwitz; Satorius, Mark; Schmidt, Rebecca; Seamus O'Boyle; Sharkey, Jeffry; Sheron, Brian; Snodderly, Michael; Sosa, Belkys; Steve Colman; Thomas Zerr; Tifft, Doug; Timothy Greten; Trapp, James; Trojanowski, Robert; Vanessa Quinn; W Webb; Warren, Roberta; Wiggins, Jim; Williams, Kevin; Wittick, Brian; Woodruff, Gena  
**Subject:** 1400 EDT (March 13, 2011) USNRC Earthquake/Tsunami SitRep

Attached, please find a 1400 EDT situation report from the US Nuclear Regulatory Commission's Emergency Operations Center regarding the impacts of the earthquake/tsunami on March 13, 2011.

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.

-Sara

Sara K. Mroz

4/11/11

Communications and Outreach  
Office of Nuclear Security and Incident Response  
US Nuclear Regulatory Commission  
[sara.mroz@nrc.gov](mailto:sara.mroz@nrc.gov)  
[LIA07.HOC@nrc.gov](mailto:LIA07.HOC@nrc.gov) (Operations Center)

**Bozin, Sunny**

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**From:** OPA Resource  
**Sent:** Sunday, March 13, 2011 4:27 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; 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, Jeffry; 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:** Revised - NRC Sees No Radiation at Harmful Levels Reaching U.S. From Damaged Japanese Nuclear Power Plants  
**Attachments:** 11-046.docx

For Immediate Release

YY/175



# 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](mailto:opa.resource@nrc.gov) Site: [www.nrc.gov](http://www.nrc.gov)

Blog: <http://public-blog.nrc-gateway.gov>

No. 11-046

March 13, 2011

**(Revised)**

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In response to nuclear emergencies, the NRC works with other U.S. agencies to monitor radioactive releases and predict their path. All the available information indicates weather conditions have taken the small releases from the Fukushima reactors out to sea away from the population. Given the thousands of miles between the two countries, Hawaii, Alaska, the U.S. Territories and the U.S. West Coast are not expected to experience any harmful levels of radioactivity.

During a nuclear event the NRC has requirements to protect populations around reactors. For instance, the U.S. evacuation standard at 10 miles is roughly equivalent to the 20-kilometer distance recommended in Japan. The United States also uses sheltering in place and potassium iodide, protective measures also available in Japan. United States citizens in Japan are encouraged to follow the protective measures recommended by the Japanese government. These measures appear to be consistent with steps the United States would take.

The NRC will not comment on hour-to-hour developments at the Japanese reactors. This is an ongoing crisis for the Japanese who have primary responsibility.

###

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](http://www.nrc.gov) also offers a SUBSCRIBE link. E-mail notifications are sent to subscribers when news releases are posted to NRC's website.

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**From:** LIA07 Hoc  
**Sent:** Sunday, March 13, 2011 10:46 PM  
**To:** LIA09 Hoc  
**Subject:** Emailing: USNRC Earthquake-Tsunami Update.031311.2200EDT.docx  
**Attachments:** USNRC Earthquake-Tsunami Update.031311.2200EDT.docx

The message is ready to be sent with the following file or link attachments:

USNRC Earthquake-Tsunami Update.031311.2200EDT.docx

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.

YYY/176

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**From:** LIA03 Hoc  
**Sent:** Sunday, March 13, 2011 12:07 PM  
**To:** LIA06 Hoc  
**Subject:** FW: DC SVTC Sunday  
**Attachments:** Status of Japanese NPP 1130 03132011.pdf; Fax re communication chanel\_13-3-2011 10hrs.docx

-----Original Message-----

From: LIA07 Hoc  
Sent: Sunday, March 13, 2011 10:36 AM  
To: LIA09 Hoc; LIA03 Hoc  
Subject: FW: DC SVTC Sunday

-----Original Message-----

From: HOO Hoc  
Sent: Sunday, March 13, 2011 10:34 AM  
To: LIA01 Hoc; LIA02 Hoc; LIA04 Hoc; LIA07 Hoc; LIA11 Hoc; LIA12 Hoc; Gott, William; Marshall, Jane; McDermott, Brian; Morris, Scott; Thorp, John  
Subject: FW: DC SVTC Sunday

-----Original Message-----

From: NOC.SWO.Restricted [mailto:NOC.SWO.Restricted@dhs.gov]  
Sent: Sunday, March 13, 2011 8:50 AM  
To: HOO Hoc; Energy (DOE)  
Cc: Stern, Warren; Triner, Donald; NOC-Director; NOC-NDD; DiFalco, Frank; Chavez, Richard; de Vallance, Brian; CAT, OPS; McNamara, Phil; NOC.SWO.Restricted; daniel.poneman@hq.doe.gov; Jaczko, Gregory  
Subject: DC SVTC Sunday

NRC OPS / DOE OPS,

Per request of Mr. Warren Stern, Director, DHS Domestic Nuclear Detection Office, the attached information is for your leadership (Mr. Greg Jaczko, Mr. Dan Poneman, and Mr. Jim Steinberg). Please forward as appropriate.

VR,  
John Knox  
Senior Watch Officer  
National Operations Center  
Department of Homeland Security  
202-282-8101

LYY/177  
LW/KKX

-----Original Message-----

From: Stern, Warren [mailto:Warren.Stern@dhs.gov]  
Sent: Sunday, March 13, 2011 8:13 AM  
To: Stern, Warren; Triner, Donald; NOC-Director; NOC-NDD; Restricted, NOC SWO  
Cc: DiFalco, Frank; Chavez, Richard; de Vallance, Brian; CAT, OPS; McNamara, Phil  
Subject: RE: DC SVTC Sunday

-----Original Message-----

From: Stern, Warren  
Sent: Sunday, March 13, 2011 7:55 AM  
To: Triner, Donald; NOC-Director; NOC-NDD; 'noc.swo.restricted@dhs.gov'  
Cc: DiFalco, Frank; Chavez, Richard; de Vallance, Brian; 'ops.cat@dhs.gov'; McNamara, Phil  
Subject: RE: DC SVTC Sunday

Two requests. 1) Please confirm the SVTS is still on for 11 AM today.  
2) Please send to me Dan Ponneman's email address at DOE.

Thank you.

-----Original Message-----

From: Triner, Donald  
Sent: Saturday, March 12, 2011 1:43 PM  
To: NOC-Director; NOC-NDD; 'noc.swo.restricted@dhs.gov'  
Cc: DiFalco, Frank; Chavez, Richard; de Vallance, Brian; 'ops.cat@dhs.gov'; Stern, Warren; McNamara, Phil  
Subject: DC SVTC Sunday

Mission: Plan on a DC SVTC Sunday 1100-1200 in the scif in bldg 5. Plan for Chavez, Fugate and Stern as participants and potentially S2.

Topic: Japan earthquake/tsunami support

NOC Tasks:

1. Same as yesterday, work with dhs vtc support and whsr on confirmation and any time changes.
2. Not later than 1000 (or 1 hour before svtc) Noc cat imo prep slb for Chavez and de Vallance, it could be S2 as well. Tom Wallace did a good job today.
3. When we get confirmation of time, email notify de Vallance, Chavez, Fugate, Stern, and Phil McNamara (dhs execsec). If we have an NSS unclas agenda attach it to the notification.
4. Follow up email with phone call to Chavez and de Vallance to confirm s2 desires for participants or if s2 plans to attend. Notify FEMA NWC and DNDO JAC to ensure they are aware and support their principals.
5. Ensure room is ready and accessible.
6. Have 03 printed copies of last two noc phase updates and slb delivered to Rich Chavez for the SVTC. If we have the agenda include it please.

NOTE for ALCON: Even with frequent requests to the whsr last night and this morning, NOC did not get confirmation of time until 0915 this morning for a 1100 svtc.

Any questions contact me.



Don

Don Triner  
[donald.triner@dhs.gov](mailto:donald.triner@dhs.gov)  
DHS/OPS

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**From:** LIA02 Hoc  
**Sent:** Monday, March 14, 2011 6:32 AM  
**To:** Doane, Margaret  
**Cc:** Abrams, Charlotte; Smith, Brooke; Mamish, Nader; Fragoyannis, Nancy; Stahl, Eric; Schwartzman, Jennifer; Foggie, Kirk; Ramsey, Jack; Henderson, Karen; LIA06 Hoc; LIA03 Hoc  
**Subject:** International Team - Turnover Items at 7am

Margie et al –

**The latest from the international liaisons (Nancy and Eric; 11pm-7am shift) and items for the team coming in at 7am:**

- 1. NRC Assistance to Japan.** At 6:00AM (Washington time), Jim Trapp notified the NRC Executive Team that the Government of Japan has requested U.S. Government assistance with cooling the reactor. NRC International Liaisons are engaged with DOS about coordinating this assistance. A conference call is currently being arranged by DOS (Priya Shete, 202-647-6611) to discuss coordinated efforts (helicopters, water transportation, pumps, heavy equipment, etc.). In addition, Government of Japan has asked for NRC experts to be embedded at the 'Japanese Ops Center.' Lastly, the U.S. Ambassador wants additional NRC staff to assist Embassy-Tokyo. Currently, amount of staff and specific persons to be determined.
- 2. 8:30AM teleconference with UK HSE.** Call was requested by NRC based on request from DOS for NRC to reach back out to HSE prior to Secretary Clinton's 14 March meeting with UK Foreign Minister. Call has been confirmed with HSE. An NRC Reactor Expert, Dose Expert and International Liaison should all be on the call. DOS has been notified of the call. NRC should follow-up with DOS (Priya Shete or replacement at 202-647-6611) concerning the call's outcome. NRC International liaison will initiate call to 44 151 951 4976 (or alternate 44 151 951 4149). POC for email exchange at UK HSE has been Sandra Little (email address: [Charles.Temple@hse.gsi.gov.uk](mailto:Charles.Temple@hse.gsi.gov.uk)).
- 3. 10:00AM Japan Earthquake Task Force Interagency Conference Call.** Agenda for 10:00AM call will be provided via email. International liaison should plan on participating on call. Nancy, Nate and Chris Miller participated in 03:00AM call.
- 4. 10:00AM Call with Canada.** Last call was held at 10:00PM (Washington time). Mark Shaffer said that the Canadian Mission is interested in engaging with the NRC as well.
- 5. Status of Jim Trapp and Tony Ulses.** Both Jim and Tony are in Tokyo working with U.S. Embassy staff. Jim participated in Ambassador Roos's press conference and was available to answer technical questions at approximately 03:00AM Washington-time. Report of press briefing/video will be provided.
- 6. Status of Japanese nuclear plants.** The latest information on Japan's nuclear plant, including Jim Trapp's updates, are located in the log. The following info, current as of 02:30AM, was provided to Mark Shaffer. "It appears that Fukushima-Daiichi has lost the "capability to cool." On Units 1 and 3 this is because of an inability to refill the cooling water ponds they were taking a suction on to inject seawater into the reactor vessel and primary containment. For Unit 2, it appears that they have lost the ability for RCIC to operate. All three units have been in this state for the past 12 hours. Currently, all cores remain covered. The level of Unit 2 is trending in a downward direction at this time.
- 7. International Team coverage.** Please continue populating the international liaison team coverage document. It is saved on the LIA02 desktop. We currently have coverage through Monday afternoon.

Eric & Nancy

8/11/11  
XXX

**Bozin, Sunny**

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**From:** OPA Resource  
**Sent:** Monday, March 14, 2011 12:02 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; 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: Japanese Government Asks for Assistance with Reactor Events; U.S. Government and NRC Preparing Response  
**Attachments:** 11-047.docx

For release and posting in approximately 15 minutes.

Office of Public Affairs  
US Nuclear Regulatory Commission  
301-415-8200  
[opa.resource@nrc.gov](mailto:opa.resource@nrc.gov)

6211/XXX



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# 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](mailto:opa.resource@nrc.gov) Site: [www.nrc.gov](http://www.nrc.gov)

Blog: <http://public-blog.nrc-gateway.gov>

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No. 11-047

March 14, 2011

## **JAPANESE GOVERNMENT ASKS FOR ASSISTANCE WITH REACTOR EVENTS; U.S. GOVERNMENT AND NRC PREPARING RESPONSE**

The Japanese government has formally asked for assistance from the United States as it continues to respond to nuclear power plant cooling issues triggered by an earthquake and tsunami on March 11. As part of a larger U.S. government response, the NRC is considering possible replies to the request, which includes providing technical advice.

Included in a U.S. Agency for International Development (USAID) team dispatched earlier to Japan to assist with the disaster are two boiling-water reactor (BWR) experts from the NRC. They are currently in Tokyo offering technical assistance. USAID is the federal government agency primarily responsible for providing help to countries recovering from a disaster.

The NRC has been monitoring the Japanese reactor events via its Headquarters Operations Center in Rockville, Md., on a 24-hour-a-day basis.

The NRC will not comment on hour-to-hour developments at the Japanese reactors. This is an ongoing crisis for the Japanese who have primary responsibility.

###

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](http://www.nrc.gov) also offers a SUBSCRIBE link. E-mail notifications are sent to subscribers when news releases are posted to NRC's website.

**Allen, Linda**

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**From:** Hiltz, Thomas  
**Sent:** Wednesday, April 13, 2011 11:36 AM  
**To:** Allen, Linda  
**Subject:** FW: Official Use Only: USNRC Earthquake-Tsunami Update 03.20.11--1800 EDT  
**Attachments:** USNRC Earthquake-Tsunami Update.032011.1800EDT.pdf

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**From:** Tschiltz, Michael  
**Sent:** Monday, March 21, 2011 7:40 AM  
**To:** Habighorst, Peter; Hiltz, Thomas; Smith, Brian; Silva, Patricia; Campbell, Larry; Johnson, Robert  
**Cc:** Bailey, Marissa; Smith, James; Kinneman, John  
**Subject:** Official Use Only: USNRC Earthquake-Tsunami Update 03.20.11--1800 EDT

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Branch Chiefs.. please share with your staff.. **Please note that this information is "Official Use Only" and is only being shared within the federal family.**

Thanks.. Mike

---

**From:** LIA07 Hoc  
**Sent:** Sun Mar 20 17:56:57 2011  
**Subject:** USNRC Earthquake-Tsunami Update 03.20.11--1800 EDT

Attached, please find the **1800 EDT March 20, 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.

- Caroline

Caroline Nguyen  
Office of Nuclear Reactor Regulation  
US Nuclear Regulatory Commission  
[Caroline.Nguyen@nrc.gov](mailto:Caroline.Nguyen@nrc.gov)  
[LIA07.HOC@nrc.gov](mailto:LIA07.HOC@nrc.gov) (Operations Center)

444/180

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**From:** McNamara, Nancy  
**Sent:** Monday, March 14, 2011 12:23 PM  
**To:** Tift, Doug; LIA04 Hoc; Trojanowski, Robert; Woodruff, Gena; Barker, Allan; Logaras, Harral; Maier, Bill; Browder, Rachel; Turtill, Richard; Virgilio, Rosetta  
**Cc:** Hayden, Elizabeth; Harrington, Holly; Burnell, Scott; Thaggard, Mark; Janda, Donna; Orendi, Monica  
**Subject:** RE: Emailing: State Q&A Rev 1.pdf for Distribution to SLOs

Region I sent it to SLOs only. We DID NOT include the Radiation Safety Program Control Directors.

-----Original Message-----

**From:** Tift, Doug  
**Sent:** Monday, March 14, 2011 12:20 PM  
**To:** LIA04 Hoc; McNamara, Nancy; Trojanowski, Robert; Woodruff, Gena; Barker, Allan; Logaras, Harral; Maier, Bill; Browder, Rachel; Turtill, Richard; Virgilio, Rosetta  
**Cc:** Hayden, Elizabeth; Harrington, Holly; Burnell, Scott; Thaggard, Mark  
**Subject:** RE: Emailing: State Q&A Rev 1.pdf for Distribution to SLOs

I distributed a version of this document with the non-public information removed to the region 1 states. Yes, we have received additional questions since this Q&A was distributed.

-Doug

-----Original Message-----

**From:** LIA04 Hoc  
**Sent:** Monday, March 14, 2011 12:18 PM  
**To:** McNamara, Nancy; Tift, Doug; Trojanowski, Robert; Woodruff, Gena; Barker, Allan; Logaras, Harral; Maier, Bill; Browder, Rachel; Turtill, Richard; Virgilio, Rosetta  
**Cc:** Hayden, Elizabeth; Harrington, Holly; Burnell, Scott; Thaggard, Mark  
**Subject:** RE: Emailing: State Q&A Rev 1.pdf for Distribution to SLOs

Question from the Liaison Team. Was the attachment distributed to the Individual SLO's or did it only go as far and the RSLO's and are the questions about the individual reactors coming in after they have seen this?

Amanda Noonan  
State Liaison – Liaison Team  
Incident Response Center

-----Original Message-----

**From:** LIA04 Hoc  
**Sent:** Sunday, March 13, 2011 3:38 AM  
**To:** McNamara, Nancy; Tift, Doug; Trojanowski, Robert; Woodruff, Gena; Barker, Allan; Logaras, Harral; Maier, Bill; Browder, Rachel; Turtill, Richard  
**Cc:** Hayden, Elizabeth; Harrington, Holly; Burnell, Scott; Thaggard, Mark; Blount, Tom; LIA06 Hoc; LIA04 Hoc; LIA02 Hoc; LIA03 Hoc; LIA12 Hoc; LIA11 Hoc; LIA01 Hoc; LIA10 Hoc  
**Subject:** FW: Emailing: State Q&A Rev 1.pdf for Distribution to SLOs

181/XXX

RSLOs - The information attached has been vetted with OPA and the NRC Executive Team and has been approved for dissemination to the Governor-appointed State Liaison Officers.

Rich Turtill will be reporting to the Ops Center @ 7:00 am Sunday 3/13 and will be your POC.

Thank you for your assistance today.

Rosetta

-----Original Message-----

From: LIA09 Hoc

Sent: Sunday, March 13, 2011 3:28 AM

To: LIA04 Hoc

Subject: Emailing: State Q&A Rev 1.pdf

The message is ready to be sent with the following file or link attachments:

State Q&A Rev 1.pdf

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.

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**From:** Browder, Rachel  
**Sent:** Monday, March 14, 2011 12:30 PM  
**To:** LIA04 Hoc; McNamara, Nancy; Tift, Doug; Trojanowski, Robert; Woodruff, Gena; Barker, Allan; Logaras, Herral; Maier, Bill; Turtill, Richard; Virgilio, Rosetta  
**Cc:** Hayden, Elizabeth; Harrington, Holly; Burnell, Scott; Thaggard, Mark  
**Subject:** RE: Emailing: State Q&A Rev 1.pdf for Distribution to SLOs  
**Attachments:** RE\_NRC Continues to Track Earthquake and Tsunami Issues.pdf

The email request from CA came in on Friday, March 11th, before the Q&As went out. However, for some reason - the email message didn't show up in my inbox until this morning - not unless I missed it. But I have been querying "unread mail".

RIV PA has the information from RIV DRP for SONGS and Diablo Canyon to provide to the Public Affairs contact in CA.

Thanks,  
Rachel

-----Original Message-----

**From:** LIA04 Hoc  
**Sent:** Monday, March 14, 2011 11:18 AM  
**To:** McNamara, Nancy; Tift, Doug; Trojanowski, Robert; Woodruff, Gena; Barker, Allan; Logaras, Herral; Maier, Bill; Browder, Rachel; Turtill, Richard; Virgilio, Rosetta  
**Cc:** Hayden, Elizabeth; Harrington, Holly; Burnell, Scott; Thaggard, Mark  
**Subject:** RE: Emailing: State Q&A Rev 1.pdf for Distribution to SLOs

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Amanda Noonan  
State Liaison – Liaison Team  
Incident Response Center

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**From:** LIA04 Hoc  
**Sent:** Sunday, March 13, 2011 3:38 AM  
**To:** McNamara, Nancy; Tift, Doug; Trojanowski, Robert; Woodruff, Gena; Barker, Allan; Logaras, Herral; Maier, Bill; Browder, Rachel; Turtill, Richard  
**Cc:** Hayden, Elizabeth; Harrington, Holly; Burnell, Scott; Thaggard, Mark; Blount, Tom; LIA06 Hoc; LIA04 Hoc; LIA02 Hoc; LIA03 Hoc; LIA12 Hoc; LIA11 Hoc; LIA01 Hoc; LIA10 Hoc  
**Subject:** FW: Emailing: State Q&A Rev 1.pdf for Distribution to SLOs

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Rich Turtill will be reporting to the Ops Center @ 7:00 am Sunday 3/13 and will be your POC.

Thank you for your assistance today.

281/182  
TKK

Rosetta

-----Original Message-----

From: LIA09 Hoc

Sent: Sunday, March 13, 2011 3:28 AM

To: LIA04 Hoc

Subject: Emailing: State Q&A Rev 1.pdf

The message is ready to be sent with the following file or link attachments:

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**From:** Logaras, Harral  
**Sent:** Monday, March 14, 2011 12:32 PM  
**To:** LIA04 Hoc  
**Cc:** Hayden, Elizabeth; Harrington, Holly; Burnell, Scott; Thaggard, Mark; McNamara, Nancy; Tift, Doug; Trojanowski, Robert; Woodruff, Gena; Barker, Allan; Maier, Bill; Browder, Rachel; Turtill, Richard; Virgilio, Rosetta  
**Subject:** RE: Emailing: State Q&A Rev 1.pdf for Distribution to SLOs

Region III has shared this with the Region III State Liaison Officers and we have not received any questions from them.

Sincerely,

Harral Logaras  
U. S. NRC Region III  
Regional Government Liaison  
630-829-9659

Link to the Award Winning NRC Information Digest <http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1350/v22/sr1350v22.pdf>

Link to NRC Fact Sheets and Brochures <http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/>

-----Original Message-----

From: LIA04 Hoc  
Sent: Monday, March 14, 2011 11:18 AM  
To: McNamara, Nancy; Tift, Doug; Trojanowski, Robert; Woodruff, Gena; Barker, Allan; Logaras, Harral; Maier, Bill; Browder, Rachel; Turtill, Richard; Virgilio, Rosetta  
Cc: Hayden, Elizabeth; Harrington, Holly; Burnell, Scott; Thaggard, Mark  
Subject: RE: Emailing: State Q&A Rev 1.pdf for Distribution to SLOs

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Amanda Noonan  
State Liaison – Liaison Team  
Incident Response Center

YXX/183

-----Original Message-----

From: LIA04 Hoc  
Sent: Sunday, March 13, 2011 3:38 AM  
To: McNamara, Nancy; Tift, Doug; Trojanowski, Robert; Woodruff, Gena; Barker, Allan; Logaras, Harral; Maier, Bill; Browder, Rachel; Turtill, Richard  
Cc: Hayden, Elizabeth; Harrington, Holly; Burnell, Scott; Thaggard, Mark; Blount, Tom; LIA06 Hoc; LIA04 Hoc; LIA02 Hoc; LIA03 Hoc; LIA12 Hoc; LIA11 Hoc; LIA01 Hoc; LIA10 Hoc  
Subject: FW: Emailing: State Q&A Rev 1.pdf for Distribution to SLOs

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Thank you for your assistance today.

Rosetta

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Sent: Sunday, March 13, 2011 3:28 AM

To: LIA04 Hoc

Subject: Emailing: State Q&A Rev 1.pdf

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**From:** Trojanowski, Robert  
**Sent:** Monday, March 14, 2011 12:42 PM  
**To:** LIA04 Hoc; McNamara, Nancy; Tift, Doug; Woodruff, Gena; Barker, Allan; Logaras, Harral; Maier, Bill; Browder, Rachel; Turtill, Richard; Virgilio, Rosetta  
**Cc:** Hayden, Elizabeth; Harrington, Holly; Burnell, Scott; Thaggard, Mark  
**Subject:** RE: Emailing: State Q&A Rev 1.pdf for Distribution to SLOs

While the Region II PIOs have been busy responding to media outlets, we have received no inquiries from State/ local governments with respect to the Japan event.

-----Original Message-----

From: LIA04 Hoc  
Sent: Monday, March 14, 2011 12:18 PM  
To: McNamara, Nancy; Tift, Doug; Trojanowski, Robert; Woodruff, Gena; Barker, Allan; Logaras, Harral; Maier, Bill; Browder, Rachel; Turtill, Richard; Virgilio, Rosetta  
Cc: Hayden, Elizabeth; Harrington, Holly; Burnell, Scott; Thaggard, Mark  
Subject: RE: Emailing: State Q&A Rev 1.pdf for Distribution to SLOs

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Amanda Noonan  
State Liaison – Liaison Team  
Incident Response Center

-----Original Message-----

From: LIA04 Hoc  
Sent: Sunday, March 13, 2011 3:38 AM  
To: McNamara, Nancy; Tift, Doug; Trojanowski, Robert; Woodruff, Gena; Barker, Allan; Logaras, Harral; Maier, Bill; Browder, Rachel; Turtill, Richard  
Cc: Hayden, Elizabeth; Harrington, Holly; Burnell, Scott; Thaggard, Mark; Blount, Tom; LIA06 Hoc; LIA04 Hoc; LIA02 Hoc; LIA03 Hoc; LIA12 Hoc; LIA11 Hoc; LIA01 Hoc; LIA10 Hoc  
Subject: FW: Emailing: State Q&A Rev 1.pdf for Distribution to SLOs

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Thank you for your assistance today.

Rosetta

-----Original Message-----

From: LIA09 Hoc

481/KXX

Sent: Sunday, March 13, 2011 3:28 AM  
To: LIA04 Hoc  
Subject: Emailing: State Q&A Rev 1.pdf

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**From:** Dyer, Jim  
**Sent:** Wednesday, April 13, 2011 2:03 PM  
**To:** RST01 Hoc; Hoc, PMT12; OST01 HOC  
**Subject:** Here's my draft one pager for turnover

Please comment by 2:15 pm or it will go as is. Jim

44/185

## Bozin, Sunny

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**From:** Harrington, Holly  
**Sent:** Monday, March 14, 2011 8:48 PM  
**To:** OPA Resource; 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; 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:** RE: Press Release: NRC Sends Additional Experts to Assist Japan  
**Attachments:** 11-048.docx

This press release has gone out with slight change. See attached.

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**From:** OPA Resource  
**Sent:** Monday, March 14, 2011 6:59 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; 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: NRC Sends Additional Experts to Assist Japan

For immediate release.

Office of Public Affairs  
US Nuclear Regulatory Commission  
301-415-8200  
[opa.resource@nrc.gov](mailto:opa.resource@nrc.gov)

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# 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](mailto:opa.resource@nrc.gov) Site: [www.nrc.gov](http://www.nrc.gov)

Blog: <http://public-blog.nrc-gateway.gov>

No. 11-048

March 14, 2011

### NRC SENDS ADDITIONAL EXPERTS TO ASSIST JAPAN

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The first members of the team left the United States Monday evening and were due to arrive in Tokyo Wednesday afternoon. The team includes additional reactor experts, international affairs professional staffers, and a senior manager from one of the NRC's four operating regions.

The team members come from the NRC's headquarters in Rockville, Md., and from offices in King of Prussia, Pa., and Atlanta. The team has been instructed to: conduct all activities needed to understand the status of efforts to safely shut down the Japanese reactors; better understand the potential impact on people and the environment of any radioactivity releases; if asked, provide technical advice and support through the U.S. ambassador for the Japanese government's decision making process; and draw on NRC-headquarters expertise for any other additional technical requirements. The team will be in communication with the Japanese regulator, the U.S. Embassy, NRC headquarters, and other government stakeholders as appropriate.

The team is led by Charles A. Casto, deputy regional administrator of the NRC's Center of Construction Inspection, based in NRC's office in Atlanta. Casto has worked in the commercial nuclear power industry at three different nuclear power plants, including Browns Ferry, which has three boiling water reactors, operated by the Tennessee Valley Authority in Alabama. He has also worked as a licensed reactor operator and operator instructor. Casto will provide a single point of contact for the U.S. Ambassador in Japan on nuclear reactor issues.

The two reactor experts sent Saturday to Japan will participate as members of this assistance team.

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**From:** LIA06 Hoc  
**Sent:** Monday, March 14, 2011 10:48 PM  
**To:** RST01 Hoc  
**Subject:** GE Equipment List

Rollie, this is Tim. This is my email station. Can I get GE's input on the equipment list?

2/14/11

# THE ENERGY DAILY

Business and Policy Coverage of the Power, Natural Gas, Oil, Nuclear and Renewables Industries

www.TheEnergyDaily.com

## *EPA Requiring Three Oklahoma Coal Plants To Scrub Or Use Gas*

BY CHRIS HOLLY

In an unusual ultimatum, the Environmental Protection Agency said last week that it is proposing to take over visibility portions of the Oklahoma Clean Air Act implementation plan to require three coal-fired power plants in the state either to switch to natural gas or install sulfur dioxide scrubbers within three years.

EPA on March 7 announced a proposed federal implementation plan (FIP) to improve visibility in the Oklahoma region by reducing emissions of sulfur dioxide, which combines with other chemicals in the air to form particles that can produce regional haze.

The proposed federal plan would target two coal-fired plants owned by Oklahoma Gas & Electric (OG&E) and one plant owned by Public Service Co. of Oklahoma (PSO), a subsidiary of American Electric Power Co. All three of the units are about 30 years old, and burn low-sulfur coal from Wyoming's Powder River Basin.

*(Continued on p. 3)*

## **Nuke Industry Rocked By Quake Emergency At Japanese Reactor**

BY GEORGE LOBSENZ

**In a safety scare that promises to reopen controversy over nuclear power, the world watched Friday as the operator of a Japanese reactor scrambled desperately to restore emergency core cooling capability after a massive earthquake knocked out key systems, the plant's backup diesel generators failed and the reactor suffered a mysterious loss of cooling water needed to prevent fuel overheating.**

The crisis at the six-unit Fukushima Daiichi nuclear power plant, where three boiling water reactors were being operated by Tokyo Electric Power Company (TEPCO), prompted an evacuation of some 1,000 nearby residents and an unprecedented relief flight by the U.S. Air Force to bring in additional coolant to resupply the plant and prevent any overheating of radioactive fuel, the precursor to a potentially catastrophic core meltdown.

There was no immediate explanation from plant officials or the Japanese government or nuclear industry as to how the plant lost coolant.

While earthquakes can rupture plant pipes carrying cooling wa-

*(Continued on p. 4)*

## **Air Rules Could Risk 11 Percent Of PJM Generation**

Anticipated clean air regulations could force

BY JEFF BEATTIE

the retirement of as much as 19,000 megawatts of coal capacity in the Mid-Atlantic—or 11 percent of the region's generation—unless power prices rise to levels that make operation of the plants profitable, the independent market monitor for PJM Interconnection LCC said Thursday.

That was a key finding of a 2011 "State of the Market" report for PJM Interconnection LLC, which runs the grid for 13 Mid-Atlantic states and the District of Columbia. The report was

prepared by Monitoring Analytics, a consulting firm that serves as a federally required independent monitor of the markets that PJM runs.

As a primary conclusion, the market monitor said most markets in PJM—for power, capacity and most so-called "ancillary services"—are competitive. For example, the market monitor said the markup of locational marginal energy prices last year averaged only 0.6 percent—a sign of competitive health because competition typically forces down profit margins.

Importantly, however, the market monitor said the market for regulation services—short bursts of power used to keep the grid balanced—was not competitive.

Roughly echoing concerns expressed in last year's report, the market monitor said PJM's regulation service market was not structurally competitive as a result of rules the grid operator enacted in 2008.

The report says the structural problem is routinely fixed because mitigation measures keep regulation services prices at competitive levels.

But to fix the problem longer-term, the market monitor urged PJM to tweak its definition of opportunity costs in PJM's regulation services market, a

*(Continued on p. 2)*

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## Soros, Dell, Albright Target Energy Investments

Wealthy financier George Soros, an investment firm that manages computer mogul Michael Dell's money and a fund led by former Secretary of State Madeline Albright last week announced separate investments in the energy sector that together will total \$1 billion.

In a Securities and Exchange Committee filing Tuesday, MSD Capital LP, the New York-based firm that manages Dell's \$14 billion fortune, revealed it has

raised some \$780 million from 25 investors to form a new hedge fund MSD Energy Partners LP.

The fund will take long and short positions in stocks and other securities in various sectors of the U.S. energy economy, including renewable energy, oil and natural gas.

A spokesman for MSD declined comment on the formation of the energy fund Friday.

Meanwhile, APR Energy LLC, a leading provider of major turnkey temporary power generation services, announced Tuesday that private investment funds managed separately by Soros Fund Management LLC and an existing investor, Albright Capital Management LLC, have committed \$250 million to the Jacksonville, Fla.-based firm.

APR is a subsidiary of power engineering firm Alstom.

## Air Rules Could Risk 11 Percent Of PJM Generation... (Cont'd from p. 1)

definition the market monitor called "inconsistent with economic logic."

Opportunity cost reflects the price a provider could have obtained by selling his power as part of another product, and PJM's rules allow regulation service providers to include a component of those costs in their market offers.

The market monitor said PJM's definition of opportunity cost produces offers into regulation services market that are above competitive levels at some times and below competitive levels at other times.

"The rules responsible for this outcome were flawed when implemented and remain flawed, although PJM has corrected some issues," said Monitoring Analytics President Joe Bowring in a press release accompanying Thursday's report.

A PJM spokesman Friday acknowledged a "disagreement" on the pricing of regulation services between the market monitor and PJM staff.

For the coal fleet in PJM, the report suggested that plants comprising nearly 7,000 megawatts (MW) of capacity are already having some trouble staying financially viable at current power prices.

That is presumably because the price of the primary competing electric generation fuel—natural gas—has been steadily low for months.

And because gas plant prices generally set market-clearing prices in PJM, coal generators have been left with the worst of two worlds—lower revenues from lower power prices and fuel prices that have remained steady while competitors' fuel prices have dipped.

"Analysis of actual 2010 net revenues shows that 6,769 MW of sub-critical and supercritical coal units did not cover their avoidable costs even after capacity revenues were considered, of which 6,021 MW were located in the [New Jersey] region," said the market monitor report.

"Units accounting for 4,862 MW are recovering less than 75 percent of avoidable costs and units accounting for 2,763 MW are recovering less than 65 percent of avoidable costs."

Avoidable costs are mostly non-fixed costs that would go

away if a plant halted generation. They are important economically because plant shutdown decisions are based on whether revenues exceed avoidable costs.

In a brief interview Friday, Bowring said that as a practical matter not all of the coal plants cited are at immediate risk of shutdown because prices could rise and for other reasons.

He pointed to those recovering less than 65 percent of avoidable costs as likely being at short-term risk.

Financial problems will likely get worse for parts of PJM's coal fleet after the Environmental Protection Agency issues anticipated rules aimed at limiting emissions of fine particulates, ozone and hazardous air pollutants such as mercury, the report says.

"Analysis of units lacking the environmental controls necessary to meet likely regulatory requirements shows that between 14,345 MW and 19,068 MW of installed capacity, depending on the nature of the requirements, would require an increase in energy or capacity revenue in order to cover their avoidable costs including project investment costs and remain in operation if faced with mandatory investment in environmental controls," said the market monitor.

The market monitor said the key factor in whether retirements would be in the high end of the range or the low end of the range is how tightly

EPA decides to clamp down on emission of nitrogen oxides, a precursor to ozone.

Bowring stressed Friday that his report does not suggest all those plants will shut down immediately when the EPA rules come into effect, and that increases in power and capacity prices might keep some in business.

Rather, the report says the plants "face risks of increased capital expenditures, and the market will sort out how that gets addressed," Bowring said.

The market monitor's report does not estimate how much capacity or energy prices would need to rise to make the economically vulnerable coal plants profitable under new EPA rules. Conversely, it also does not project the impact on prices of retiring some 14,000 to 19,000 MW of coal generation.

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## Duke Offers New Cost Cap Plan For Embattled Edwardsport Plant

Duke Energy Indiana last week offered to state regulators a new cost cap for its proposed Edwardsport gasified coal plant, saying it would charge ratepayers no more than \$2.72 billion, excluding financing costs, for the state-of-art clean coal facility.

Duke also proposed rate-related adjustments that would lower the overall customer rate increase related to the project from an average of about 19 percent to about 16 percent. The average residential homeowner impact would be about 14 percent, the company said Thursday.

Duke also offered to waive a deferred tax incentive previously offered by the Indiana Utility Regulatory Commission (IURC), and a reduction in depreciation expense charged to custom-

ers. Duke said customers also would benefit from "bonus depreciation," a federal tax incentive provided for major projects under the Tax Relief Unemployment Insurance Reauthorization and Job Creation Act of 2010.

"The effect of these proposals would be to bring the project's near-term rate impact to approximately the same level it would have been under the currently approved \$2.35 billion cost estimate," Duke Energy Indiana President Doug Esamann said in a Thursday press release. "We believe this approach balances four important objectives: the continuing need for new power generation; modernizing Indiana's aging power system; reducing the customer rate impact; and giving shareholders a rea-

sonable return on their investment."

The proposed hard cap is about \$255 million lower than a cap included in a settlement agreement announced in September by Duke and several consumer groups. Under that settlement, the costs of Edwardsport would have been capped at \$2.975 billion, with any construction costs above \$2.76 billion being subject to an IURC prudence review before ratepayers could be charged.

However, that settlement was withdrawn in the wake of an ethics scandal that surfaced in October involving improper communications between former IURC Chairman David Hardy and several Duke Indiana officials.

Since the scandal erupted, two senior Duke employees have been fired by the company, and the Edwardsport plant has been subjected to increased regulatory scrutiny amid calls by Indiana consumer activists to scrap the plant, which they contend is too costly.

## EPA Requiring Coal Plants To Scrub Or Use Gas... (Cont'd from p. 1)

The Clean Air Act requires states to reduce emissions that contribute to regional haze and to demonstrate "reasonable progress" toward a national goal of achieving natural visibility conditions in so-called "Class 1" areas such as natural parks and wilderness areas.

While EPA proposed to approve portions of Oklahoma's revisions to its state implementation plan aimed at meeting certain requirements of the broader regional haze program, the agency also proposed to disapprove portions addressing requirements for "best available retrofit technology" and the agency's long-term strategy for improving visibility in Class 1 areas.

The agency also is proposing to disapprove portions of Oklahoma's SIP revisions that apply to visibility for the 1997 national ambient air quality standard for ozone and fine particles.

The proposed FIP, EPA said, would address these deficiencies to allow the state to meet the air statute's visibility requirements as well as improving health by reducing pollution.

"The steps we are taking to reduce sulfur pollution from the oldest power plants will improve air quality for generations to come," EPA Region 6 Administrator Al Armendariz said March 7. "Everyone must continue to take efforts to reduce pollution, use cleaner sources of energy and preserve our national wildlife areas."

The proposal has stunned officials at the two affected utilities, who say the tight three-year deadline would lead to dramatic cost increases for their customers as the utilities scrambled either to install scrubbers or repower the plants to burn natural gas.

"We're very disappointed and disagree with today's announcement," OG&E spokesman Brian Alford said March 7. "The Oklahoma plan put forward a more cost-effective option that closely followed the EPA's own rules. And while a conver-

sion to natural gas is an option that both OG&E and the state proposed, we feel it should take place over a much longer time period. We'd like the ability to evaluate other upcoming rules and alternatives that will provide the best solution to address the environmental issues and consider the magnitude of cost increases to customers' bills."

PSO spokesman Stan Whiteford sounded similar concerns about the compliance schedule EPA proposed, noting that the two affected coal units at PSO's Northeastern plant have a combined capacity of 940 megawatts and comprise the utility's biggest baseload plant.

"We think that the three-year time frame is unreasonably short," Whiteford said Friday. "We worked very closely with the [Oklahoma Department of Environmental Quality] and felt very strongly that it was a plan that could receive the same results at much lower cost."

The move also angered Sen. James Inhofe (R-Okla.), a frequent EPA antagonist who has blasted the agency's greenhouse gas regulations as a plot to undermine coal-fired electricity generation.

"State officials in Oklahoma did the right thing: they worked with state utilities to devise a plan that will continue progress in cleaning the air while ensuring affordable, reliable electricity for consumers," Inhofe said March 7. "But that was too much for the Obama EPA, which rejected the Oklahoma-led plan in favor of their preferred scheme to put Washington bureaucrats in charge and, ultimately, to make fossil-fuel-based electricity more expensive for consumers."

The Oklahoma Corporation Commission has scheduled a March 23rd hearing to review EPA's proposal, and EPA has set a public hearing on the matter on April 13. The agency also will provide a 60-day public comment period on the federal plan from the date of its publication in the Federal Register, expected soon.

## Obama Stands Ready To Tap SPR; Defends Drilling Policies

Amid more partisan crossfire over his administration's actions on domestic oil production, President Obama said Friday he understands Americans' pain about rising gasoline prices and that he stands ready to tap the Strategic Petroleum Reserve if there are "significant disruptions" in the global oil market.

At a news conference, the president also said he had ordered the Justice Department to work with state attorneys general to prevent any price-gouging by service station operators, and that he was going to do everything possible to calm oil markets anxious about the crisis in Libya and unrest in other Middle East oil-producing nations.

However, Obama suggested the loss of Libyan crude production did not represent a major supply disruption because it represented only a small percentage of world oil supply and could be easily replaced by increased output from Saudi Arabia or other big producers.

"If we see significant disruptions or shifts in the market that are so disconcerting to people that we think a Strategic Petroleum Reserve release might be appropriate, then we'll take that step," he said.

Obama also went out of his way to take on GOP and industry critics who charge he is worsening high gasoline prices by restricting domestic oil production through tighter safety rules on offshore drilling and oil and gas leasing on federal lands.

"Last year, American oil production reached its highest level since 2003," he said. "Let me repeat that: Our oil pro-

duction reached its highest level in seven years. Oil production from federal waters in the Gulf of Mexico reached an all-time high. For the first time in more than a decade, imports accounted for less than half of what we consumed.

"So any notion that my administration has shut down oil production might make for a good political sound bite, but it doesn't match up with reality. We are encouraging offshore exploration and production. We're just doing it responsibly.

"I don't think anybody has forgotten that we're only a few months removed from the worst oil spill in our history," he added. "So what we've done is to put in place common-sense standards like proving that companies can actually contain an underwater spill. And oil companies are stepping up—we've approved more than 35 new offshore drilling permits that meet these new safety and environmental standards."

The president reiterated that in addition to increased oil and gas production, the nation needed to pursue more renewable energy and energy efficiency while also reaching out to new foreign producers. He said he would talk to Brazil's president next week about oil production during a planned visit to that country next week.

Obama also embraced an idea floated by congressional Democrats to pressure drillers on why they are not developing a large number of federal oil and gas leases they already hold.

"Right now, the industry holds leases on tens of millions of acres—both offshore and on land—where they aren't pro-

ducing a thing," he said. "So I've directed the Interior Department to determine just how many of these leases are going undeveloped and report back to me within two weeks so that we can encourage companies to develop the leases they hold and produce American energy."

Republicans and oil industry officials said Obama was mischaracterizing his energy policies, which they said were clearly retarding domestic energy production.

American Petroleum Institute Upstream Director Erik Milito told reporters the administration's view of its offshore drilling program was "unconnected to energy reality." Recent production levels on the U.S. Outer Continental Shelf "are a credit to previous administrations that opened up [oil and gas] development," he said, citing the Deep Water Royalty Relief Act, passed by Congress in 1995 during the Clinton administration.

And the U.S. Chamber of Commerce said "A far more accurate indicator of the impact that the Administration is having on oil exploration is the government's own Energy Information Administration forecasts, which tell us that domestic production of oil will decline by more than 90 million barrels of oil in 2012. Production in the Gulf of Mexico is projected to result in a nearly 30 percent decrease as a result of the administration's moratorium." Meanwhile, Sen. Bill Nelson (D-Fla.) charged that rising oil prices were being fueled by increased speculation in futures markets, saying speculators in oil futures markets have in recent weeks increased their bets by 35 percent that prices will continue to rise. He called on the Commodity Futures Trading Commission to raise margin requirements on oil speculators to dampen the trend.

## Nuke Industry Rocked By Quake At Japanese Reactor... (Cont'd from p. 1)

ter, the Union of Concerned Scientists, a U.S. antinuclear group, said an extended loss of power could cause the Reactor Core Isolation Cooling system at the Fukushima reactor to stop supplying water to the core, potentially allowing fuel rods to be uncovered.

The Fukushima plant's loss of backup diesel generators—needed to operate the plant's emergency core cooling system after the earthquake cut off power supplies to the reactor from the grid—is a problem that has plagued the nuclear industry for years, and the importance of those emergency power supplies was underlined in the Japanese incident.

Such "station blackout" incidents are considered among the most serious accident scenarios in the nuclear industry, but problems with the reliability of backup diesel generators at reactors persist.

The World Nuclear Association (WNA), in an Internet posting that cited Japanese government and industry officials, said mobile power supplies were brought to the plant about nine

hours after the emergency started, restoring the ability to operate plant cooling systems.

However, the WNA posting said the loss of cooling capability had led to a pressure increase inside the reactor's containment building. That raised the possibility that there might need to be a small release of radioactive steam to relieve the pressure buildup, according to media reports Friday.

While other reactors in northeast Japan affected by the quake shut down safely and there were no reports of radioactive leaks, there still were questions about whether other facilities might have pipe breaks, meaning the industry will have to conduct thorough inspections before any plants can be restarted.

Beyond reactors, Japan has a number of other sensitive nuclear facilities, including a spent fuel reprocessing plant at Rokkasho, which the Japan Atomic Industry Forum said was being supplied Friday by emergency diesel generators to maintain safe conditions.

**Bozin, Sunny**

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**From:** OPA Resource  
**Sent:** Tuesday, March 15, 2011 11:41 AM  
**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; 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; Mittyng, 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: (Revised) NRC Sends Additional Experts to Assist Japan  
**Attachments:** 11-048R.docx

Attached to be released in approximately 15 minutes.

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US Nuclear Regulatory Commission  
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[opa.resource@nrc.gov](mailto:opa.resource@nrc.gov)

XXX/189

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Note To Editors: Revision reflects an additional team member, there are now a total of 11 NRC staffers on the assistance team.

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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](http://www.nrc.gov) also offers a SUBSCRIBE link. E-mail notifications are sent to subscribers when news releases are posted to NRC's website.

**Bozin, Sunny**

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**From:** OPA Resource  
**Sent:** Tuesday, March 15, 2011 1:28 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; 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; Mitleyng, 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: NRC Analysis Continues to Support Japan's Protective Actions

To be issued and posted to the live web in 15 minutes.

Office of Public Affairs  
US Nuclear Regulatory Commission  
301-415-8200  
[opa.resource@nrc.gov](mailto:opa.resource@nrc.gov)

YXX/190

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**From:** LIA03 Hoc  
**Sent:** Tuesday, March 15, 2011 1:29 PM  
**To:** LIA06 Hoc  
**Subject:** FW: cabinet press releases

[http://www.kantei.go.jp/foreign/topics/2011/110315\\_0645.html](http://www.kantei.go.jp/foreign/topics/2011/110315_0645.html)

[http://www.kantei.go.jp/foreign/topics/2011/110314\\_1600.html](http://www.kantei.go.jp/foreign/topics/2011/110314_1600.html)

151 / KKK

## Bozin, Sunny

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**From:** OPA Resource  
**Sent:** Tuesday, March 15, 2011 1:30 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; 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; Mittyng, 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: NRC Analysis Continues to Support Japan's Protective Actions  
**Attachments:** 11-049.docx

Attaching the press release would be helpful!

To be issued and posted to the live web in **15 minutes**.

Office of Public Affairs  
US Nuclear Regulatory Commission  
301-415-8200  
[opa.resource@nrc.gov](mailto:opa.resource@nrc.gov)

YYY/192



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# 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](mailto:opa.resource@nrc.gov) Site: [www.nrc.gov](http://www.nrc.gov)

Blog: <http://public-blog.nrc-gateway.gov>

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No. 11-049

March 15, 2011

## **NRC ANALYSIS CONTINUES TO SUPPORT JAPAN'S PROTECTIVE ACTIONS**

NRC analysts overnight continued their review of radiation data related to the damaged Japanese nuclear reactors. The analysts continue to conclude the steps recommend by Japanese authorities parallel those the United States would suggest in a similar situation.

The Japanese authorities Monday recommended evacuation to 20 kilometers around the affected reactors and said that persons out to 30 kilometers should shelter in place.

Those recommendations parallel the protective actions the United States would suggest should dose limits reach 1 rem to the entire body and 5 rem for the thyroid, an organ particularly susceptible to radiation uptake.

A rem is a measure of radiation dose. The average American is exposed to approximately 620 millirems, or 0.62 rem, of radiation each year from natural and manmade sources.

###

News releases are available through a free *listserv* subscription at the following Web address: <http://www.nrc.gov/public-involve/listserv.html>. The NRC homepage at [www.nrc.gov](http://www.nrc.gov) also offers a SUBSCRIBE link. E-mail notifications are sent to subscribers when news releases are posted to NRC's website.

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**From:** LIA06 Hoc  
**Sent:** Tuesday, March 15, 2011 2:00 PM  
**To:** RST01 Hoc  
**Subject:** FW: Messages sent on behalf of the Japanese Delegation to the OECD  
**Attachments:** Notice110315.docx; Map110315.docx; en20110315-1[1].pdf; 11th - Morning 14th March.docx

Some information sent to OECD by the Japanese Foreign Ministry FYI.

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**From:** LIA11 Hoc  
**Sent:** Tuesday, March 15, 2011 12:59 PM  
**To:** LIA06 Hoc  
**Subject:** FW: Messages sent on behalf of the Japanese Delegation to the OECD

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**From:** Cool, Donald  
**Sent:** Tuesday, March 15, 2011 12:56 PM  
**To:** LIA02 Hoc  
**Cc:** LIA07 Hoc; LIA11 Hoc; LIA12 Hoc; Miller, Charles; Piccone, Josephine  
**Subject:** FW: Messages sent on behalf of the Japanese Delegation to the OECD

Information received via email from OECD. Being forwarded to ensure that the Operations Center has the Information.

---

**From:** Serge.GAS@oecd.org [mailto:Serge.GAS@oecd.org]  
**Sent:** Tuesday, March 15, 2011 11:13 AM  
**To:** dewi-vande.weerd@minbuza.nl; ses@nuclear.ntua.gr; stratfordrj@state.gov; martina.palm@bmu.bund.de; massimo.garribba@ec.europa.eu; mhchang@kaeri.re.kr; giuseppe.montesano@enel.it; Miller, Charles; michael.pflugradt@diplo.de; toshihiko.kamada@mofa.go.jp; kjell.bendiksen@ife.no; Cool, Donald; mikulas.turner@ujd.gov.sk; roberto.ranieri@isprambiente.it; arc@csn.es; mperez@delegamexocde.org; zafer.alper@taek.gov.tr; petr\_martinek@mzv.cz; ryan.gilchrist@dfat.gov.au; slozoya@delegamexocde.org; wpjung@konicof.or.kr; anne-laure.rebus@diplomatie.gouv.fr; chris.hoornaert@diplobel.fed.be; tom.eischen@eco.etat.lu; jmredondo@mityc.es; rafal.frac@oecd-poland.org; communications.centre@mae.etat.lu; anne.vaatainen@tem.fi; clappermx@state.gov; mirko.zambelli@eda.admin.ch; gvarkonyi@kum.hu; ron.hutchings@ansto.gov.au; shimomura.kazuo@jaea.go.jp; jeanpaul.decaestecker@consilium.europa.eu; gornjm@state.gov; tripputi@sogin.it; franco.malerba@esteri.it; riku.huttunen@tem.fi; ansi.gerhardsson@environment.ministry.se; dom inique.ristori@ec.europa.eu; euk@um.dk; peter.faross@ec.europa.eu; katrin.einarsdottir@utn.stjr.is; martina.petrovicova@mzv.sk; frederic.mondoloni@cea.fr; sano-takiko@meti.go.jp; steve.chandler@decc.gsi.gov.uk; daniel.iracane@cea.fr; douglas.forsythe@international.gc.ca; cfranco@delegamexocde.org; rene.mctaggart@decc.gsi.gov.uk; Hanjo-de.Kuiper@minbuza.nl; sguindon@nrcan.gc.ca; pierre.multone@bfe.admin.ch; theofiel.vanrentergem@economie.fgov.be; ronaky@haea.gov.hu; smm@gr.is; mjlopez@magic.fr; ece.teams@fco.gov.uk; pedrovaz@itn.pt; pedro.liberato@ocde-portugal.com; v.manavi@greece-oecd.org; willy.deroovere@fanc.fgov.be; olivier.aubourg@developpement-durable.gouv.fr; aldo.flores@energia.gob.mx; markus.pfaff@bmu.bund.de; james.wiblin@dfat.gov.au; stefni@um.dk; pape@bmwi.bund.de; peter\_rice@environ.ie; cathy.fievat@diplobel.fed.be; koyama-masaomi@meti.go.jp; bannai-toshihiro@meti.go.jp; colin.sykes@fco.gov.uk; elif.atalay@mfa.gov.tr; fjarana@mityc.es; stefano.monti@enea.it; marta.ziakova@ujd.gov.sk; katarina.isaksso n@foreign.ministry.se; ugo.bollettini@sviluppoeconomico.gov.it; jacques.sturm@diplomatie.gouv.fr; tania.constable@ret.gov.au; ssimon@kum.gov.hu; m.bermudez-samiei@iaea.org; jwill@nrcan.gc.ca; fujino-h@mext.go.jp; elo@haea.gov.hu; maurice.biggar@dfa.ie; lars.ekecrantz@environment.ministry.se; lucky@kaeri.re.kr; zates@mfa.gov.tr; roberto.zangrandi@enel.com; una\_nidhubghaill@environ.ie; daniel-yves.taupenas@diplomatie.gouv.fr;

361/1113

sswkang@mest.go.kr; andreas.molin@bmlfuw.gv.at; m.m.g.hoedemakers@minez.nl; pascal.previdoli@bfe.admin.ch; marcel.reimen@mae.etat.lu; thzorbak@eeae.gr; sajuria@energia.gob.mx; je@cnsns.gob.mx; v.cserveny@iaea.org; jms@itn.pt; louise.fell@berr.gsi.gov.uk; Schwartzman, Jennifer; hubacek@mipo.cz; francois.bonino@cea.fr; matti.oivukkamaki@formin.fi; mathieu.remond@fco.gov.uk

**Subject:** Messages sent on behalf of the Japanese Delegation to the OECD

**Please find below two messages sent on behalf  
of the Japanese Delegation to the OECD in the last 24 hours, for your information  
and with our excuses for the delay.**

**These messages have been already sent to OECD Energy Advisors**

**Tuesday 15-March-11 09:43**

### **Urgent**

To All Missions (Embassies, Consular posts and International Organizations in Japan):

The Ministry of Foreign Affairs has the honour to inform the Missions that the attached notice has been announced by the Japanese authorities regarding Fukushima Dai-ichi Nuclear Power Plant.

If any residents with your nationality are staying within the designated areas, it is appreciated if the Missions can let them know about the notice.

---

**Mon 14-March-11 23:45**

Dear Steering Committee Members,

We are able to access the latest official information via the Homepages of the Prime Minister of Japan and his cabinet, and the Nuclear Industry Safety Agency.

- <http://www.kantei.go.jp/foreign/topics/2011/earthquake2011tohoku.html>
- <http://www.nisa.meti.go.jp/english/>

In addition, you will find attached some information made on the basis of the non-paper reported by Ambassador Nakane, Permanent Delegation of Japan to the IAEA, at a meeting of the IAEA on 14th March morning with an attached file. (So, this information concerns the facts till 14th March morning.) We would be pleased if it could help your understanding of the situation of the Fukushima Dai-ichi Nuclear Power Station, but at the same time, we would also be pleased if you could regard it as an internal non-paper.

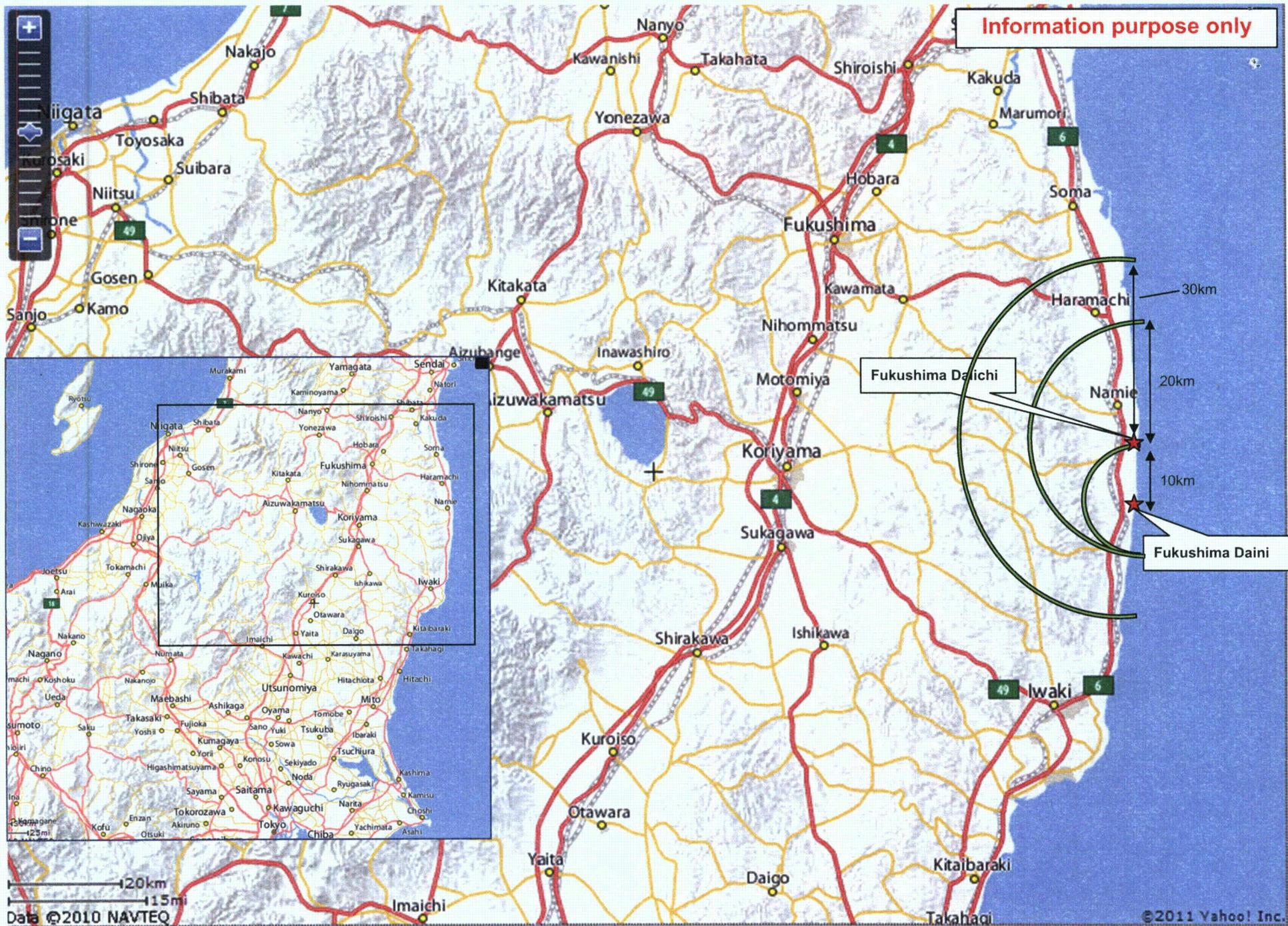
When I could have other information from our capital, I would like to do my best to send it to you as soon as possible.

Best regards,

Toshihiko KAMADA  
First Secretary (Science and Technology)  
Permanent Delegation of Japan to the OECD  
Tel.: +33 (0)1 53 76 61 81  
Fax: +33 (0)1 45 63 05 44  
E-mail: [toshihiko.kamada@mofa.go.jp](mailto:toshihiko.kamada@mofa.go.jp)



Information purpose only



The earthquake occurred at around 2:46 pm (Japanese time) on Friday 11th March 2011. The magnitude of the earthquake was revised on 13th March to 9.0.

The government of Japan has been providing the IAEA Incident and Emergency Center with information since just after the earthquake occurred (from around 4pm on 11th March), based on the Convention on Early Notification of a Nuclear Accident.

**[Fukushima Dai-ichi Nuclear Power Station]** (operated by Tokyo Electric Power Co. Inc. (TEPCO), Fukushima Prefecture, Type BWR)

There are a total of six nuclear reactors at the Fukushima Dai-ichi Nuclear Power Station. Three out of the six nuclear reactors, which are Units 1, 2 and 3, shut down automatically. The other three units, being Units 4, 5 and 6, were not operational at the time of the earthquake due to periodic inspection.

**[Fukushima Dai-ichi Nuclear Power Station , Unit No. 1]**

Following the shutdown at Fukushima Dai-ichi Nuclear Power Station, the Tokyo Electric Power Company Inc. (TEPCO) found that the Emergency Core Cooling System was not functioning at the facility. This nuclear reactor core is contained within an iron vessel. This containment vessel is furthermore contained in a ferroconcrete building. The explosion has damaged the walls of the ferroconcrete building. It was confirmed that the primary containment vessel inside the building did not explode. With regard to the cause of the explosion, it has been confirmed that the water present in the core had evaporated due to its reduced quantity. Vapor then permeated into the space between the primary containment vessel and the building. In this process, hydrogen was released from the vapor. The released hydrogen then combined with oxygen, triggering the explosion. As the primary containment vessel does not contain oxygen, we need not be afraid of an explosion in this primary containment vessel, even if it does contain hydrogen. In fact, TEPCO has reported that it was confirmed that the primary containment vessel is intact.

The explosion did not occur inside the primary containment vessel in which the reactor

vessel is installed. Therefore radioactive material will not leak or be released in large quantities. When the results of the nuclear material monitoring conducted by TEPCO and the local government of Fukushima prefecture were verified, it was confirmed that the concentration levels of radioactive material had not increased compared to the levels measured prior to the explosion. With regard to the levels measured at the site on 12th March, the numerical value of 1,015  $\mu\text{SV/h}$  measured at 3:29 pm actually dropped to lower values such as 860  $\mu\text{SV/h}$  at 3:40 pm and 70.5  $\mu\text{SV/h}$  at 6:58 pm following the explosion, with the explosion having occurred at 3:36 pm that day.

Venting, which is a means of removing water vapor in the containment vessel, was undertaken at around 2pm on 12th March, with a view to avoiding over pressurization of the containment vessel. The concentration levels of radioactive material in other areas rose at one point during the venting process at around 2pm that day. However the level dropped to a lower value following the explosion at 3:36pm on 12th March and remains lower. Therefore, at this moment, we recognize that the pattern of outside release of radioactive material, which was observed before the explosion, remains largely unchanged.

Given the situation described above, TEPCO decided to fill the Primary Container Vessel (PCV) with sea water in order to prevent the rupture of the Reactor Vessel and/or the Primary Container Vessel (PCV), and avoid any potential disaster this rupturing could cause. While implementing this injection, TEPCO is also taking precautionary measures, such as the use of boric acid to prevent criticality from being reached again. These measures are still ongoing.

### **[Fukushima Dai-ichi, Unit No. 3]**

Water supply functions went down in the Unit 3 reactor following the earthquake. As a result of this, water levels dropped inside the pressure vessel, where the fuel rods are housed, and it is believed that the top of the fuel rods was exposed above the surface of the water. Because of this, at 9:05am on the 13th, a safety valve in the innermost reactor vessel inside the nuclear reactor was opened, lowering the pressure inside the reactor. At 9:08am, the injection of water began with fresh water. At 9:25, the step was taken of mixing boric acid with the water in order to increase safety further. Following this, venting began in the containment vessel at 9:20, and as a result it is believed that

cooling is now underway in the containment vessel in the reactor. Since venting began at 9:20am yesterday, a small amount of radioactive material is thought to have been released from the exhaust duct.

Following the injection of fresh water, cooling water levels increased to a level sufficient to cool the core. However, due to troubles with the pump system, TEPCO switched from using fresh water to sea water and began to injecting sea water into the Reactor Vessel. At first, this injection of sea water was unstable, and cooling water levels decreased. TEPCO checked the injection system and took appropriate measures. As a result, the cooling water level started to increase again in a stable manner.

As described above, the cooling water level lowered below the top of the core at one stage, and remained there for a certain period. The core was not cooled enough during that period. However, the water levels then rose to a degree that was sufficient to restart the cooling of the core. Water levels at Unit No. 3 of the Fukushima Daiichi Nuclear Power Station had begun to rise since the injection of sea water into the pressure vessel began. Levels continued to increase steadily for a certain amount of time, but since then, the figures indicating the water level inside the pressure vessel are no longer showing an increase. Water supply to the reactor is ongoing.

Nevertheless, a large amount of hydrogen was produced and gathered within the upper section inside the building, which is outside the primary containment vessel. This is believed to have triggered the explosion at Fukushima Dai-ichi Unit No. 3 at 11:01 (Japanese local time) on March 14th, which was similar to the explosion which occurred at Unit No. 1 on Saturday.

Seeing as the explosion at Unit 3 of the Fukushima Dai-ichi nuclear power station is likely to have occurred outside the Primary Container Vessel, as was the case with the first, the core, the Reactor Vessel, and the Primary Container Vessel are believed to be intact.

Monitoring of radiation levels on site is ongoing. At a monitoring point, where a reading of 1,015 $\mu$ Sv was detected on 12th March, a radiation level of 44.6 $\mu$ Sv was recorded at 00:30 on the morning of the 13th, and a level of 36.7 $\mu$ Sv at 6:00am. After the start of venting around 9:20am on the 13th, a reading of 76.9 $\mu$ Sv was recorded at 9:20 and of 70.3 $\mu$ Sv at 9:30am. Monitoring posts showed that the radiation dose remained stable at

around 50  $\mu\text{Sv/h}$  since 10:00am on March 13th. However, it began to increase around 12:44, and rose to 1,557.5  $\mu\text{Sv/h}$  at 1:44pm, before decreasing again to 184.1 $\mu\text{Sv/h}$  at 2:42pm.

Following the explosion, there is a low possibility of a potential release of radioactive material in large quantities. We are continuing to monitor the situation on an ongoing basis. These steps are being carried out in accordance with the procedures for dealing with a situation of this kind. The level of radiation being released is not believed to be great enough to have any significant effect on human health. However, we understand that concern is high about the risk of exposure among evacuees.

At this point, there is a high possibility that the valves in Unit 3 have failed. At the present time people at the scene are doing their utmost to resolve the malfunction of the valves in order to lower the air pressure inside the reactor. Meanwhile, there has been no notable change in the radiation levels observed in the vicinity of the power station. This concludes my report on the latest situation at the Unit 3 reactor of the Fukushima Dai-ichi Nuclear Power Station.

**[Fukushima Dai-ichi, Unit No. 2]**

Following the explosion that occurred at Unit 3, Fukushima Dai-ichi, Unit No, 2 is now also facing problems with its cooling system, and the water level in the primary containment vessel of the Unit 2 reactor has been decreasing. We are now preparing to inject sea water into this reactor, in the same way as is being done at the other two units of the Fukushima Dai-ichi nuclear power station.

**[Fukushima-Dai-ichi Nuclear Power Station]** (operated by TEPCO Fukushima pref., Type BWR)

There are a total of four reactors at this site, being Units 1, 2, 3 and 4. All four reactors shut down automatically. The reactor water levels have been confirmed as stable. We have no indication of any reactor coolant leakages in the containment vessel at this moment. TEPCO will continue to monitor in detail, the possibility of radioactive material being discharged from the reactor exhaust stack or discharge canal.

Urgent

(15 March 2011)

To All Missions (Embassies, Consular posts and International Organizations in Japan)

Ministry of Foreign Affairs has the honour to inform the Missions that attached notice has been announced by the Japanese authorities regarding Fukushima Dai-ichi Nuclear Power Plant.

If any residents with your nationality are staying within the designated areas, it is appreciated if the Missions can let them know about the notice.

Official Notice

15 March 2011

11:00

1. Areas in which counter-emergency measures should be taken:

① Residents staying within a 20-kilometer radius from the Fukushima Dai-ichi Nuclear Power Station, Tokyo Electric Power Co.,Inc. (TEPCO) (continuation)

□ Residents staying in the area from 20-kilometre to 30-kilometer radius from the Fukushima Dai-ichi Nuclear Power Station, Tokyo Electric Power Co.,Inc. (TEPCO) **(NEW)**

2. Direction:

□ Residents staying within a 20-kilometer radius from the Fukushima Dai-ichi Nuclear Power Station, Tokyo Electric Power Co.,Inc. (TEPCO) **shall be evacuated.**(continuation)

□ Residents staying in the area from 20-kilometre to 30-kilometer radius from the Fukushima Dai-ichi Nuclear Power Station, Tokyo Electric Power Co.,Inc. (TEPCO) **shall stay inside the houses or buildings.** **(NEW)**

Observe directions by the relevant authorities if such directions are given.

Attachment: a map of the areas (information purpose only).

March 14, 2011

Nuclear and Industrial Safety Agency

Seismic Damage Information (the 23rd Release)  
(As of 19:30 March 14, 2011)

Nuclear and Industrial Safety Agency (NISA) confirmed the current situation of Onagawa NPS, Tohoku Electric Power Co., Inc; Fukushima Dai-ichi and Fukushima Dai-ni NPSs, Tokyo Electric Power Co., Inc. as follows:

1. The status of operation at Power Stations (Number of automatic shutdown units: 10)

○Fukushima Dai-ichi Nuclear Power Station, Tokyo Electric Power Co., Inc. (TEPCO)

(Okuma-machi and Futaba-machi, Futaba-gun, Fukushima Prefecture )

(1) The status of operation

Unit 1 (460MWe): automatic shutdown

Unit 2 (784MWe): automatic shutdown

Unit 3 (784MWe): automatic shutdown

Unit 4 (784MWe): in periodic inspection outage

Unit 5 (784MWe): in periodic inspection outage

Unit 6 (1,100MWe): in periodic inspection outage

(2) Readings at monitoring posts

The measurement of radioactive materials in the environmental monitoring area near the site boundary conducted by a monitoring car in considering the wind flow, confirmed the increase in the radioactivity compared to the radioactivity at 07:30, March 14.

MP3 (Monitoring at North West of Site Boundary for Unit 2) :

231.1 micro Sv/h (14:30 March 14)

MP4 (Monitoring at north-west of Site Boundary for Unit 2 :

56.4 micro Sv/h(04:08 March 14)

→29.8 micro Sv/h(14:14 March 14)

MP5 (Monitoring at north-west Site Boundary for Unit 2)

6.1 micro Sv/h(14:02 March 14)

MP6 (Monitoring at the west –southwest Site Boundary for Unit 2)

3.70 micro Sv/h(16:10 March 14)

→4.2 micro Sv/h(12:34 March 14)

MP7 (Monitoring at the west –southwest Site Boundary for Unit 2)

6.1 micro Sv/h (12:16, March 14)

(3) Wind direction/wind speed (as of 14:14, March 14) at MP-4

Wind direction: North North West

Wind Speed: 2.6 m/s

(4) Major Plant Parameters (19:30, March 14)

	unit	Unit 1	Unit 2	Unit 3
Reactor Pressure	MPa	0.047 (A) 0.270 (B)	0.65	0.183 (A) 0.183(A)
PCV Pressure	KPa	Not available	Approx. 395	335
Reactor Water Level*	mm	Downscale(A) Downscale(B)	Downscale(A) Downscale(B)	-1900(A) -2300(B)
Suppression Pool Water Temperature	°C	Not available	Under measuring	Not available
Suppression Pool Water Pressure	KPa	Not available	Not available	500

\*: Distance from the top pellet

(5) Report concerning other malfunction

- No fire report notified to NISA
- TEPCO reported to NISA in accordance with Article 10 of the Act on Special Measures Concerning Nuclear Emergency Preparedness regarding Fukushima Dai-ichi, Units 1,2 and 3. (15:42 March 11)
- TEPCO report to NISA the event in accordance with Article 15 of the Act for Special Measures Concerning Nuclear Emergency Preparedness

regarding Fukushima Dai-ichi, Units 1 and 2.(notified to NISA at 16:36 March 11)

- For Unit 1: Sea water is being injected to the Primary Containment Vessel (PCV) via the Fire Extinguishing System Line (Start up 11:55 March 13)  
→Interruption of injection (01:10 March 14)
- For Unit 2: Water Injection Function has been sustained. (14:00 March 13)
- For Unit 2: Reactor Water Level is decreasing. (13:18 March 14)
- For Unit 2: Seawater injection to the Reactor Pressure Vessel (RPV) is ready through Fire Extinguishing System Line. (19:20 March 14)
- For Unit 3: Fresh water is being injected to the PCV via Fire Extinguishing System Line (FES) (11:55 March 13)
- For Unit 3: Sea water is being injected to the PCV via FESL(13:12 March 13)
- For Unit 1 and Unit 3: Injection of Sea water injection into PCV is interrupted because of the lack of sea water in pit. (01:10 March 14)
- For Unit 3: Injection of Sea water into PCV is restarted(03:20 March 14)
- For Unit 3: Unusual pressure increase was identified (11:45 March 14)
- For Unit 3: Explosion of the Reactor Building broke out similarly with Unit 1 (11:01 March 14)

○ Fukushima Dai-ni Nuclear Power Station (TEPCO)

(Naraha-machi/Tomioka-machi, Futaba-gun, Fukushima pref.)

(1) The status of operation

Unit1 (1,100MWe): automatic shutdown, cold shut down at 13:40, March 14

Unit2 (1,100MWe): automatic shutdown, cold shut down at 14:20, March 14

Unit3 (1,100MWe): automatic shutdown, cold shut down at 12:15, March 12

Unit4 (1,100MWe): automatic shutdown

(2) Readings at monitoring post etc.

MP1 (Monitoring at the North End of Site Boundary)

0.038microSv/h(5:00 March 14)

→0.034 microSv/h(15:40 March 14)

MP3 (Monitoring at the North/West End of Site boundary)

0.037microSv/h(5:00 March 14)

→0.035 microSv/h(15:40 March 14)

MP4 (Monitoring at the North/West End of Site Boundary)

0.038microSv/h(5:00 March 14)

→0.037microSv/h(15:40 March 14)

MP5 (Monitoring at the West End of Site Boundary)

0.042 microSv/h(5:00 March 14)

→0.042 microSv/h(15:40 March 14)

(3) Direction and velocity of wind (As of 15:40, 14 March)

Direction: West

Velocity: 6 m /s

(4) Main plant parameters (As of 18:30, 14 March)

	unit	Unit 1	Unit 2	Unit 3	Unit 4
Reactor Pressure	MPa	0.04	0.06	-0.06	0.35
Reactor water temperature	°C	46	88	32	142
Reactor water level*	mm	8785	8530	7636	5096
Suppression pool water temperature	°C	71	80	45	130
Suppression pool water pressure	KPa	282	253	132	324
Remarks		under cold shutdown	under cold shutdown	under cold shutdown	

\*: Distance from the top pellet

(5) Report concerning other malfunction

- None of fire report notified to NISA
- TEPCO reported to NISA in accordance with Article 10 of the Act on Special Measures Concerning Nuclear Emergency Preparedness regarding Fukushima Dai-ni, Units 1. (18:08 March 11)
- As same as above, TEPCO reported to NISA Fukushima Dai-ni Units 2 and 4.(18:33 March 11)
- For Unit 1: Due to Recovery of Residual Heat Removal System(RHR), water in suppression pool is started to cool for cold shut down.(01:24

March 14)

c. Onagawa Nuclear Power Station (Onagawa-cho, Oga-gun and Ishinomaki-shi, Miyagi Prefecture)

(1) The status of operation

Unit 1 (524MWe): automatic shutdown, cold shut down at 0:58, March 12

Unit 2 (825MWe): automatic shutdown

Unit 3 (825MWe): automatic shutdown, cold shut down at 1:17, March 12

(2) Readings of monitoring post

Reading of monitoring post : Changed

MP2 (Monitoring at the North End of Site Boundary)

Approx. 10,000 nGy/h (as of 13:09 March 13)

→7,200 nGy/h (07:20 March 14)

(3) Report concerning other malfunction

- Fire Smoke on the first basement of the Turbine Building was confirmed extinguished at 22:55 on March 11th.
- Article 10\* of Act on Special Measures Concerning Nuclear Emergency Preparedness (Unit No. not identified) (13:09 March 13)

2. Action taken by NISA

(March 11)

14:46 Set up of the NISA Emergency Preparedness Headquarters (Tokyo) immediately after the earthquake

15:42: TEPCO reported to NISA in accordance with Article 10 of the Act on Special Measures Concerning Nuclear Emergency Preparedness regarding Fukushima Dai-ichi.

16:36: TEPCO judged the event in accordance with Article 15 of the Act for Special Measures Concerning Nuclear Emergency Preparedness regarding Fukushima Dai-ichi, Units 1 and 2.(notified to NISA at 16:45)

18:08: Unit 1 of Fukushima Dai-ichi notified NISA of the situation of the Article 10 of Act on Special Measures Concerning Nuclear Emergency Preparedness.

- 18:33: Units 1,2 and 4 of Fukushima Dai-ni notified NISA of the situation of the Article 10 of Act on Special Measures Concerning Nuclear Emergency Preparedness.
- 19:03 : Government declared the state of nuclear emergency (Establishment of Government Nuclear Emergency Response Headquarters and Local Emergency Response Headquarters)
- 20:50: Fukushima Prefecture's Emergency Response Headquarters issued a direction regarding the accident occurred at Fukushima-Dai-ichi Nuclear Power Station, TEPCO, that the residents living in the area of 2km radius from Unit 1 of the Nuclear Power Station must evacuate.(The population of this area is 1,864)
- 21:23: Directives from Prime Minister to the Governor of Fukushima, Mayor of Ookuma and Mayor of Futaba were issued regarding the accident occurred at Fukushima-Dai-ichi Nuclear Power Station, TEPCO, pursuant to Paragraph 3, Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness as follows:
- Residents living in the area of 3km radius from Unit 1 of the Nuclear Power Station must evacuate.
  - Residents living in the area of 10km radius from the Unit 1 must take sheltering.
- 24:00: Mr. Ikeda, Vice Minister of METI, arrived at the Local Emergency Response Headquarters

(March12)

- 05:22 Unit 1 of Fukushima Dai-ni notified NISA of the situation of the Article 15 of Act on Special Measures Concerning Nuclear Emergency Preparedness.
- 05:32 Unit 2 of Fukushima Dai-ni notified NISA of the situation of the Article 15 of Act on Special Measures Concerning Nuclear Emergency Preparedness.
- 05:44 Residents living in the area of 10km radius from unit 1 of the Nuclear Power Station must evacuate by the Prime Minister Direction.
- 06:07 Regarding of Fukushima Dai-ni NPS, TEPCO reported NISA in accordance with Article 15 of Act for Special Measures Concerning Nuclear Emergency Preparedness.
- 06:50 According to the article 64, 3 of the Nuclear Regulation Act,

government order to control the internal pressure in Fukushima-dai-ichi Units 1 and 2

- 07:45 Directives from Prime Minister to Governor of Fukushima, Mayors of Hirono, Naraha, Tomioka, Ookuma and Futaba were issued regarding the accident occurred at Fukushima-Dai-ni Nuclear Power Station, TEPCO, pursuant to Paragraph 3, Article 15 of the Act for Special Measures Concerning Nuclear Emergency Preparedness as follows:
- Residents living in the area of 3km radius from Fukushima Dai-ni Nuclear Power Station (NPS) must evacuate.
  - Residents living in the area of 10km radius from Fukushima Dai-ni NPS must take sheltering
- 17:00 Notification pursuant to Article 15 of the Act for Special Measure Concerning Nuclear Emergency Preparedness since the radiation level exceeded the acceptable level of Fukushima Dai-ichi NPS.
- 17:39 Prime Minister directed evacuation of the residents living within the 10 km radius from the Fukushima-Dai-ni NPS
- 18:25 Prime Minister directed evacuation of the residents living within the 20km radius from the Fukushima Dai-ichi NPS
- 19:55 Directives from Prime Minister was issued regarding sea water injection to Unit No.1 of Fukushima Dai-ichi NPS.
- 20:05 Based on the directives form Prime Minister and pursuant to Paragraph 3, Article 64 of the Nuclear Regulation Act, the Government issued an order to inject sea water Unit 1 of Fukushima Dai-ichi NPS.
- 20:20 Fukushima Dai-chi NPS, Unit1 started sea water injection.

(March 13)

- 05:38 TEPCO notified NISA of the situation pursuant to the Article 15 of Act on Special Measures Concerning Nuclear Emergency Preparedness that Unit 3 of Fukushima Dai-ichi NPS is in a loss of all coolant injection function. Recovering efforts of the power source and coolant injection function and work on venting are underway.
- 09:08 Pressure suppression in the Containment Vessel and fresh water injection started at Unit 3 of Fukushima Dai-ichi NPS.
- 09:20 Opening of Pressure vent valve of Unit 3 of Fukushima Dai-ichi NPS.
- 09:30 NISA directed the Governor of Fukushima Prefecture, the Mayers of

Ookuma-machi, Futaba-machi, Tomioka-machi and Namie-machi based on the Act for Special Measures Concerning Nuclear Emergency Preparedness on radioactivity decontamination screening.

09:38 TEPCO notified NISA that Unit 1 of Fukushima Dai-ichi NPS reached a situation specified in Article 15 of the Act for Special Measures Concerning Nuclear Emergency Preparedness.

13:09 Tohoku Electric notified NISA that Onagawa NPS reached a situation specified in Article 10 of the Act for Special Measures Concerning Nuclear Emergency Preparedness.

13:12 Fresh water injection was switched to sea water injection at Unit 3 of Fukushima Dai-ichi NPS.

14:25 TEPCO notified NISA that Fukushima Dai-ichi NPS reached a situation specified in Article 15 of the Act for Special Measures Concerning Nuclear Emergency Preparedness.

(March 14)

01:10 Sea water injection at unit 1 and unit 3 of Fukushima Dai-ichi NPS were temporary stopped due to decreasing sea water in pool

03:20 Sea water injection at unit 3 of Fukushima Dai-ichi NPS was restarted.

04:24 TEPCO notified NISA that Fukushima Dai-ichi NPS reached a situation specified in Article 15 of the Act for Special Measures Concerning Nuclear Emergency Preparedness.

07:53 TEPCO notified NISA that Fukushima Dai-ichi NPS reached a situation specified in Article 15 of the Act for Special Measures Concerning Nuclear Emergency Preparedness.

13:25 TEPCO notified NISA that Unit 2 of Fukushima Dai-ichi NPS reached a situation specified in Article 15 of the Act for Special Measures Concerning Nuclear Emergency Preparedness

<Possible Exposure to Residents>

(1) Case for Travel from Futaba Public Welfare Hospital to Nihonmatsu Man and Woman Symbiosis Center, Fukushima Prefecture

- i) No. of persons to be measured: About 60 persons
- ii) Measured Result: Not yet
- iii) Passage: Exposure could have happened while waiting to be picked up by helicopter at the Futaba high school ground
- iv) Other

Prefectural Response Headquarters judged that there were no exposure to 35 persons who traveled from Futaba Public Welfare Hospital to Kawamata Saiseikai Hospital, Kawamata-machi by the private bus provided by Fukushima Prefecture.

(2) Case for Futaba-machi Residents Evacuated by Buses

- i) No. of Persons: About 100 persons
- ii) Measured Result: 9 persons out of 100 persons

No. of Counts	No. of Persons
18,000cpm	1
30,000-36000cpm	1
40,000cpm	1
little less than 40,000cpm*	1
very small counts	5

\*(This results was measured without shoes, though the first measurement exceeded 100,000cpm)

- iii) Passage: Under investigation
- iv) Other

Though persons evacuated in different location outside of the Prefecture (Miyagi Prefecture), all destinations are under confirmation.

<Status of the injured (As of 17:30 March 14)>

1. Injury due to earthquake
  - Two employees (slightly)
  - Two subcontract employees (one fracture in both legs)

- Two missing (in the turbine building of Unit 4)
  - One emergency patient (According to the local prefecture, one patient of cerebral infarction was transported by the ambulance)
    - Ambulance was requested for one employee complaining the pain at left chest outside of control area (conscious)
    - Ambulance was requested for two employees complaining discomfort wearing full-face mask in the main control room to be transported to the industrial doctor of Fukushima Dai-ni NPS
2. Injury due to the explosion of Unit 1 of Fukushima Dai-ichi NPS
- Four employees were injured at the explosion and smoke of Unit 1 around turbine building (out of control area). Examined by Kawauchi clinic.
3. Injury due to the explosion of Unit 3 of Fukushima Dai-ichi NPS
- Four employees
  - Three subcontractor employees
  - Four members of Self-Defence-Force (one of them will be transported to National Institute of Radiological Sciences considering internal exposure)

<Status of Evacuation (As of 15:30 March 14)>

As long as the 20 km zone of Fukushima Dai-ichi and 10 km zone of Fukushima Dai-ni are concerned, transportation by bus, self-defence force helicopter, etc. is arranged for 483 citizens waiting for evacuation like hospital patients, residents of social welfare house, etc.. Certain numbers of citizens are waiting in-house voluntarily. Evacuation is almost completed for other people.

(Contact Person)

Mr. Toshihiro Bannai

Director, International Affairs Office,  
NISA/METI

Phone:+81-(0)3-3501-1087

**Bozin, Sunny**

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**From:** OPA Resource  
**Sent:** Tuesday, March 15, 2011 2:46 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; 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; Mittyng, 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:** \*RESEND\*Press Release: NRC Analysis Continues to Support Japan's Protective Actions  
**Attachments:** 11-049.docx

To be posted on the live web and public release in 10-15 minutes.

Office of Public Affairs  
US Nuclear Regulatory Commission  
301-415-8200  
[opa.resource@nrc.gov](mailto:opa.resource@nrc.gov)

XYX/194



# 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](mailto:opa.resource@nrc.gov) Site: [www.nrc.gov](http://www.nrc.gov)

Blog: <http://public-blog.nrc-gateway.gov>

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No. 11-049

March 15, 2011

## **NRC ANALYSIS CONTINUES TO SUPPORT JAPAN'S PROTECTIVE ACTIONS**

NRC analysts overnight continued their review of radiation data related to the damaged Japanese nuclear reactors. The analysts continue to conclude the steps recommend by Japanese authorities parallel those the United States would suggest in a similar situation.

The Japanese authorities Monday recommended evacuation to 20 kilometers around the affected reactors and said that persons out to 30 kilometers should shelter in place.

Those recommendations parallel the protective actions the United States would suggest should dose limits reach 1 rem to the entire body and 5 rem for the thyroid, an organ particularly susceptible to radiation uptake.

A rem is a measure of radiation dose. The average American is exposed to approximately 620 millirems, or 0.62 rem, of radiation each year from natural and manmade sources.

###

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](http://www.nrc.gov) also offers a SUBSCRIBE link. E-mail notifications are sent to subscribers when news releases are posted to NRC's website.

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**From:** RST01 Hoc  
**Sent:** Tuesday, March 15, 2011 8:47 PM  
**To:** LIA06 Hoc  
**Subject:** RE: Request: ET Direction to Capture Routine Meetings - Please review the attached

RST does not have any additional routine or recurring meetings to add to the list.

Frank Collins, RST Coordinator

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**From:** LIA06 Hoc  
**Sent:** Tuesday, March 15, 2011 7:39 PM  
**To:** RST01 Hoc; PMT09 Hoc; LIA08 Hoc; Gott, William; ET01 Hoc  
**Subject:** Request: ET Direction to Capture Routine Meetings - Please review the attached

From the Liaison Team Director – please identify routine meetings/calls that your team supports on the attached.

Also, any adhoc interactions (that are not routine) that are scheduled for the week can be added to the bottom, if you would please. Return to me at LIA06.

Thanks, Tim McGinty

YY/195

Japan Earthquake/Tsunami Periodic Operations Center Briefing List - March 15, 7:00 PM EDT

Recurring Meetings:

Time	Lead	Title	Description/Support/Source
0800	ET	Commissioners Assistants	Ops Center Status Update used as Source
0800	ET	Deputies Call – Secure VTC	Ops Center Status Update used as Source
1030	RST	INPO Info Exchange	Ops Center Status Update
1100	LIA	HHS ESF-8 Interagency Call	Ops Center Status Update
1930	Chairman	Commissioners Update	Status Update and Talking Points
2000	ET	Commissioners Assistants	Ops Center Status Update
2300	LIA	DOS Inter-agency Call	SITREP, Ops Center Status Update – DART

Other Related Meetings:

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**From:** PMT09 Hoc  
**Sent:** Tuesday, March 15, 2011 10:10 PM  
**To:** Hoc, PMT12  
**Subject:** FW: Information Regarding the Surgeon General's Statement About Potassium Iodide (KI)

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**From:** LIA06 Hoc  
**Sent:** Tuesday, March 15, 2011 10:09 PM  
**To:** Virgilio, Rosetta; Turtill, Richard  
**Cc:** LIA01 Hoc; PMT09 Hoc; LIA08 Hoc  
**Subject:** RE: Information Regarding the Surgeon General's Statement About Potassium Iodide (KI)

Rich/Rosetta – Per the ET, please see the below action item that we took regarding KI. The ET felt that during day shift *this same response/information should be provided to the RSLO's such that they can respond to any queries by the States.* ET considers this a dayshift activity (tomorrow, Wednesday). I will be opening a task tracker, please respond to the Coordinator (LIA08) upon completion so we can close the task. Thanks, Tim McGinty

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**From:** LIA01 Hoc  
**Sent:** Tuesday, March 15, 2011 9:51 PM  
**To:** LIA06 Hoc  
**Subject:** Information Regarding the Surgeon General's Statement About Potassium Iodide (KI)

Earlier this evening the NRC Operations Center staff became aware of a headline on [www.drudgereport.com](http://www.drudgereport.com) which pointed to a web article (linked [here](#)) in which the US Surgeon General, while touring a hospital in the San Francisco Bay area, told residents that it “would not be an overreaction” to buy KI pills as a precaution.

The Operations Center staff immediately contacted the US Department of State (DOS), the lead federal agency responsible for the federal government’s response to the Japanese earthquake and tsunami events. NRC stated to DOS that there has been no indication that circumstances warrant any US citizen needing protection from radiation. DOS has taken the lead to contact the Office of the Surgeon General (OSG), and they have asked the NRC not to contact OSG directly.

As the NRC has stated in numerous public communications, given the thousands of miles between the two countries, Hawaii, Alaska, the U.S. Territories and the U.S. West Coast are not expected to experience any harmful levels of radioactivity.

YYY/196

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**From:** Chen, Yen-Ju  
**Sent:** Wednesday, March 16, 2011 10:49 AM  
**To:** Golder, Jennifer; LIA06 Hoc  
**Subject:** RE: 0630 EDT (March 16, 2011) USNRC Earthquake/Tsunami SitRep

Jim:  
Please add Jennifer to the list. Thanks.  
Yen

---

**From:** Golder, Jennifer  
**Sent:** Wednesday, March 16, 2011 10:43 AM  
**To:** Chen, Yen-Ju  
**Subject:** FW: 0630 EDT (March 16, 2011) USNRC Earthquake/Tsunami SitRep

*Jennifer Golder*  
Hi Yen,

How can I get added to the email distribution list for these updates? I need to know what is going on to be able to brief our OMB examiner.

Thanks much

Jennifer Golder

Budget Director  
Office of the Chief Financial Officer  
United States Nuclear Regulatory Commission

*YJY/197*

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**From:** LIA07 Hoc  
**To:** Andersen, James; Anderson, Joseph; Ash, Darren; Baggett, Steven; Barker, Allan; Batkin, Joshua; Boger, Bruce; Borchardt, Bill; Bradford, Anna; Brenner, Eliot; Smith, Brooke; Brown, Milton; Bubar, Patrice; Camper, Larry; Carpenter, Cynthia; Castleman, Patrick; Ader, Charles; Casto, Chuck; Coggins, Angela; Collins, Elmo; Correia, Richard; Dapas, Marc; Dean, Bill; Decker, David; Dickman-Disabled-11/14/2010, Paul; Dorman, Dan; Droggitis, Spiros; Dyer, Jim; ET02 Hoc; Evans, Michele; Franovich, Mike; Apostolakis, George; Gibbs, Catina; Glitter, Joseph; Gott, William; Grobe, Jack; Hahn, Matthew; Haney, Catherine; Harrington, Holly; Hipschman, Thomas; Holahan, Gary; Holahan, Patricia; HOO Hoc; Howell, Art; Howell, Linda; Foster, Jack; Jackson, Donald; Jaczko, Gregory; Johnson, Andrea; Johnson, Michael; Kahler, Robert; Foggie, Kirk; Kock, Andrea; Kozal, Jason; Leeds, Eric; LIA01 Hoc; LIA02 Hoc; LIA03 Hoc; LIA06 Hoc; LIA08 Hoc; LIA11 Hoc; Logaras, Herral; Loyd, Susan; Magwood, William; Maier, Bill; Marshall, Jane; Marshall, Michael; McCree, Victor; McDermott, Brian; McNamara, Nancy; Miller, Charles; Miller, Chris; Monninger, John; Morris, Scott; Nieh, Ho; NSIR\_DDSP\_ILTAB\_Distribution; Ordaz, Vonna; Orders, William; Ostendorff, William; Pace, Patti; Pearson, Laura; Pederson, Cynthia; Plisco, Loren; Powell, Amy; R1 IRC; R2 IRC; R3 IRC; R4 IRC; Reddick, Darani; Reyes, Luis; Devercelly, Richard; ROO hoc; Satorius, Mark; Schmidt, Rebecca; Sharkey, Jeffrey; Sheron, Brian; Snodderly, Michael; Sosa, Belkys; Speiser, Herald; Svinicki, Kristine; Thoma, John; Tift, Doug; Kolb, Timothy; Ulses, Anthony; Nakanishi, Tony; Tracy, Glenn; Trapp <james.trapp@vzw.blackberry.net>; Trapp, James; Trojanowski, Robert; Uhle, Jennifer; Virgilio, Martin; Warnick, Greg; Warren, Roberta; Weber, Michael; Westreich, Barry; Wiggins, Jim; Cook, William; Williams, Kevin; Wittick,

Brian; Woodruff, Gena; Zorn, Jason

**Sent:** Wed Mar 16 06:45:36 2011

**Subject:** 0630 EDT (March 16, 2011) USNRC Earthquake/Tsunami SitRep

Attached, please find a 0630 EDT situation report from the US Nuclear Regulatory Commission's Emergency Operations Center regarding the impacts of the earthquake/tsunami on March 16, 2011. This Update includes information on dose rates near Fukushima Daiichi, Fukushima Daiichi plant parameters, and NRC PMT hypothetical Worst Case Analyses. 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.

Yen Chen

US Nuclear Regulatory Commission

[LIA07.HOC@nrc.gov](mailto:LIA07.HOC@nrc.gov) (Operations Center)

**Bozin, Sunny**

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**From:** OPA Resource  
**Sent:** Wednesday, March 16, 2011 1:55 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; 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: NRC Provides Protective Action Recommendations Based on U.S. Guidelines  
**Attachments:** 11-050.pdf

For immediate release.

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861 / 198  
Y/Y



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# NRC NEWS

## U.S. NUCLEAR REGULATORY COMMISSION

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Washington, D.C. 20555-0001

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Blog: <http://public-blog.nrc-gateway.gov>

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No. 11-050

March 16, 2011

### NRC PROVIDES PROTECTIVE ACTION RECOMMENDATIONS BASED ON U.S. GUIDELINES

Under the guidelines for public safety that would be used in the United States under similar circumstances, the NRC believes it is appropriate for U.S. residents within 50 miles of the Fukushima reactors to evacuate.

Among other things, in the United States protective actions recommendations are implemented when projected doses could exceed 1 rem to the body or 5 rem to the thyroid. A rem is a measure of radiation dose. The average American is exposed to approximately 620 millirems, or 0.62 rem, of radiation each year from natural and manmade sources.

In making protective action recommendations, the NRC takes into account a variety of factors that include weather, wind direction and speed, and the status of the problem at the reactors.

Attached are the results of two sets of computer calculations used to support the NRC recommendations.

In response to nuclear emergencies, the NRC works with other U.S. agencies to monitor radioactive releases and predict their path. All the available information continues to indicate Hawaii, Alaska, the U.S. Territories and the U.S. West Coast are not expected to experience any harmful levels of radioactivity.

###

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](http://www.nrc.gov) also offers a SUBSCRIBE link. E-mail notifications are sent to subscribers when news releases are posted to NRC's website.

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**From:** Miller, Chris  
**Sent:** Thursday, March 17, 2011 4:11 AM  
**To:** Casto, Chuck; LIA06 Hoc  
**Subject:** RE: INPO Resources

Sounds good, we will tell them to provide in the near term a severe accident mgmt bubba

---

**From:** Casto, Chuck  
**Sent:** Thursday, March 17, 2011 3:51 AM  
**To:** LIA06 Hoc  
**Cc:** Miller, Chris  
**Subject:** Re: INPO Resources

Our opinion is yes, a severe accident management person. If you all agree, tell them.

---

**From:** INPO EmergencyResponseCtr (INPO) <INPOERC@INPO.org>  
**To:** LIA06 Hoc; Casto, Chuck  
**Cc:** Miller, Chris  
**Sent:** Thu Mar 17 03:32:14 2011  
**Subject:** RE: INPO Resources

Gents: Just to confirm, you would like that support in Japan as soon as possible. Is that correct?

Fred Rehrig  
INPO Team Leader  
Emergency Response Center

---

**From:** LIA06 Hoc [mailto:LIA06.Hoc@nrc.gov]  
**Sent:** Thursday, March 17, 2011 3:24 AM  
**To:** Casto, Chuck  
**Cc:** Miller, Chris; INPO EmergencyResponseCtr (INPO)  
**Subject:** INPO Resources

Chuck –

We have engaged INPO to support your efforts with someone on your team. The request that came back was to identify the skill sets that would be needed. I have cc'd the INPO e-mail address so that you can respond directly back, and please include us in that communication.

Please advise at your earliest opportunity.

Tom Blount

YY/199

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Thank you.

---

**From:** LIA03 Hoc  
**Sent:** Thursday, March 17, 2011 7:20 PM  
**To:** Virgilio, Martin  
**Cc:** LIA06 Hoc; LIA04 Hoc  
**Subject:** Japan Atomic Industrial Forum report

[http://www.jaif.or.jp/english/news\\_images/pdf/ENGNEWS01\\_1300368607P.pdf](http://www.jaif.or.jp/english/news_images/pdf/ENGNEWS01_1300368607P.pdf)

YHY/200

**From:** Baggett, Steven  
**To:** Laufer, Richard; Baval, Rochelle; Bradford, Anna; Castleman, Patrick; Hart, Ken; Kock, Andrea; Shea, Pamela; Tadesse, Rebecca; Thoma, John; Vietti-Cook, Annette; Franovich, Mike; Hipschman, Thomas; Batkin, Joshua; Marshall, Michael; Orders, William; Sharkey, Jeffrey; Snodderly, Michael; Warnick, Greg; Bupp, Margaret; Burns, Stephen; Clark, Lisa; Coggins, Angela; Davis, Roger; Reddick, Darani; Zorn, Jason  
**Cc:** Adler, James; Batkin, Joshua; Blake, Kathleen; Bozin, Sunny; Bubar, Patrice; Chairman Temp; Crawford, Carrie; Dhir, Neha; Doane, Margaret; Droggitis, Spiros; EDO ETAs; Fopma, Melody; Gibbs, Catina; Greathead, Nancy; Harves, Carolyn; Hayden, Elizabeth; Henderson, Karen; Herr, Linda; Hudson, Sharon; Jimenez, Patricia; Joosten, Sandy; KLS Temp; Kreuter, Jane; Lepre, Janet; Lewis, Antoinette; Loyd, Susan; Lui, Christiana; Monninger, John; Montes, David; Moore, Scott; Nieh, Ho; Olive, Karen; Pace, Patti; Pearson, Laura; Poole, Brooke; Rothschild, Trip; Savoy, Carmel; Sosa, Belkys; Speiser, Herald; Svinicki, Kristine; Temp, GEA; Temp, WCO; Temp, WDM; Warren, Roberta; Wright, Darlene  
**Subject:** RE: Request for TA Brief in advance of May 3 Commission meeting on Human Capital and EEO  
**Date:** Thursday, March 17, 2011 5:08:56 AM

---

Commissioner Apostolakis' office can support any of the propose time on April 28, and only the 9:00 and 10:00 times on April 27.

Thanks

Steve

---

**From:** Laufer, Richard  
**Sent:** Wednesday, March 16, 2011 2:54 PM  
**To:** Baggett, Steven; Baval, Rochelle; Bradford, Anna; Castleman, Patrick; Hart, Ken; Kock, Andrea; Laufer, Richard; Shea, Pamela; Tadesse, Rebecca; Thoma, John; Vietti-Cook, Annette; Franovich, Mike; Hipschman, Thomas; Batkin, Joshua; Marshall, Michael; Orders, William; Sharkey, Jeffrey; Snodderly, Michael; Warnick, Greg; Bupp, Margaret; Burns, Stephen; Clark, Lisa; Coggins, Angela; Davis, Roger; Reddick, Darani; Zorn, Jason  
**Cc:** Adler, James; Batkin, Joshua; Blake, Kathleen; Bozin, Sunny; Bubar, Patrice; Chairman Temp; Crawford, Carrie; Dhir, Neha; Doane, Margaret; Droggitis, Spiros; EDO\_ETAs; Fopma, Melody; Gibbs, Catina; Greathead, Nancy; Harves, Carolyn; Hayden, Elizabeth; Henderson, Karen; Herr, Linda; Hudson, Sharon; Jimenez, Patricia; Joosten, Sandy; KLS Temp; Kreuter, Jane; Lepre, Janet; Lewis, Antoinette; Loyd, Susan; Lui, Christiana; Monninger, John; Montes, David; Moore, Scott; Nieh, Ho; Olive, Karen; Pace, Patti; Pearson, Laura; Poole, Brooke; Rothschild, Trip; Savoy, Carmel; Sosa, Belkys; Speiser, Herald; Svinicki, Kristine; Temp, GEA; Temp, WCO; Temp, WDM; Warren, Roberta; Wright, Darlene  
**Subject:** Request for TA Brief in advance of May 3 Commission meeting on Human Capital and EEO

The staff would like to brief the TAs on the subject topic. (See below) Proposed times are:

Wednesday (4/27) at 9:00 a.m., 10:00 a.m. or 1:00 p.m.

Thursday (4/28) at 9:00 a.m., 10:00 a.m. or 1:00 p.m.

Please let SECY know if your office can support these times.

Thanks,  
Rich

---

**From:** Davis, Kristin  
**Sent:** Wednesday, March 16, 2011 2:17 PM  
**To:** Baval, Rochelle  
**Cc:** Andersen, James; McLaughlin, Terri  
**Subject:** OHR Request for TA Brief (March 2011).docx

Rochelle – HR and SBCR would like to brief the Commission TAs prior to the May 3<sup>rd</sup> Human Capital and EEO Briefing. We did this last year and it was very successful.

YY/201

Please see the request below.

Thank you,  
Kris

---

**Subject:** Request for Commission Technical Assistant Briefing on the Status of Human Capital and Equal Employment Opportunity (EEO).

**Summary:** The Office of Human Resources and Office of Small Business and Civil Rights staff request to brief the Commission Technical Assistants prior to the May 3, 2011 Commission Briefing on the Status of Human Capital and Equal Employment Opportunity.

**Rationale for Request:** This annual briefing provides the Commission important information related to human capital and EEO initiatives. Much of the material is supplied in a background binder prior to the briefing therefore eliminating the need to discuss general information during the actual briefing. Meeting with the Commission Technical Assistants prior to the briefing gives them the opportunity to ask questions related to the background material and to suggest areas of possible interest to the Commissioners which may result in discussions during the question and answer portion of the briefing.

**Key Messages:**

- Strategies for sustaining employee morale (Tracy Scott, HROP, OHR)
- Update on iLearn (Emaad Burki, HRTD, OHR)
- EEO update (Anthony Barnes, SBCR)

**Proposed Times:**

Proposed briefing times are:

Wednesday, April 27, 2011: 9:00 – 10:00 a.m.

Wednesday, April 27, 2011: 10:00 – 11:00 a.m.

Wednesday, April 27, 1:00 – 2:00 p.m.

Thursday April 28, 2011: 9:00 – 10:00 a.m.

Thursday, April 28, 2011: 10:00 – 11:00 a.m.

Thursday, April 28, 1:00 – 2:00 p.m.

**From:** [Google Alerts](#)  
**To:** [Hayden, Elizabeth](#)  
**Subject:** Google Alert - Nuclear Regulatory Commission  
**Date:** Thursday, March 17, 2011 5:22:35 AM

---

## News

7 new results for **Nuclear Regulatory Commission**

### [It's too risky to keep Indian Point \*\*nuclear\*\* power plant open: Gov. Cuomo](#)

New York Daily News

Cuomo, who has long opposed the plant, spoke after new data from the federal **Nuclear Regulatory Commission** show the Hudson River plant was the most vulnerable to a quake. It also came about two weeks after a judge let the Indian Point nuke plant - just ...

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[New York Daily News](#)

### [US \*\*nuclear\*\* official outlines Japan threat](#)

Financial Times

The evaluation by Gregory Jaczko, chairman of the **Nuclear Regulatory Commission** in the US, prompted the White House to advise Americans in Japan to stay 50 miles away from the damaged nuclear facility, the same distance it would advise individuals to ...

[See all stories on this topic »](#)

### [Next story in News](#)

msnbc.com

Only six of those, however, are Mark I systems paired with General Electric Model 3 reactors, closely resembling the configuration of the first reactor to fail at the Fukushima plant, according to records of the **Nuclear Regulatory Commission**.

...

[See all stories on this topic »](#)



[msnbc.com](#)

### [NRC: Limerick nuclear plant is third-highest earthquake risk in US](#)

Montgomery Newspapers

By Evan Brandt This map of earthquake risks in the US, updated in 2008 by the United States Geologic Survey, is one reason Exelon Nuclear's Limerick Generating Station was ranked by the **Nuclear Regulatory Commission** as the nation's third most at risk ...

[See all stories on this topic »](#)



[Montgomery Newspapers](#)

### [Japan's \*\*nuclear\*\* danger worsens, says US official](#)

Rochester Democrat and Chronicle

WASHINGTON — The chief of the US **Nuclear Regulatory Commission** said Wednesday that all the water is gone from one of the spent fuel pools at Japan's most troubled nuclear plant. But Japanese officials denied it. "There is no water in the spent fuel ...

[See all stories on this topic »](#)

### [Fulton residents react to US \*\*Nuclear Regulatory Commission\*\* study](#)

KSDK

By Talia Kaplan Fulton, MO (KSDK) - The US **Nuclear Regulatory Commission** calculated the odds of an earthquake causing catastrophic failure to a nuclear plant in the United States. At the top of the list a reactor near New York City, but what's most ...

[See all stories on this topic »](#)

### [Mass. fears depleted uranium at Springfield Armory](#)

NYN/202

Boston Herald

By AP SPRINGFIELD - Massachusetts environmental experts are preparing to investigate possible presence of depleted uranium at the site of the historic Springfield Armory after the US Army and **Nuclear Regulatory Commission** said they do not have ...

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[Create](#) another alert.

[Manage](#) your alerts.

Cc: Andersen, James; McLaughlin, Terri  
Subject: OHR Request for TA Brief (March 2011).docx

Rochelle – HR and SBCR would like to brief the Commission TAs prior to the May 3rd Human Capital and EEO Briefing. We did this last year and it was very successful. Please see the request below.

Thank you,  
Kris

-----  
Subject: Request for Commission Technical Assistant Briefing on the Status of Human Capital and Equal Employment Opportunity (EEO).

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- Strategies for sustaining employee morale (Tracy Scott, HROP, OHR)
- Update on iLearn (Emaad Burki, HRTD, OHR)
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Proposed Times:

Proposed briefing times are:

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- Wednesday, April 27, 2011: 10:00 – 11:00 a.m.
- Wednesday, April 27, 1:00 – 2:00 p.m.
- Thursday April 28, 2011: 9:00 – 10:00 a.m.
- Thursday, April 28, 2011: 10:00 – 11:00 a.m.
- Thursday, April 28, 1:00 – 2:00 p.m.

**From:** Hayden, Elizabeth  
**To:** Brenner, Eliot  
**Subject:** FW: Action: Please provide by noon Monday April 11 - Office POC to support Ops Center  
**Date:** Monday, April 11, 2011 8:38:00 AM  
**Attachments:** 04082011 Memo to EDO.Operations Center Staffing Reduction Japan Event.pdf  
**Importance:** High

---

How about Holly or me for OPA's point of contact?

*Beth*

---

**From:** Evans, Michele  
**Sent:** Saturday, April 09, 2011 4:33 PM  
**To:** Leeds, Eric; Moore, Scott; Haney, Catherine; Kokajko, Lawrence; Johnson, Michael; Sheron, Brian; Mamish, Nader; Schmidt, Rebecca; Brenner, Eliot  
**Cc:** Boger, Bruce; Ruland, William; Lewis, Robert; Flanders, Scott; Zimmerman, Roy; Uhle, Jennifer; Doane, Margaret; Hayden, Elizabeth; Powell, Amy; Wiggins, Jim; Dyer, Jim; Carpenter, Cynthia; Tracy, Glenn; Cohen, Miriam; Stewart, Sharon; McDermott, Brian; Morris, Scott; Correia, Richard; Marshall, Jane; Holahan, Patricia; FOIA Response.hoc Resource  
**Subject:** Action: Please provide by noon Monday April 11 - Office POC to support Ops Center  
**Importance:** High

**Office Directors (NRR, NMSS, FSME, NRO, RES, OIP, OCA, OPA):**

As described in the attached document, the Chairman has approved reduction of the Ops Center staffing for the Japanese event. We intend to implement this reduced staffing level as of day shift on Monday 4/11 at 7 am. At that point in time, the goal is to reduce to 6 individuals on each shift – ET director, two RST representatives, one PMT representative, one LT representative, and an ET admin assistant.

We are defining the roles and responsibilities of these positions and considering changes to the work we are doing in the Ops Center given the reduction in staff. For example, we will be producing shorter, less frequent status updates, participating in less conference calls, and providing less briefings.

In order to continue to provide high quality support to the site team in Japan, we do expect to provide more requests for action to the line organization. **In order to control these requests within each office, please provide an office point of contact (and alternate if deemed necessary), to me by noon on Monday, April 11.**

Thank you for your continued support of this effort.

Michele  
*Michele Evans*  
Acting Deputy OD, NSIR

1/11/2011



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

April 8, 2011

CHAIRMAN

MEMORANDUM TO: R. William Borchardt  
Executive Director for Operations

FROM: Gregory B. Jaczko 

SUBJECT: APPROVAL OF OPERATIONS CENTER STAFFING  
REDUCTION IN SUPPORT OF THE JAPAN EVENT

The Operations Center has been staffed around-the-clock with an event response team since March 11, 2011, responding to the event at the Fukushima Daiichi nuclear power facility in Japan. Operations Center staff members are supporting the site team, supporting NRC senior management, and maintaining liaison with other federal agencies responding to the event.

I have been briefed by the staff and understand their proposal recommending a reduction in the Operations Center staffing in response to the event. Provided that adequate support to the site team can be maintained, I approve the staff's recommendation to reduce the Operations Center response team to one team directed by a member of the Executive Team (ET), and consisting of two members from the Reactor Safety Team (RST), one member of the Protective Measures Team (PMT), and one member of the Liaison Team (LT) to provide immediate support to the site team, and one assistant to the ET director. The team should be supplemented as necessary based on workload, and line organizations should be tasked as a high priority for support as needed. The team should be staffed around-the-clock as long as the site team is staffed.

Additionally, the site team should be staffed to a level recommended by the site team Director in order to provide adequate support to the U.S. Ambassador and Government of Japan. I approve the staff's recommendation to extend tour lengths for members of the site team to three weeks in order to provide better continuity in their liaison efforts.

cc: Commissioner Svinicki  
Commissioner Apostolakis  
Commissioner Magwood  
Commissioner Ostendorff

**From:** [Reiter, Stuart](#)  
**To:** [Hayden, Elizabeth](#); [Landau, Mindy](#); [Goldberg, Francine](#)  
**Cc:** [Ousley, Elizabeth](#); [Harrington, Holly](#)  
**Subject:** NRC Open Government Plan One Year Assessment 1.doc  
**Date:** Monday, April 11, 2011 8:39:16 AM  
**Attachments:** [NRC Open Government Plan One Year Assessment 1.doc](#)

---

Attached is the First Year Assessment of our progress with Open Government, I'll have the Web team add it to the /Open site.

Stu

YY/2011

**U.S. Nuclear Regulatory Commission  
Open Government Plan  
One Year Assessment  
April 2011**

The U.S. Nuclear Regulatory Commission (NRC) has a long history of, and commitment to, openness with the public and transparency in its regulatory process. We welcomed the opportunity to support President Obama's Open Government Initiative and to implement the associated directive issued by the Office of Management and Budget on December 8, 2009.

At the first anniversary of the Open Government Initiative, the NRC is pleased to report that the state of the health of its Open Government program is very good.

In April 2010, the NRC published its Open Government Plan, which Open the Government, an open government coalition, rated as 6<sup>th</sup> among the 26 plans published at that time. In particular, the NRC's plan focuses on the agency's flagship initiative, enhancing stakeholder engagement in order to expand the agency's stakeholder community and engage a broader public audience. The plan enumerates a program of activities focusing on the three pillars of the agency's Open Government program—transparency, participation, and collaboration.

To maintain focus on the Open Government program, the NRC has established the Open Government Advisory Group, and the agency's Deputy Executive Director for Corporate Management (the NRC's Open Government Accountability Official) has endorsed its charter. The NRC has established communications goals and, to keep the public aware of the agency's progress, posts its Open Government Plan milestones and updates a "dashboard" to summarize status and provide highlights and updates.

One of the most significant accomplishments of the agency's Open Government program in its first year was the deployment of the NRC external blog (<http://public-blog.nrc-gateway.gov>). The NRC external blog is intended to increase agency collaboration and interaction with the public. The NRC blog debuted on January 28, 2011, with a welcome message from NRC Chairman Gregory Jaczko. The blog serves as a vehicle for informing the public; explaining and clarifying the NRC's actions, roles, and responsibilities; raising awareness about the agency and its mission; and opening a new place for dialogue with the public. Since the blog's launch, staff members from throughout the NRC have written posts on topics ranging from the NRC's role in international nuclear affairs to new ways to find information on the NRC Web site. At the March 8–10, 2011, Regulatory Information Conference, hosted annually by the NRC, attendees received information about the blog's availability. The service had been averaging about 350 views a day for March, but on March 10, 2011, views topped 1,000.

With the advent of Japan's nuclear emergency at the Fukushima Daiichi nuclear plant, the blog played a key role in informing the public and explaining and clarifying the NRC's actions, roles, and responsibilities, as reflected in the following statistics:

- The blog received more than 3,000 views during the first weekend after the event.
- Peak views in a single day exceeded 5,500.
- Total views from when the blog opened on January 28, 2011, through March 31, 2011, exceeded 60,000.

The NRC public Web site also provided a vehicle for information dissemination during the event in Japan, with site requests increasing up to a factor of four. Despite large increases in usage, performance of the Web site and the blog was not affected. Consistent with work already underway in support of the NRC's flagship initiative, the agency has given staff access to YouTube and Twitter to improve information access in support of the event in Japan.

The NRC has also been highly effective in meeting (and in fact exceeding) its goals for the publication of high-value datasets. Since publication of the Open Government Plan in April 2011, the NRC has published 21 high-value datasets, significantly more than the 11 identified in the plan. The agency monitors monthly download data (also posted to the Web site) to gain insights on usage and has found that the plant status and reactor demographics datasets are the most visited. Procedures for identifying, prioritizing, and publishing high-value datasets are in place, and efforts are underway to identify additional high-value datasets from both internal and external sources. The agency has also added its reactor inspection reports to the rotating pane of the Data.gov home page.

The NRC's efforts to further openness with the public and transparency in its regulatory process are reflected in recent scores on the American Customer Satisfaction Index, based on surveys of Federal Web sites. The NRC ranked 11<sup>th</sup> out of 32 Federal agencies on the survey's transparency index. The agency has also seen positive results from the release of its unified public Web search capability in December 2010, with the site search satisfaction score, as reported by ForeSee Results, improving from 68 before the new search to 73 at the end of March 2011. Also, the NRC received MeriTalk's 2010 Merit Award in recognition of the agency's collaboration and transparency efforts.

As noted above, the NRC will continue to work with the staff and stakeholders to identify additional high-value datasets for publication. The agency will continue to focus on implementing its flagship initiative to enhance stakeholder engagement. The agency is developing a discussion forum to serve as a vehicle for live question and answer sessions between the public and NRC staff online. The forum will allow for a more dynamic dialogue on important and timely topics of interest to the NRC and the public. In addition, the NRC expects to implement the use of social media as an adjunct communication tool as the technology continues to evolve and present opportunities, and the agency will announce specific social media initiatives on the NRC public Web site.

**From:** [Bulletin News](#)  
**To:** [NRC-editors@bulletinnews.com](mailto:NRC-editors@bulletinnews.com)  
**Subject:** NRC News Summary for Thursday, March 17, 2011  
**Date:** Thursday, March 17, 2011 7:08:15 AM  
**Attachments:** [NRCSummary110317.doc](#)  
[NRCSummary110317.pdf](#)  
[NRCclips110317.doc](#)  
[NRCclips110317.pdf](#)

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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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YYY/205



# NUCLEAR REGULATORY COMMISSION NEWS SUMMARY

THURSDAY, MARCH 17, 2011 7:00 AM EDT

[WWW.BULLETINNEWS.COM/NRC](http://WWW.BULLETINNEWS.COM/NRC)

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## NRC NEWS:

### US Officials At Odds With Japanese Counterparts On Gravity Of Nuclear Crisis.

Japan continued to command the attention of US media outlets last night and this morning, with front pages headlines on major dailies and 48 minutes and 45 seconds of combined airtime on the network newscasts devoted to the nuclear crisis. The coverage highlights that yesterday, US officials distanced themselves from some of the measures adopted by their Japanese counterparts -- even as anger appears to be growing in Japan over the government's handling of the crisis.

NBC Nightly News (3/16, lead story, 4:35, Williams, 8.37M) said in its lead story that "for much of" Wednesday

there was "a disagreement between the Americans and the Japanese over how dangerous the nuclear crisis is and how much radiation is being released into the environment." Also in its lead report last night, the CBS Evening News (3/16, lead story, 4:15, Smith, 6.1M) described the Japanese people as "increasingly distrustful, given the wave of conflicting reports and mixed messages," and added that "on Capitol Hill, US Energy Secretary and nuclear expert Steven Chu said he, too, is baffled." Chu was shown saying, "There are conflicting reports, and so, we don't really know in detail what's happening."

"In addition," Politico (3/17, Dixon, 25K) reports, "the State Department has recommended that American citizens within a 50-mile radius of the stricken power plant evacuate, contradicting advice from the Japanese government." Politico

adds that NRC Chairman Gregory Jaczko and White House press secretary Jay Carney "said the State Department suggestion came based on NRC's standards for evacuating citizens." Carney, "under heavy questioning from the White House press corps, insisted that the difference "is not about the quality of information" from Japan."

The US position on the 50-mile radius, the Los Angeles Times (3/17, Maugh, 681K) reports, "further" illustrated "the split between the two countries." The New York Times (3/17, McDonald, Drew, 1.01M) notes that "Japanese officials have evacuated the area within 20 kilometers (12 miles) of the plant and told people who live 20 to 30 kilometers away (12 to 19 miles) to stay indoors and seal their homes." Also, "the top government spokesman, Yukio Edano, told reporters on Wednesday that the levels of radiation detected at the edge of the evacuation zone on Wednesday do not pose an immediate danger to human health."

The Washington Post (3/17, Maese, 605K) reports, "US Ambassador John Roos said Wednesday afternoon that he thought Tokyo was still safe from radiation, and he initially supported Japan's estimation that those beyond the 19-mile radius from the nuclear plants were not at risk." However, "later, when radiation levels in the air above the plant spiked dangerously for the second consecutive day, Roos issued a recommendation based on a review of 'the deteriorating situation' by experts from the NRC and the Energy Department." The Wall Street Journal (3/17, Shirouzu, Smith, 2.09M) also reports the story under the headline "US Sounds Alarm On Radiation."

NBC Nightly News (3/16, story 2, 1:45, Williams, 8.37M) reported on "what the head of the US Nuclear Regulatory Commission said...to Congress about one" of the Fukushima reactors. Jaczko was shown saying, "We believe that secondary containment has been destroyed and there is no water in the spent fuel pool. And we believe that radiation levels are extremely high." Added NBC, "In other words, the Americans saying that it's worse than Japanese officials have let on."

On its front page, the New York Times (3/17, A1, Sanger, Wald, Tabuchi, 1.01M) reports that Jaczko's remarks "suggested a serious split between Washington and its closest Asian ally at an especially delicate moment." The Times adds that "Jaczko's most startling assertion was that there was now little or no water in the pool storing spent nuclear fuel at the No. 4 reactor of the Fukushima Daiichi Nuclear Power Station, leaving fuel rods stored there exposed and bleeding radiation into the atmosphere. As a result, he said, 'We believe that radiation levels are extremely high, which could possibly impact the ability to take corrective measures.'"

McClatchy (3/17, Gordon) reports that "frank assessment" put forth by Chu and Jaczko "stood in contrast

to Japanese officials, who continue to downplay the threat posed by the damaged plant." McClatchy adds that "testifying back-to-back at what was slated to be a mundane House budget hearing, Chu and Jaczko described the event as the worst nuclear calamity in a quarter century and perhaps ever, based on reports from a team of 39 US technicians dispatched to monitor the situation." The Financial Times (3/16, Soble, Nakamoto, Dembosky, 448K) also reports on the apparent split between US and Japanese assessments of the situation.

The New York Times (3/17, A1, Tabuchi, Belson, Onishi, 1.01M) reports on its front page, "With all the euphemistic language on display from officials handling Japan's nuclear crisis, one commodity has been in short supply: information." In fact, "foreign nuclear experts, the Japanese press and an increasingly angry and rattled Japanese public are frustrated by government and power company officials' failure to communicate clearly and promptly," as "evasive news conferences followed uninformative briefings as the crisis intensified over the past five days." The Wall Street Journal (3/17, Bussey, 2.09M) runs a similar analysis under the headline "The Crisis In Japan: A Hunger For Information."

The Washington Post (3/17, Higgins, 605K) reports that in Japan, "many are asking what happened to the country's much-vaunted flair for organization," and "those suffering...can't understand why a country as affluent as theirs can't keep gasoline, the lifeblood of a modern economy, flowing and why towns across the northeast have been plunged into frigid darkness for five days."

Voice of America (3/17, Saine) notes Chairman Jaczko "arrived late to Wednesday's hearing because he had been called for a meeting to the White House on Japan's nuclear crisis. Jaczko described the dire situation at Japan's Fukushima nuclear plant, saying radiation levels at the [fourth] reactor at that plant are 'extremely high.' ... 'For a comparable situation in the United States, we would recommend an evacuation to a much larger radius than has currently been provided in Japan,' he said."

According to Bloomberg News (3/17, Lomax), Chairman Jaczko told a House Energy and Commerce Committee panel, "We believe that the secondary containment has been destroyed and there is no water in the spent-fuel pool." The "spent-fuel pool at the plant's Unit 3, which was in service, may be cracked and losing water, Jaczko said." Jaczko said radiation at the site is fluctuating and at peak levels is life-threatening, Bloomberg News (3/17, Lomax) reports. "The peak levels 'would be lethal within a fairly short period of time,' he said. The pool at the plant's Unit 3, which was in service, may be cracked and losing water, Jaczko said. "We would recommend an evacuation to

a much larger radius than has currently been provided by Japan,' Jaczko said."

***Differences Between Pressurized Water And Boiling Water Reactors Discussed.*** An aside on Bloomberg West with Emily Chang & Cory Johnson (3/16, 11:07pm EDT) discusses the difference between boiling water reactor technology – what in use at the Fukushima plant – and pressurized water reactor technology.

### **Amid Fears About Safety Of US Reactors, Chu And Jaczko Defend Nuclear Industry.**

A significant subset of stories on Japan's nuclear crisis deal with worries about the safety of US reactors. The network newscasts, for example, devoted 8 minutes and 15 seconds to that aspect of the story.

The CBS Evening News (3/16, story 6, 2:30, Couric, 6.1M), for example, reported that Secretary of State Clinton, during an interview on CNN's Situation Room (3/16, Blitzer), "echoed the thoughts of many Americans" when "she said: 'What's happening in Japan raises questions about the safety of nuclear plant here in the US.'" CBS added that "the nuclear emergency in Japan is of particular significance to Americans living close to older nuclear reactors of exactly the same design as the crippled Japanese plant. Twenty-three of the boiling water reactors Mark-1, built by General Electric, mostly in the 1970s, are still operating at 16 plants spread across much of the country."

ABC World News (3/16, story 7, 2:40, Harris, 8.2M) reported that "the fear that what's happening over in Japan could happen here in America was on full display on Capitol Hill" on Wednesday. Sen. Frank Lautenberg was shown saying, "We have a situation that is scaring the life out of everybody." ABC also noted, "This is what Democrat Henry Waxman said when asked if American nuclear reactors are safe." Waxman was shown saying, "No, I can't reach that conclusion. Nor can anybody at this point. The industry tells us to relax, we're okay. I wouldn't take anything like that at face value." ABC went on to report that "the Energy Secretary told Congress that President Obama continues to support the idea of building new nuclear reactors in this country. But the fears are spreading."

AFP (3/17, Sheridan) notes that Energy Secretary Chu "defended the US nuclear industry," and said that "nuclear energy 'has an important role to play in our energy portfolio.'" Later, asked "by Texas Democratic Congressman Joe Barton if Obama still supports nuclear construction in the United States, given the crisis in Japan following a potent quake and tsunami there last week, Chu answered: 'We are asking for loan guarantees. The present budget is also calling for small modular reactors. That position has not been changed.'" Meanwhile, NRC Chairman Jaczko "said the commission is currently reviewing 12 applications for new nuclear reactors."

Said Jaczko, "It is important that the NRC maintain our commitment to continuous improvement."

USA Today (3/17, Eisler, 1.83M) notes that Chu said "Americans 'should have full confidence' in the safety of the 104 nuclear power reactors across the USA." The Hill's Andrew Restuccia (3/16) reports in a blog entry that Jaczko "came under tough questioning from lawmakers, many of whom have nuclear plants in their states and are worried that what is happening in Japan could happen in their backyards." Jaczko "said the NRC would 'take action' to address issues in the US if a review of what is happening in Japan yields new information."

NBC Nightly News (3/16, story 4, 3:05, Williams, 8.37M), meanwhile, said during its reporting on "that Fukushima nuclear plant" that "there are 23 similar models here in the US." NBC (Myers) added, "US regulators in the '70s and '80s also expressed concerns about whether the Mark I's containment was strong enough. GE said since those concerns most Mark I reactors have been upgraded, which experts agree improved safety." Moreover, "based on what is now known, experts say the biggest problem in Japan wasn't the reactor design itself but that the tsunami knocked out all power, including backup systems."

McClatchy (3/17, Hotakainen, Lightman) reports on the "debate rekindled by the frightening blasts at the Fukushima Daiichi nuclear complex in Japan," and asks, "Is the potential catastrophe in Japan making this debate any different? Or will...Obama's view that nuclear power is needed to combat climate change be enough to change the dynamics?" While "opponents are seizing the moment...Washington lawmakers have been reluctant to promise any change in policy."

Politico (3/17, Dixon, 25K) reports that "the ongoing crisis in Japan has some Democrats on Capitol Hill casting a more suspicious eye to the nuclear industry and the NRC." Sens. Barbara Boxer and Dianne Feinstein "sent a letter to the NRC on Wednesday expressing their concern for San Onofre and Diablo Canyon, two nuclear plants in their state. The senators want NRC to 'perform a thorough inspection' of the two plants and address questions about their ability to withstand an earthquake or tsunami."

The Huffington Post's Chris Kirkham (3/17) reports that "the Diablo Canyon nuclear plant, which sits less than a mile from an offshore fault line, was not required to include earthquakes in its emergency response plan as a condition of being granted its license more than a quarter of a century ago." And "though experts warned from the beginning that the plant would be vulnerable to an earthquake, asserting 25 years ago that it required an emergency plan as a condition of its license, the Nuclear Regulatory Commission fought against making such a provision mandatory as it allowed the facility to be built." The Wall Street Journal (3/17, Smith,

2.09M) runs a similar story under the headline "Japan Crisis Puts Spotlight On Reactors In US."

The Washington Post (3/17, Yang, Mufson, 605K) reports, "Scott Burnell, a spokesman for the NRC, said that when Congress passed the Atomic Energy Act of 1954, which gave the commission authority to hand out licenses, lawmakers were less concerned with engineering than with blocking companies from developing monopolies in their markets." The Post adds that "the NRC said that regulators are constantly monitoring the plants and that a renewal does not give a reactor free rein to operate more loosely." Said Burnell, "If it's capable of running for 40, we can tack on 20 and then consider things from there."

#### ***WPost Backs Course Outlined By Chu, Jaczko.***

Under the headline "Too Soon To Write Off Nuclear Power," the Washington Post (3/17, 605K) editorializes that "Chu insisted Wednesday that he and President Obama want to retain nuclear energy as an option, and they have good reason to do so. Generating electricity carries risks, no matter how you do it." Chu and Jaczko "are right to have the government closely examine what happens in Japan and adjust US policy as necessary. But the Fukushima plant is old. New plants would use more sophisticated technology."

#### ***Poll Finds Growing Concerns With Nuclear Energy.***

USA Today (3/17, Eisler, 1.83M) reports, "Americans' support for nuclear power has fallen, as 70% of those surveyed in a new USA Today/Gallup Poll say they've grown more concerned about the industry's safety based on the crisis unfolding at reactors in Japan." USA Today adds that according to the poll, "Americans oppose building more nuclear plants by 47%-44%," whereas "support for using nuclear energy was at 57% when Gallup asked a similar question about a week before Friday's earthquake and tsunami left Japan struggling to avert catastrophic meltdowns and fires at three damaged nuclear plants."

The Washington Post (3/17, Wallsten, Eggen, 605K) reports, Sen. Barbara Boxer (D-Calif.), questioning NRC Chairman Jaczko, "wondered about the response in the European Union, which has announced plans to test its plants for emergency preparedness. 'I would very much like to know why those respected allies of us have taken that action' while the United States has not, Boxer said. Industry lobbyists said they were pleased with the administration's reaction, suggesting that moving too quickly to halt building plans or interfere with plant operations would create more problems than it would solve." But "Rep. Edward J. Markey (D-Mass.) called for a moratorium on new construction in seismically active areas and for additional safety measures at existing plants."

The New York Times (3/17, A13, Wald, 1.01M) says that Chairman Jaczko's pledge that the NRC "would take a methodical look at Japan and incorporate lessons from the

disaster" drew "praise and criticism that was often consonant with a lawmaker's political position on nuclear power and other forms of energy. 'US nuclear facilities remain safe,'" Mr. Jaczko told lawmakers, adding, "We will continue to work to maintain that level of protection."

E&ENews PM (3/17, Northey) notes that Chairman Jaczko "said NRC is not planning on changing its approach to permitting new applications but will incorporate any findings from the unfolding disaster in northeast Japan. Those findings, he said, could generate additional costs for the agency, which he said may need to return to Capitol Hill to request new funding." The Asbury Park (NJ) Press (3/17, Chebium) also covered the hearing.

***MSNBC Report Says Indian Point Unit 3 Is Most At Risk Of Damage From Earthquake.*** On its "Open Channel" blog, MSNBC (3/17, Dedman) covers comments from New York Gov. Andrew Cuomo, who "ordered a safety review of the Indian Point nuclear plant" after "one of its reactors ranked first for risk of damage from an earthquake in a study published Wednesday." The MSNBC report was based on NRC damage estimate data for the nation's 104 commercial nuclear power plants, and Indian Point Unit 3 was rated as the most at risk from an earthquake. The NRC said Unit 3 "had a 1 in 10,000 chance each year of damage to its radioactive core from an earthquake." MSNBC said the NRC published the initial data in August, "allowing msnbc.com to rank the plants by risk. The NRC public affairs staff stressed to all callers on Wednesday that it had not done the rankings, but it did not question the accuracy of the data."

The AP (3/17) reports New York Gov. Andrew Cuomo said Wednesday "that he wants to review information from the Nuclear Regulatory Commission about safety of a nuclear plant that lies near a seismic fault line 35 miles north of Manhattan." Cuomo told reporters, "Frankly, that was surprising to me," adding, "So that matter is a concern. We are going to check into it...immediately." The Governor said the state's review will include the Indian Point Energy Center on the Hudson River in suburban Westchester County.

WTOL-TV Toledo, OH (3/17, 6:02AM EST, 35,004) reports that according to a recent ranking by the Nuclear Regulatory Commission, "the Indian Point 3 facility in New York is the most" vulnerable to a catastrophic failure caused by an earthquake. The state of Ohio had two nuclear sites on the list, Davis-Besse Power Plant and Fermi 2." WTOL-TV adds that there was 104 plants total on

WTLV-TV Jacksonville, FL (3/17, 6:04 AM EST, 61,862) adds that "reactors in Massachusetts, Pennsylvania and Tennessee round out at the top five." NRC officials said that the plants that are at the top of the ranking due to the fact that the "design standards may have been lower when earthquake risk was thought to be minimal."

### **Beaver Valley Unit 1 Fifth Most Vulnerable Plant.**

The Pittsburgh Tribune-Review (3/17, Olson, 175K) reports, "Pennsylvania is home to three of the 10 US nuclear power plants most vulnerable to an earthquake, including the Beaver Valley plant in Shippingport, according to Nuclear Regulatory Commission data." On the list of the plants seen as most vulnerable to earthquake damage, "Beaver Valley 1 reactor in Shippingport ranks fifth-most at risk, with a 1 in 20,833 chance of it suffering reactor core damage during an earthquake, according to data reported Tuesday by msnbc.com." FirstEnergy spokesman Todd Schneider said "Beaver Valley remains safe and is capable of withstanding at least a 5.8 scale earthquake, which is highly unlikely for this area."

**Limerick Station Is Third-Highest Earthquake Risk In US.** Similarly, the Montgomery (PA) News (3/17, Brandt, 21K) notes that "A Nuclear Regulatory Commission study released less than a year ago ranked Exelon Nuclear's Limerick Generating Station as being the nation's nuclear plant with the third-highest risk of being [damaged] by an earthquake. The study came about as a result of the US Geologic Survey's 2008 updating of earthquake risks around the country using more sophisticated measurements and modeling than were used in the 1996 and 2002 versions." Thanks to the new data, the NRC "increased the risk of an earthquake damaging both reactors at Limerick by 141 percent, making it the third most at risk, after the Pilgrim Nuclear Plant in Plymouth, Mass., and the Indian Point Atomic Generating Station in Buchanan, N.Y."

**Oconee Nuclear Station Ranked 8th Most At Risk From Earthquake.** The Anderson Independent-Mail (3/17, 39K) reports, "The Oconee Nuclear Station has the eighth-greatest risk of suffering a catastrophic failure from an earthquake among the nation's 66 nuclear power plants," the NRC says. According to the report, "In any given year, there is a 1-in-23,256 chance of an earthquake damaging the cores of the three nuclear reactors at the Duke Energy-owned plant on Lake Keowee." The report finds "Oconee Nuclear Station faces a slightly higher risk of damage from earthquakes than the Diablo Canyon nuclear power plant in Avila Beach, Calif., which has two reactors between the San Andreas Fault and the Pacific Ocean."

**Diablo Canyon Situated On Newly Discovered Shoreline Fault.** The AP (3/17) reports, "Two years before an immense coastal earthquake plunged Japan into a nuclear crisis, a geologic fault was discovered about a half-mile from a California seaside reactor — alarming regulators who say not enough has been done to gauge the threat to the nation's most populous state." At "issue at Diablo Canyon is not what is known, but what is not. Preliminary research at the site, which sits on a wave-washed bluff above the Pacific, found its twin reactors could withstand a potential earthquake

generated by the recently identified Shoreline Fault, just off the coast." Still, regulators have pressed plant owner PG&E "to conduct sophisticated, independently reviewed studies that they say are needed to fully assess the danger at a site within 200 miles of Los Angeles."

The Salem (OR) Statesman Journal (3/17, Barton, 40K) reports, "Sen. Barbara Boxer chastised federal officials Wednesday for not reviewing a 2008 report that raised concerns about how a seismic event could threaten the safety of 8 million Californians who live within 50 miles of the state's nuclear plants." Boxer "accused Nuclear Regulatory Commission officials of lacking interest in an October 2008 report by the California Energy Commission that raised concerns about potential earthquake effects on the Diablo Canyon Power Plant and the San Onofre Nuclear Generating Station. Both are situated near fault lines." Boxer, "demanded to know" whether NRC officials "knew how many people lived within 50 miles of San Onofre in Southern California. Raising her voice, she said, 'I'm going to tell you how many: 7.4 million people.'"

KGTV-TV San Diego, CA (3/17, 1:12am PDT, 4,020) reports, "Senator Barbara Boxer was one of several lawmakers from California grilling the Nuclear Regulatory Commission today, about the threat of a similar disaster, at San Onofre." San Onofre nuclear plant is in an earthquake zone and, according to Sen. Boxer, has 7.4 million people living near it. KGTV-TV adds that the nuclear plant is "built to withstand a 7.0 quake, but a 2008 report by the state said San Onofre could experience larger and more frequent earthquakes than it was designed to handle." KGTV-TV also reports that the "Nuclear Regulatory Commission never acted on that report."

**San Onofre Protected By Sea Wall.** According to Wall Street Journal (3/17, Casselman, Spegele, 2.09M) coverage of the report on whether US facilities can withstand, noted the San Onofre Station's 30-foot sea wall protecting the plant from tsunamis. Commenting on the wall's strength Southern California Edison spokesman Steven Conroy said, "Based on historical information from scientists, the wall is capable of dealing with any type of tsunami that would be generated by an earthquake."

**Kucinich Asks NRC To Close FirstEnergy Nuclear Plants.** The Cleveland Plain Dealer (3/17, Eaton, 266K) reports, "In light of safety problems at Japanese nuclear power plants that have been compromised by natural disasters, Cleveland Democratic Rep. Dennis Kucinich is asking the Nuclear Regulatory Commission to shut down US nuclear facilities run by 'bad actors,' including Akron-based FirstEnergy." Kucinich, in a letter dated March 16, and addressed to NRC Chairman Gregory P. Jaczko, "says Japan's failing nuclear power plants warrant a fresh

assessment of US nuclear catastrophe preparedness.” The paper says “Kucinich has a history of enmity with FirstEnergy that dates back to his days as Cleveland’s mayor, when he resisted pressure to sell Cleveland’s municipal power plant to FirstEnergy’s Cleveland Electric Illuminating Co. subsidiary.” FirstEnergy spokesman Todd Schneider said “safety is the company’s top priority.”

The Washington D.C. Examiner (3/16, Spinelli) reported that the nuclear crisis in Japan “has turned some Ohioans’ attention to the state’s two existing but aging nuclear power plants on Ohio’s North Coast and a new one proposed for construction in the south close to the Ohio River.” The paper said Kucinich, “a long-time outspoken critic of nuclear power plants,” was “referring to what he told the NRC in a 2007 letter were ‘a number of serious management problems at the Perry facility’ owned by FirstEnergy, Ohio’s mega-utility whose failure in August 2003 to trim limbs that touched electric wires resulted in 50 million people from Ohio to New York City falling into darkness when their lights went out.”

**Japan Crisis May Dampen Maryland’s Nuclear Expansion Plans.** The Delmarva Daily Times (3/17, Marso) reports, “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.” Maryland Comptroller Peter Franchot said: “Public opinion has changed in the last couple days.” The paper says the state’s Calvert Cliffs Nuclear Power Plant, “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.”

**Iowa Senators Seek To Delay Nuclear Power Plants.** The AP (3/17) reports, “Some Iowa senators want to delay action on bills that would make it easier for energy companies to build nuclear power plants in Iowa, given the nuclear crisis unfolding in Japan.” Notably, “nine Democratic senators sent a letter to their colleagues on Wednesday saying they are ‘extremely concerned about proposed legislation that appears to be on the fast track to pave the way’ for more nuclear plants in Iowa.” The lawmakers sought to delay the legislation, and asked for a commission “to investigate the issue.”

**Texas Nuclear Opponents Seek To Halt Proposed Atomic Plant.** The AP (3/17) reports, “Opponents of a proposed Texas nuclear power plant are urging federal regulators” to “halt the permit application” for a proposed nuclear plant in Victoria County in view of the Japan crisis. Exelon Corp. is in the “preliminary stages of trying to

acquire permitting for a proposed nuclear plant in Victoria County.”

On its website and on the air, KRIV-TV Houston (3/16) reported Exelon Power Texas is defending its plans to construct the power plant. A hearing was held Wednesday over the company’s plea for an early site permit, the TV station noted.

On its website, KJTV-TV Lubbock, Texas (3/16) reported the group opposing the nuclear plant, Texans for A Sound Energy Policy Alliance, said the plant in Victoria County will be relying on Guadalupe River, which is drought prone. Bill Jones, a spokesman for the group, said the best place for the nuclear plant is where there is plentiful supply of salt water, which is on the coast.

**New Crack Found At Containment Building Of Crystal River plant.** The Ocala Star Banner (3/17, Hiers) reports, “A new crack in Progress Energy’s Crystal River nuclear plant’s containment building has forced the utility company to again scrap its plans to fire up the facility in April. The delay marks the fifth time in 18 months the utility giant has pushed back its start-up date.” On Monday, Progress reported to the NRC “that testing equipment had detected irregularities in the wall and ‘upon further inspection there was a separation that wasn’t previously there,’ said NRC spokesman Roger Hannah.”

**Duke’s Rogers Still Committed To Nuclear Power.** The Orlando Sentinel (3/17, 206K) is reporting that Duke Energy CEO Jim Rogers “said Tuesday that the company’s desire to build more nuclear plants in the wake of catastrophe in Japan is still strong.” According to WRAL-TV, Rogers said, “Our commitment hasn’t faltered.” Duke “was in front of regulators in North Carolina on Tuesday setting the stage for a law similar to one passed in Florida that would allow it to charge customers up front for new nuclear plants before they decide whether or not they will actually be built.”

**Duke Doesn’t Plan To Postpone Cherokee County Nuclear Project.** The Anderson Independent-Mail (3/17, 39K) reports, “Duke Energy has no plans to postpone building a nuclear plant in Cherokee County in light of the overheating and explosions at a Japanese nuclear facility after last week’s powerful earthquake and tsunami.” Duke Energy’s Rita Sipe “said it’s too early to tell what impact the impending disaster will have on the industry, but the company will continue” with the NRC’s “process for building the \$11 billion William S. Lee III plant. The licensing process will likely take two more years, and the plant would come online in 2020 or 2021, according to company plans, Sipe said.”

## **Exelon's Rowe Reconsidering Nuclear Power Plans.**

The Crain's Chicago Business (3/17, Daniels, 45K) reports, "Exelon Corp., confronting the disquieting questions raised by the unfolding nuclear disaster in Japan, is reconsidering a \$3.7-billion plan to add capacity to the country's largest fleet of nuclear power plants." Exelon CEO John Rowe said "that plans to add a combined 1,500 megawatts of capacity over eight years through improvements to most of its plants were in question, as the Chicago-based power giant awaits safety reviews by the Nuclear Regulatory Commission that are 'sure to come.'" He added that "the NRC was likely to look at backup generators at nukes following the catastrophic power failures at the stricken Japanese plant that disabled cooling systems, leading to overheating, explosions and radioactive releases."

## **Surgeon General Clarifies Comments About Public's Need For Iodine Pills.**

NBC Nightly News (3/16, story 5, 1:35, Williams, 8.37M) remarked on the "run on iodine pills in stores and on eBay where we found a few active auctions at exorbitant prices for them," and added that "while the Surgeon General yesterday said Americans should have the pills as a precaution, she later adjusted those remarks." NBC's Nancy Snyderman said that Surgeon General Regina Benjamin "sent me a text message that said I never intended to imply people go out and buy pills. She was referring to pills like these that people are taking to block the thyroid from taking up radioactive iodine." On Tuesday, NBC Nightly News (3/15, story 5, 2:20, Welker, 8.37M) had reported that Benjamin said that buying iodine pills was "a good idea." Benjamin was shown saying, "It's definitely appropriate, we have to be prepared."

Molly Hennessey-Fiske writes at the Los Angeles Times (3/17, 681K) "L.A. Now" blog that a spokesperson for US Surgeon General Regina Benjamin "has clarified her position on whether people should stock up on potassium iodide as protection against nuclear radiation from Japan." Noting that the CDC identifies the substance as potentially preventing the "thyroid from absorbing radioactive iodine," Hennessey-Fiske reports that on in Tuesday comments in California, Benjamin "appeared to contradict the message from other public health officials that the pills are unnecessary and may have harmful side effects." However, she had "framed her comment within the broad context of disaster preparedness" and told the press "she had not heard about panicked California residents stocking up on potassium iodide." On Wednesday, the spokesperson "clarified Benjamin's position," stating that Benjamin had not recommended stockpiling or prophylactic use of potassium iodide.

**Radiation Fears Prompt West Coast Rush For KI Tablets Despite Warnings.** Noting that "scientists and meteorologists say any trace radiation would be completely

diffused as it comes across the Pacific," NBC Nightly News (3/16, story 5, 1:35, Williams, 8.37M) reported that such assurance "hasn't stopped a run on iodide pills in stores and on eBay where we found a few active auctions at exorbitant prices for them today. While the Surgeon General yesterday indicated Americans should have the pills as a precaution, she later adjusted those remarks. Consumers are warned not to take the pills unless exposed to radiation."

The Washington Post (3/17, Stein, 605K) reports that despite reassurances from scientists and authorities that there is little risk of radiation from the nuclear crisis in Japan reaching US territory, "Fearful residents have flooded health officials in western states...with anxious questions, and some authorities have begun issuing updates about air monitoring for radiation." Meanwhile, "The two US companies that make potassium iodide, which can reduce the risk of thyroid cancer from exposure to iodine-131, are being overwhelmed by demands for the medication from individuals, pharmacies, hospitals, day-care centers and others." Despite increased vigilance on the part of US authorities, "thousands of people are seeking potassium iodide. CVS's online pharmacy sold out of it over the weekend, a spokesperson said."

Julie Mason writes at Politico's (3/17) "44" blog that the reactor breach in Japan "has sparked a run on iodine supplements and Geiger counters on the West Coast -- as conflicting messages radiate from the White House about Americans' safety." Noting that President Obama's statement that "any nuclear release dissipates by the time it gets even to Hawaii, much less the mainland of the United States," is in contrast with Benjamin's having said "it was right to be prepared and that stocking up on iodine pills was not an overreaction," Mason adds that "experts warn that taking the supplements can do more harm than good, and aren't even necessary. All the same, the EPA is setting up radiation monitors along the coast, reports the San Jose Mercury News."

Noting that demand for KI pills "was strongest on the US West Coast," AFP (3/17, Thurston) reports that firms making the drug are overwhelmed. "'The spike is enormous ... we were out of stock by Friday night,' said Alan Morris, president of Anbex, which supplies the drug to individuals and retailers, including online." AFP juxtaposes the run on KI with "the head of the US Nuclear Regulatory Commission [having] warned of 'extremely high' radiation levels from the Fukushima plant." Meanwhile, "The California Department of Public Health's interim director, Howard Backer, also stressed the risks involved in taking potassium iodide unnecessarily." This piece also mentions Benjamin's "apparent miscommunication" and her office's subsequent clarification.

**Hawaiian Stores Sold Out Of KI.** AFP (3/17) reports that Hawaiians are also scouring sold-out stores for the pills, though officials there "warned that taking potassium iodide

could have unwanted side effects. ... 'As soon as people heard about the first explosion (in Japan), people wiped our shelves clean,' said Amber Simone of the Honolulu branch of the Down to Earth health food store chain, which has five branches." AFP explains, "Thyroid glands quickly absorb radioactive iodine, causing damage. But iodide pills can block radioactive iodine from being taken into the thyroid gland, according to the CDC."

**Officials Warn Of KI Dangers, Side Effects.** The Chicago Sun-Times (3/17, Guy, McKinney, 256K) reports that as residents as far east as Chicago "scoop up potassium iodide supplements," local officials warn that they "are needless and could cause adverse side effects. 'Residents who take potassium iodide out of concern of possible radiation exposure from the events in Japan could be putting their health at risk due to side effects,' said Dr. Damon Arnold, director of Illinois' Department of Public Health, which recommends against taking the tablets at this time. ... Potassium iodide...can be harmful to people with allergies to iodine or shellfish and to those with thyroid problems, renal disease and certain skin disorders and chronic diseases."

**Pharmaceutical Manufacturers Ramp Up Production Of Potassium Iodide.** CNN Newsroom (3/16, 3:37pm) broadcast, "Despite reassurances from health experts, people are buying up these things, these potassium iodide pills in the US, especially along the west coast. Now some manufacturers like Flemming Pharmaceuticals say they're bombarded with requests for the drug. They've ramped up production. This even as the US Nuclear Regulatory Commission says it does not expect, does not expect, harmful radiation levels from Japan to reach American soil."

**Bilirakis Calls On Obama To Boost US KI Stockpiles.** CQ Today (3/17, Ota) reports that FL9 Rep. Gus Bilirakis (R) is urging the "Obama administration to expand stockpiles of anti-radiation medication for distribution to Americans living near the nation's nuclear power plants." Noting the influence of the Japanese crisis, CQ adds that MA7 Rep. Edward J. Markey (D) has joined Bilirakis in "renewing earlier efforts to get the government to distribute potassium iodide to those living within 20 miles of this country's 104 nuclear plants. A bioterrorism law (PL 107-188) enacted nine months after the 2001 terrorist attacks called on federal authorities to supply states and local governments with sufficient amounts of the medication for residents living less than 20 miles from a plant. But the law allowed changes to the distribution plan if better alternatives were devised."

**US Relying On Aging Reactor Fleet More Than Ever.** The Washington Post (3/17, Yang, Mufson, 605K) reports on the state "of nuclear energy in this country, where the average plant was built in 1980 and the cost of launching

new reactors – and, industry executives say, safer ones – remains prohibitively high." The US, "is leaning more heavily than ever on the first generation of plants built decades ago, even as critics worry that aging reactors have some dangerous weaknesses." While aging plants "are not necessarily failing plants," safety issues have come under "scrutiny as workers in Japan try to fend off a nuclear meltdown at the Fukushima Daiichi plant, whose reactors were designed by General Electric in the 1960s." NRC spokesman Scott Burnell, "said that when Congress passed the Atomic Energy Act of 1954, which gave the NRC authority to hand out licenses, lawmakers were less concerned with engineering than with blocking companies from developing monopolies in their markets."

**Nuclear Industry Lobbying Picks Up Speed In Wake Of Japan Crisis.** In contrast to the observation that most of the commentary over the last several news cycles has come from anti-nuclear interests and activists, the Boston Globe (3/17, Emery, Slack, 253K) reports, "The nuclear power industry has mounted a concerted lobbying push on Capitol Hill this week to reassure members of Congress who are concerned about the Japanese nuclear plant disaster and potential for a similar incident in the United States." The "industry's success at explaining the technical issues and addressing concerns of elected officials and the American public could prove pivotal to the future of nuclear power," which had begun to enjoy renewed support after years of inaction. Rep. Edward J. Markey (D-MA), said the nuclear industry has "a very powerful lobbying force, which is being felt on the Hill right now." Since the weekend, "the Nuclear Energy Institute, the industry's trade organization, and its members have dispatched representatives to conduct large-scale briefings and have prepared fact sheets for lawmakers about safety threats in Japan."

**Nuclear Output Increases Slightly.** Bloomberg News (3/17, McClelland) reports, "US nuclear-power output rose 0.3 percent after power increased at the Calvert Cliffs 2 reactor in Maryland and NextEra Energy Inc. boosted the Turkey Point Unit 3 in Florida, the Nuclear Regulatory Commission said." Constellation "boosted its 867-megawatt Calvert Cliffs 2 reactor to 56 percent of capacity from 10 percent yesterday. Another reactor at the plant, the 867-megawatt Calvert Cliffs 1, is operating at full power."

**Most Top Lawmakers Not Ready For New Nuclear Moratorium.** CNN correspondent Dana Bash said on CNN Newsroom (3/16, 3:40pm) she has "spoken to several lawmakers who are strong supporters of nuclear energy, and they have said they're worried about what this horrible crisis in Japan means for nuclear energy in the US,

which has been gaining traction in recent years on both sides of the aisle. Some Democrats who have long opposed nuclear energy, they are seizing on this, calling for a moratorium on US plants. Talking to congressional leaders on both sides of the aisle, they don't seem to be ready for that."

ABC affiliate, KSPR-TV Springfield, Missouri (3/16, 11:13pm EDT) broadcast, "Helicopters dispatched to drop water on the Fukushima Daiichi nuclear plant in Japan were called off, as a cloud of smoke erupted from one of the reactors Wednesday. Elevated radiation levels were detected. It's the latest setback at the plant that took a direct hit from last week's earthquake and tsunami. The IAEA confirms, three of the six reactors' cores are damaged. The Japanese power company says they're close to getting power to the reactor pumps."

### **Indiana Lawmakers' Nuclear Power Enthusiasm Dampened On Japan Problems.**

Following the events in Japan, the Indianapolis Star (3/17, Russell, 190K) reports that state "leaders are backing away from an effort to promote nuclear power here, and nuclear critics are stepping up their opposition." Having just passed legislation in the Indiana Senate last month that "would encourage the construction of the state's first nuclear plant or perhaps a small, modular nuclear plant," attitudes have "changed in a hurry in recent days, as news from Japan grows bleaker. ... Indiana officials say it's time to pause and reassess the benefits and risks of nuclear power." Sen. Beverly Gard said it was time to "take a step back," and put nuclear power "on the back burner until the crisis in Japan is under control."

### **Space Weather Could Cause Problems For US Nuclear Reactors.**

In his series on space weather, Steve Tracton at the Washington Post (3/17, 605K) "Capital Weather Gang" blog writes on whether nuclear power plants are vulnerable to the effects of solar storms. "The issue is whether diesels and their onsite fuel supply would last long enough to keep the core from melting given that resupply would be a challenging proposition given the societal and infrastructure disruptions caused by effects of a possible catastrophic solar storm." Because of the issues in Japan, Tracton believes this issue "ought to be" considered.

### **VA Disability Claim Described Possible Radiation Exposure At Navy Base.**

On its website, WEWS-TV Cleveland, OH (3/16, Regan) said an "exclusive...investigation" that it conducted "reveals the federal government was aware of possible radiation exposure and failed to act." The "new information was contained within a 2004 disability claim filed" with the Department of Veterans

Affairs that "describes possible radiation exposure from a leaking nuclear power plant that supplied power" to a US Navy base in Antarctica. The "revelation comes on the heels of a request" by US Sen. Sherrod Brown (D-OH) to "Defense Secretary Robert Gates for a full investigation into the extent of radiation exposure for an estimated 15,000 Navy personnel who served at McMurdo Station, Antarctica during the 1960s and 70s." WEWS-TV (3/16, 6:09 p.m. ET) aired a similarly negative story.

### **TSA Officials Grilled Over Body Scanners.**

Two TSA officials "defended" their agency's use of full-body scanners in front of a "skeptical" House panel yesterday, the Washington Times (3/17, 77K) reports. Republican Rep. Jason Chaffetz was joined by several witnesses in raising safety and privacy concerns regarding the passenger screening machines. On the privacy issue, Chaffetz is quoted saying "nobody has to look at my grandmother naked to secure an airplane." Marc Rotenberg, executive director of the Electronic Privacy Information Center, "expressed doubt about TSA's contention that it does not save images," noting that his organization has "obtained from the US Marshals Service more than 100 images" from a machine in Orlando. Meanwhile, David Brenner, director of Columbia University's Center for Radiological Research, "testified that despite a low individual risk, it's possible that radiation from backscatter machines could cause cancer in 100 people a year."

Brenner "noted that the TSA uses the full-body X-ray scanners at some airports but allows passengers at other airports to pass through millimeter wave scanners, which do not use ionizing radiation," USA Today (3/17, Young, 1.83M) reports. "X-rays," however, "are a carcinogen," he said. Robin Kane, TSA's assistant administrator for technology, maintained that the "technology is safe." He "emphasized that the machines are necessary to protect the public from terrorists and that they have been thoroughly tested by independent experts."

### **FD: OPM Director Calls For New Performance-Review Upgrades For GS System.**

In his "Federal Diary" column for the Washington Post (3/17, 605K); Joe Davidson writes of Office of Personnel Management director John Berry's call for a new federal performance-management system that may prove to be an "evolution" for the General Schedule system and a "reprieve" for the classification that covers most federal workers. In remarks at Gallaudet University, Berry said the new "system that would replace the current methods of performance reviews, which he said are 'infrequent and rote.'" Davidson says Berry had been an archrival of the 60-year-old GS system, but in his speech, he "offered 'a basic blueprint for changing the way we manage

personnel performance, and ultimately organizational performance, without changing the law or the pay system.”

## **INTERNATIONAL NUCLEAR NEWS:**

**Japanese Plant “Teetering On The Brink.”** The situation continued to deteriorate at the Fukushima Dai Ichi nuclear plant, Wednesday. The spent fuel pool at unit 4 was reported to be without water in testimony in the US House and Japanese emergency personnel desperately attempted to stop the damage, but were often prevented from doing so.

ABC World News (3/16, lead story, 4:00, Sawyer, 8.2M) reported, “This is what an American official told us today: It would be hard to describe how alarming the situation is inside Japan’s nuclear power plant – teetering on the brink of a multi-reactor meltdown.” The “last ditch hope” are 50 “workers heading in on what he called a suicide mission, and even that may be too late.” ABC (Raddatz) added, “We are told it is like a horror movie, fighting a monster you cannot see, you cannot touch but you know is coming to get you.”

ABC World News (3/16, story 3, 2:00, Sawyer, 8.2M) later reported on the “brave nameless men” who “stand ready to lay down their lives to slay a fire-breathing dragon,” and noted (Chang) their “one last ditch effort, as the world holds its collective breath.”

The Los Angeles Times (3/17, Magnier, King, Hall, 681K) reports, “Japanese authorities embarked Thursday on a series of desperate new measures to try to avert full reactor meltdowns at a stricken nuclear complex.” The Times adds that “as US and Japanese officials disagreed on how to characterize the seriousness of the nuclear crisis, police planned to use a water cannon truck – normally used for crowd control – to try to cool an overheated and possibly dry spent-fuel pool, one of an escalating series of malfunctions at the Daiichi plant in Fukushima prefecture, 150 miles north of Tokyo.”

The AP (3/17) reports, “Japanese military helicopters dumped loads of seawater onto a stricken nuclear reactor Thursday, trying to avoid full meltdowns as plant operators said they were close to finishing a new power line that could restore cooling systems and ease the crisis.” The AP adds, “A Japanese military CH-47 Chinook helicopter began dumping seawater on the damaged reactor of Unit 3 at the Fukushima complex at 9:48 a.m., said defense ministry spokeswoman Kazumi Toyama. The aircraft dumped at least four loads on the reactor, though much of the water appeared to be dispersed in the wind.”

On ABC World News (3/16, story 2, 2:50, Sawyer, 8.2M), nuclear expert Joe Cirincione said, “It’s hard to see what they can do,” and added that “the situation’s been

getting worse. This is really a last line of defense. The 50 workers are doing their best, they may give their lives in this. But it’s hard for me to see how they can get enough water or have enough reinforcement to the containment vehicles to prevent the core meltdown and a possible breach of two reactors.”

On the CBS Evening News (3/16, story 2, 2:05, Couric, 6.1M), James Acton, a nuclear safety expert with the Carnegie Endowment, said, “Right now the biggest cause of concern is the highly radioactive used nuclear fuel because that material is sitting outside of the heavily reinforced containment building. And all that’s standing between it and the outside world is a big pool of water, and a weak outer containment shell.”

The Los Angeles Times (3/17, Demick, 681K) reports, “An awful realization is setting in for those trapped in the vicinity of the crippled Fukushima nuclear complex: People are afraid to help them. ... Aid agencies are reluctant to get too close to the plant,” and “radiation fears mingled with a sickening sense of abandonment Wednesday.”

Meanwhile, USA Today (3/17, Weise, 1.83M) reports, “millions of people struggled for a sixth day with inadequate food, heat and no water service. Temperatures hovered in the mid-30s, with biting winds and snow flurries. Police say more than 452,000 people are staying in temporary shelters, some sleeping on the floor in school gymnasiums.” Moreover, “several thousand people are listed as missing.”

Asked on CNN’s Situation Room (3/16, Blitzer) if it is time for Americans to leave Japan, Secretary of State Clinton replied, “Well, we are monitoring that. And we are listening to the experts, because we want to make an informed decision if a decision becomes necessary.” Blitzer: “So as of now, you’re not telling people to leave?” Clinton: “As of this minute. But again, we are in close touch with our embassy.”

The AP (3/17, Hosaka) reports that “Australia, Britain and Germany advised their citizens in Japan to consider leaving Tokyo and earthquake-affected areas, joining a growing number of governments and businesses telling their people it may be safer elsewhere.”

**Helicopters Make Water Drops As Technicians Work To Restore Power To Dai Ichi Plant.** On its website, CNN (3/17) reports Japanese military helicopters “dumped water Thursday on and near the Nos. 3 and 4 units at Japan’s Fukushima Daiichi nuclear plant in the latest attempt to halt the nuclear accident that appeared to be spinning out of control.” Initially, “just a few drops were carried out before the operation was suspended,” and an NHK “commentator said about 100 would be needed for the operation to succeed.” Earlier in the day, “engineers were planning to begin the process of restoring power to the stricken nuclear complex,” a critically important effort “using the power lines from outside,”

said the official with the Nuclear and Industrial Safety Agency."

USA Today (3/17, Vergano, 1.83M) reports, "Emergency workers shuttled into and out of Japan's Fukushima Dai-ichi nuclear plant today as they scrambled to contain melting nuclear cores and even wider releases of dangerous radiation. After temporarily evacuating the plant for five hours in the face of high radiation, the 180 workers, in shifts of 50 at a time, resumed pumping seawater into the plant's three damaged reactors." The "workers were hailed as heroes in Japan." Keiichi Nakagawa of the Department of Radiology at University of Tokyo Hospital said, "I don't know any other way to say it, but this is like suicide fighters in a war."

On its "OnDeadline" blog, USA Today (3/17, Winter, 1.83M) says, "Among the emergency efforts at the Fukushima plant," TEPCO "says it trying to install new power lines to restart the cooling systems that failed after Friday's magnitude 9 earthquake and resulting tsunami. NHK TV says the plant operator hopes to run the new lines from another power plant through a makeshift switchboard Thursday, essentially creating giant jumper cables. High radiation thwarted work Wednesday."

The New York Post (3/17, 474K) adds that according to NHK, three "twin-rotor CH-47 Chinooks from the Japanese Self-Defense Forces (SDF) were used in the operation" to drop two loads of seawater "on the plant's damaged No. 3 reactor, with the third load dropped on the No. 4 reactor." Eleven "water cannon trucks were also en route to the plant to spray water from the ground onto the No. 3 reactor."

ABC News (3/16, Muir, Hopper, Tanglao, Forer) reported on its website, "When radiation levels surged following a fire at Unit 4 and a rising cloud of radioactive vapor from unit 3, officials deemed it too risky for the plant workers to continue their critical work of pumping sea water on the damaged reactors and fuel ponds. 'The workers cannot carry out even minimal work at the plant now,' Chief Cabinet Secretary Yukio Edano told the Associated Press. 'Because of the radiation risk we are on standby.'"

**Containment On Dai Ichi No. 2 Reactor May Be Breached.** Bloomberg News (3/17, Lundgren, Srivastava) reports, "Japanese authorities are concerned about the condition of the pools of units 3 and 4, the International Atomic Energy Agency said yesterday. ... The crisis at Fukushima worsened yesterday when Tokyo Electric said the containment chamber at the No. 2 reactor may have been breached because pressure dropped suddenly. Clouds of steam were seen rising from the reactor building after a fire at the No. 4 Reactor. The 50 workers remaining at the plant were pulled out yesterday after radiation temporarily rose to unsafe levels," though they returned later.

**Jaczko Says Loss Of Water Could Hamper Ability To Make Repairs.** According to Financial Times (3/17, Kirchgaessner, McGregor, 448K) Jaczko testified that he believed the water loss in the No 4 reactor spent fuel pool "could possibly impact the ability to take corrective measures." Wall Street Journal (3/17, Tracy, 2.09M) carried similar coverage.

Reuters (3/17, Doggett) adds Jaczko said the NRC's information "is limited" as to what's happening onsite, but he added that with the high levels of radiation, "It would be very difficult for emergency workers to get near the reactors. The doses they could experience would potentially be lethal doses in a very short period of time."

**TEPCO, Japanese Nuclear Regulators, Dispute Jaczko's Claim.** The AP (3/17, Talmadge, Yamaguchi) reports that if "Jaczko was correct, this would mean there was nothing to stop the fuel rods from heating and ultimately melting down. The outer shell of the rods could also ignite with enough force to propel the radioactive fuel inside over a wide area." Japan's nuclear safety agency and TEPCO "which operates the six-unit Fukushima Dai-ichi complex, denied Jaczko's statements that the water is gone from the pool. Utility spokesman Hajime Motojuku said the 'condition is stable' at Unit 4, which was shut when the earthquake and tsunami hit last week." The AP (3/17) ran a shorter version of its coverage.

**Gunter Says Water Could Feed Spent Fuel Pool Fire.** Paul Gunter of Beyond Nuclear appeared on MSNBC's "Last Word with Lawrence O'Donnell" (3/16, 11:09pm EDT) and said that in Japan, there is an "unparalleled event where an entire reactor core is melting down or poised to meltdown. Certainly slumping. It's turning into this mass that is issuing hydrogen and oxygen gas, and in fact, as it heats up, if you try to put water on it, the water that goes on to this heating up mass will actually again separate out, chemically separate out into more hydrogen, more oxygen, and you actually could feed this accident with the water to try to quench it."

**Many Viewers Oppose New Reactor At Callaway Plant.** NBC affiliate, KOMU-TV Columbia, Missouri (3/16, 11:10pm EDT) broadcast, "Some mid-Missourians flocked to our Facebook more convinced than ever about the danger of legislation leading to a second nuclear reactor at the Callaway nuclear power plant. Republican lawmakers argue a second plant could bring jobs and growth. But our viewers think higher utility rates to fund nuclear energy could keep businesses away."

**Kan Government Faulted For Failing To Inform On Nuclear Crisis.** In a commentary for Tokyo Sankei Shimbun (3/17) Political Desk Editor Mataso Inui wrote that the government of Prime Minister Naoto Kan has "totally failed to take an adequate initial action to deal with explosion at the No. 1 nuclear reactor building of the Fukushima No. 1 nuclear

power plant. In almost an hour after the accident, Nippon Television Network Corporation aired the video footage of the explosion, which was then released to the rest of the world by BBC. It was 2 hours after the explosion when the chief spokesman held a news conference and 5 hours after the accident when he admitted the occurrence of the blast." Inui adds the "delay in disclosing information has led to various rumors such as that saying, 'The government might be hiding the real information.'"

**Jaczo Urges Personnel To Withdraw To About 80 Kilometers From Fukushima.** BBC News (3/16, 11:14pm EDT) reports, "We heard from Gregory Jaczo, who is the chair of the Nuclear Regulatory Commission. Now, he warned that US military personnel and citizens in Japan should actually withdraw to a radius of about 80 kilometers from Fukushima and the current exclusion zone is about 20 kilometers. The United States is assessing the situation in more serious terms, or at least their assessment is serious."

**IAEA, G-7 To Hold Meetings On The Situation In Japan.** Bloomberg News (3/16, Inajima, Sato) reports, "The United Nations' nuclear agency will call an emergency meeting to discuss the crisis in Japan as a breach at the stricken Fukushima Dai-Ichi plant increased the risk of a radioactive leak." IAEA head Yukiya Amano "is flying to Tokyo to talk with authorities today and will return for the meeting as soon as possible, he told reporters in Vienna yesterday. It will be the first extraordinary meeting of the agency's 35-member board since his election to succeed Mohamed ElBaradei two years ago."

Under the headline "Atomic Agency's Assessment Lags," the Wall Street Journal (3/17, Crawford, Hansen, 2.09M) reports on criticism of the IAEA's performance, particularly its failure to send a team of experts to Japan until six days after the crisis got underway – a development that forced the agency to rely on assessments from the Japanese government.

Meanwhile, the New York Times (3/17, Saltmarsh, 1.01M) notes that "France is arranging a discussion among finance ministers and central bankers from the Group of 7 countries to assess the economic effects of the crisis in Japan and a possible response." According to an anonymous "French official," the G-7 would weight "measures to support Japan, improve liquidity if needed and calm financial markets. The official said the discussion was likely to take place by conference call Thursday or Friday, depending on the availability of hard-pressed Japanese officials."

Bloomberg News (3/17, Tirone, Biggs, Lomax) reports, "The United Nations' nuclear agency plans an emergency meeting on the crisis. Japan faces a 'serious situation,' Yukiya Amano, head of the International Atomic Energy Agency, told reporters in Vienna before departing for talks with authorities in Tokyo today. Amano said fuel stored in

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

**Military Keeps "Watchful Eye" On Health Of US Soldiers Involved In Relief Efforts.** The Christian Science Monitor (3/17, Mulrine, 48K) reports, "The US military is keeping a watchful eye on the health of US forces in Japan and on radiation levels emitted by Japan's Fukushima I nuclear power plant as it continues its extensive relief efforts." The Monitor adds that "there is reason for concern among US military officials. Already the US Navy's 7th Fleet was forced to reposition its ships and aircraft 'after detecting low-level contamination in the air and on its aircraft operating in the area,' according to a statement released by the fleet Monday." And "perhaps the most alarming development is that radiation has also been detected on US troops themselves."

**Crisis Plays Havoc With World Markets, Presents Challenge To US Economy.** The Financial Times (3/17, Mackenzie, Politi, 448K) reports that top G-7 finance officials were to hold talks this morning on the Japanese crisis' effect on world markets. Yesterday, the New York Times (3/17, Wassener, 1.01M) reports, "the Japanese stock market sank again Thursday morning and the yen hit a record high against the US dollar after a US nuclear official warned that the situation at a damaged reactor was more serious than Tokyo has acknowledged." The Wall Street Journal (3/17, Frischkorn, Ng, 2.09M) runs a similar report.

Politico (3/17, White, 25K) reports that "the unfolding crisis...has begun to have an impact on the fragile recovery of the US economy despite assurances by Obama administration officials and many analysts that it does not pose a significant threat to economic growth here or across the globe." On Wednesday, "stocks plunged again," and "despite a modest late day recovery, Wall Street's three major indices have been falling for nearly a week, wiping out most of their gains for the year after rising sharply on hopes for a robust US economic rebound."

"Financial markets," says the AP (3/17), "were jolted for a third day," and "the losses were broad. Each of the 30 stocks that make up the Dow Jones industrial average fell, with IBM Corp. and General Electric Co. losing the most. All 10 company groups in the Standard & Poor's 500 index, the basis for most US mutual funds, lost ground."

USA Today (3/17, Shell, 1.83M) notes that "the Standard & Poor's 500 index fell nearly 2% to 1257. The drop extended its decline since its Feb. 18 bull market high to 6.4%."

AFP (3/17) reports that the Dow "posted a sharp triple-digit fall, sinking 242.12 points (2.04 percent) to finish at 11,613.30," and "the tech-rich Nasdaq Composite plummeted

50.51 points (1.89 percent) to 2,616.82.” The Wall Street Journal (3/17, Conway, 2.09M) and Financial Times (3/17, Stafford, Blas, Farchy, 448K) also note the Wall Street numbers.

**More Commentary On Japan.** In a New York Times (3/17, 1.01M) op-ed, Hiroki Azuma of Waseda University writes, “The Japanese are an unfortunate people who have rarely felt pride in their country or government since the defeat in World War II. This has been particularly true in the last 20 years, during the prolonged recession after our economic bubble burst. ... But this time, the situation is different. ... Only recently the Japanese people and the government were seen as indecisive and selfish, muddled with complaints and bickering. But now, they are boldly trying to defend the nation together, as if they are a changed people. ... Oddly enough, the Japanese are proud to be Japanese now.”

In a New York Times (3/17, 1.01M) op-ed, author Ryu Murakami writes, “There is a mass of confused and conflicting information. Some say the situation is worse than Three Mile Island, but not as bad as Chernobyl; others say that winds carrying radioactive iodine are headed for Tokyo, and that everyone should remain indoors and eat lots of kelp, which contains plenty of safe iodine. ... I want to remain here [in Yokohama], side by side with my family and friends and all the victims of the disaster. I want to somehow lend them courage, just as they are lending courage to me.”

**Experts Say Risks Of Radiation Diminish With Distance.** AFP (3/17, Kwek) reports that the head of France’s Institute for Radiological Protection and Nuclear Safety, Jacques Repussard said a plume of radioactivity would likely “extend from ‘several dozen kilometres’” around Fukushima Daiichi nuclear plant, but would “have no consequences for health in Tokyo, 250 kilometres to the south-east. Britain’s Chief Scientific Officer, Professor John Beddington, told the British embassy in Tokyo that even in the worst-case scenario, an explosion following a meltdown would only be serious for the local area.” Thinking about the Chernobyl plant disaster, Professor Beddington “said the problems with Chernobyl were exacerbated by people ‘continuing to drink the water and continuing to eat vegetables’.”

**Japan Nuclear Crisis Forces Re-Evaluation Among Other Atomic Power Countries.** The AP (3/17, Charlton) reports, “Japan’s nuclear crisis reverberated in atomic power-friendly countries Wednesday, with China saying it would hold off on approving new nuclear plants and French lawmakers questioning top energy executives about the safety of their reactors.” AP says several governments “have put their nuclear future on hold” for the time being “as

concerns grown even among pro-nuclear governments about the safety of the 442 reactors operating around the world.” European Union “energy officials agreed Tuesday to apply stress tests on plants across the 27-nation bloc,” while Spanish Prime Minister Jose Luis Rodriguez Zapatero has requested studies on the vulnerability of the six nuclear plants in Spain to earthquakes and flooding. Venezuelan President Hugo Chavez has called off plans to develop nuclear energy following the Japan crisis.

The Wall Street Journal (3/17, Carney, 2.09M) provided details of the European Union response, saying Brussels has made efforts for a united response to the Japan crisis, saying members states should carry out tests to check the security status of their nuclear plants.

The Financial Times (3/17, Hook, 448K) reports China’s suspension of approval for nuclear plants in the country means halting a program that makes up nearly 40 percent of the proposed reactors across the globe.

**New Nuclear Units In US Could Come Under Increased Scrutiny.** Reuters (3/17, Driver, O’Grady), citing analysts, says requests for setting up new nuclear reactors in the US will receive increased scrutiny as a result of the Japan crisis. Some say the new rules could even threaten the existence of some nuclear plants.

**Chile Sticks To Nuclear Plan Despite Growing Crisis In Japan.** The AP (3/17, Quilodran, Warren) reports, “Chile’s president insisted Wednesday on signing a nuclear accord with the United States during President Barack Obama’s visit next week, saying the country must keep reactors as a potential option for fueling the booming economy despite anxieties about Japan’s disaster.” AP says doubts “about nuclear power is rising in Chile, too, but President Sebastian Pinera said the country needs to double its energy resources and can’t be afraid to consider all the alternatives.”

**Czech Prime Minister Reaffirms Support To Nuclear Power.** The Wall Street Journal (3/16, Carney, 2.09M) “New Europe” blog reported Czech responded to Germany’s decision to idle several nuclear plants in view of the Japan crisis by reaffirming its support for nuclear power. Czech Prime Minister Petr Necas said he sees no reason to succumb to “hysteria,” noting that the central European region doesn’t face any risks of tsunami or major earthquakes.

A separate “New Europe” blog in the Wall Street Journal (3/16, Kruk, 2.09M) reported that, citing Poland’s Economy Ministry, Poland would not face a nuclear catastrophe that is unfolding in Japan because of its geographic location as well as the modern nuclear power plants it proposes to build. Poland has plans to construct two nuclear power plants.

**Indonesia Says Won’t Waver From Plans To Build Nuclear Plants.** Reuters (3/16, Nathalia, Suharmoko)

reported that Indonesia said it will not waver in its plans to build nuclear plants, in spite of the current nuclear crisis in Japan. Indonesia, like Japan, is located in an earthquake prone region.

### **Malaysia Seizes Suspected Nuclear Weapons**

**Parts.** AFP (3/17) reports, "Malaysian police confirmed on Thursday they have seized two containers which may contain parts used to make nuclear weapons, from a ship bound for western Asia." The confirmation follows "a front page story in the influential Sun daily which said police had seized 'parts of an equipment believed used to make weapons of mass destruction, including nuclear warhead' from a ship about 10 days ago."

According to the AP (3/17), Home Minister Hishamuddin Hussein said the "seized suspicious equipment found in two containers" were "shipped from a Chinese port." He said the parts need to be "verified by both local and international agencies," a process he said could take "weeks or months." Malaysia, he added, "is seeking information from China."

### **US Criticizes Iranian Arms Smuggling.**

The AP (3/17) reports the Administration on Wednesday "implicitly" criticized Iran after Israel intercepted a ship carrying weapons bound for "Palestinian militants" in Gaza. In a statement, State Department spokesman Mark Toner said in the US "condemns illicit smuggling of arms and ammunition."

Meanwhile, another AP (3/17) report from Ankara says Turkey grounded an Iranian cargo plane yesterday "so its shipment could be searched." The Foreign Ministry, however, denied reports "that Turkish military jets forced the plane to land at Diyarbakir airport on Tuesday night to search it for an alleged cargo of arms from Iran to Syria."

AFP (3/17) reports the plane "was still grounded at Diyarbakir airport on Wednesday where the search was ongoing."

**After Intel Briefing, Lieberman Says Iran "Seriously" Seeking Nukes.** AFP (3/17) reports, "An influential US Senator said Wednesday after a closed-door, classified intelligence briefing on Iran that Tehran is working "seriously" to develop nuclear weapons." Said Sen. Joe Lieberman, "I can't say much in detail, but it's pretty clear that they're continuing to work seriously on a nuclear weapons program."

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# NUCLEAR REGULATORY COMMISSION NEWS SUMMARY

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## NRC NEWS:

### US Officials At Odds With Japanese Counterparts On Gravity Of Nuclear Crisis.

Japan continued to command the attention of US media outlets last night and this morning, with front pages headlines on major dailies and 48 minutes and 45 seconds of combined airtime on the network newscasts devoted to the nuclear crisis. The coverage highlights that yesterday, US officials distanced themselves from some of the measures adopted by their Japanese counterparts – even as anger appears to be growing in Japan over the government's handling of the crisis.

NBC Nightly News (3/16, lead story, 4:35, Williams, 8.37M) said in its lead story that "for much of" Wednesday there was "a disagreement between the Americans and the

Japanese over how dangerous the nuclear crisis is and how much radiation is being released into the environment." Also in its lead report last night, the CBS Evening News (3/16, lead story, 4:15, Smith, 6.1M) described the Japanese people as "increasingly distrustful, given the wave of conflicting reports and mixed messages," and added that "on Capitol Hill, US Energy Secretary and nuclear expert Steven Chu said he, too, is baffled." Chu was shown saying, "There are conflicting reports, and so, we don't really know in detail what's happening."

"In addition," Politico (3/17, Dixon, 25K) reports, "the State Department has recommended that American citizens within a 50-mile radius of the stricken power plant evacuate, contradicting advice from the Japanese government." Politico adds that NRC Chairman Gregory Jaczko and White House press secretary Jay Carney "said the State Department

suggestion came based on NRC's standards for evacuating citizens." Carney, "under heavy questioning from the White House press corps, insisted that the difference "is not about the quality of information" from Japan."

The US position on the 50-mile radius, the Los Angeles Times (3/17, Maugh, 681K) reports, "further" illustrated "the split between the two countries." The New York Times (3/17, McDonald, Drew, 1.01M) notes that "Japanese officials have evacuated the area within 20 kilometers (12 miles) of the plant and told people who live 20 to 30 kilometers away (12 to 19 miles) to stay indoors and seal their homes." Also, "the top government spokesman, Yukio Edano, told reporters on Wednesday that the levels of radiation detected at the edge of the evacuation zone on Wednesday do not pose an immediate danger to human health."

The Washington Post (3/17, Maese, 605K) reports, "US Ambassador John Roos said Wednesday afternoon that he thought Tokyo was still safe from radiation, and he initially supported Japan's estimation that those beyond the 19-mile radius from the nuclear plants were not at risk." However, "later, when radiation levels in the air above the plant spiked dangerously for the second consecutive day, Roos issued a recommendation based on a review of 'the deteriorating situation' by experts from the NRC and the Energy Department." The Wall Street Journal (3/17, Shirouzu, Smith, 2.09M) also reports the story under the headline "US Sounds Alarm On Radiation."

NBC Nightly News (3/16, story 2, 1:45, Williams, 8.37M) reported on "what the head of the US Nuclear Regulatory Commission said...to Congress about one" of the Fukushima reactors. Jaczko was shown saying, "We believe that secondary containment has been destroyed and there is no water in the spent fuel pool. And we believe that radiation levels are extremely high." Added NBC, "In other words, the Americans saying that it's worse than Japanese officials have let on."

On its front page, the New York Times (3/17, A1, Sanger, Wald, Tabuchi, 1.01M) reports that Jaczko's remarks "suggested a serious split between Washington and its closest Asian ally at an especially delicate moment." The Times adds that "Jaczko's most startling assertion was that there was now little or no water in the pool storing spent nuclear fuel at the No. 4 reactor of the Fukushima Daiichi Nuclear Power Station, leaving fuel rods stored there exposed and bleeding radiation into the atmosphere. As a result, he said, 'We believe that radiation levels are extremely high, which could possibly impact the ability to take corrective measures.'"

McClatchy (3/17, Gordon) reports that "frank assessment" put forth by Chu and Jaczko "stood in contrast to Japanese officials, who continue to downplay the threat posed by the damaged plant." McClatchy adds that "testifying

back-to-back at what was slated to be a mundane House budget hearing, Chu and Jaczko described the event as the worst nuclear calamity in a quarter century and perhaps ever, based on reports from a team of 39 US technicians dispatched to monitor the situation." The Financial Times (3/16, Soble, Nakamoto, Dembosky, 448K) also reports on the apparent split between US and Japanese assessments of the situation.

The New York Times (3/17, A1, Tabuchi, Belson, Onishi, 1.01M) reports on its front page, "With all the euphemistic language on display from officials handling Japan's nuclear crisis, one commodity has been in short supply: information." In fact, "foreign nuclear experts, the Japanese press and an increasingly angry and rattled Japanese public are frustrated by government and power company officials' failure to communicate clearly and promptly," as "evasive news conferences followed uninformative briefings as the crisis intensified over the past five days." The Wall Street Journal (3/17, Bussey, 2.09M) runs a similar analysis under the headline "The Crisis In Japan: A Hunger For Information."

The Washington Post (3/17, Higgins, 605K) reports that in Japan, "many are asking what happened to the country's much-vaunted flair for organization," and "those suffering...can't understand why a country as affluent as theirs can't keep gasoline, the lifeblood of a modern economy, flowing and why towns across the northeast have been plunged into frigid darkness for five days."

Voice of America (3/17, Saine) notes Chairman Jaczko "arrived late to Wednesday's hearing because he had been called for a meeting to the White House on Japan's nuclear crisis. Jaczko described the dire situation at Japan's Fukushima nuclear plant, saying radiation levels at the [fourth] reactor at that plant are 'extremely high.' ... 'For a comparable situation in the United States, we would recommend an evacuation to a much larger radius than has currently been provided in Japan,' he said."

According to Bloomberg News (3/17, Lomax), Chairman Jaczko told a House Energy and Commerce Committee panel, "We believe that the secondary containment has been destroyed and there is no water in the spent-fuel pool." The "spent-fuel pool at the plant's Unit 3, which was in service, may be cracked and losing water, Jaczko said." Jaczko said radiation at the site is fluctuating and at peak levels is life-threatening, Bloomberg News (3/17, Lomax) reports. "The peak levels 'would be lethal within a fairly short period of time,' he said. The pool at the plant's Unit 3, which was in service, may be cracked and losing water, Jaczko said. 'We would recommend an evacuation to a much larger radius than has currently been provided by Japan,' Jaczko said."

**Differences Between Pressurized Water And Boiling Water Reactors Discussed.** An aside on Bloomberg West with Emily Chang & Cory Johnson (3/16, 11:07pm EDT) discusses the difference between boiling water reactor technology – what in use at the Fukushima plant – and pressurized water reactor technology.

**Amid Fears About Safety Of US Reactors, Chu And Jaczko Defend Nuclear Industry.** A significant subset of stories on Japan's nuclear crisis deal with worries about the safety of US reactors. The network newscasts, for example, devoted 8 minutes and 15 seconds to that aspect of the story.

The CBS Evening News (3/16, story 6, 2:30, Couric, 6.1M), for example, reported that Secretary of State Clinton, during an interview on CNN's Situation Room (3/16, Blitzer), "echoed the thoughts of many Americans" when "she said: 'What's happening in Japan raises questions about the safety of nuclear plant here in the US.'" CBS added that "the nuclear emergency in Japan is of particular significance to Americans living close to older nuclear reactors of exactly the same design as the crippled Japanese plant. Twenty-three of the boiling water reactors Mark-1, built by General Electric, mostly in the 1970s, are still operating at 16 plants spread across much of the country."

ABC World News (3/16, story 7, 2:40, Harris, 8.2M) reported that "the fear that what's happening over in Japan could happen here in America was on full display on Capitol Hill" on Wednesday. Sen. Frank Lautenberg was shown saying, "We have a situation that is scaring the life out of everybody." ABC also noted, "This is what Democrat Henry Waxman said when asked if American nuclear reactors are safe." Waxman was shown saying, "No, I can't reach that conclusion. Nor can anybody at this point. The industry tells us to relax, we're okay. I wouldn't take anything like that at face value." ABC went on to report that "the Energy Secretary told Congress that President Obama continues to support the idea of building new nuclear reactors in this country. But the fears are spreading."

AFP (3/17, Sheridan) notes that Energy Secretary Chu "defended the US nuclear industry," and said that "nuclear energy 'has an important role to play in our energy portfolio.'" Later, asked "by Texas Democratic Congressman Joe Barton if Obama still supports nuclear construction in the United States, given the crisis in Japan following a potent quake and tsunami there last week, Chu answered: 'We are asking for loan guarantees. The present budget is also calling for small modular reactors. That position has not been changed.'" Meanwhile, NRC Chairman Jaczko "said the commission is currently reviewing 12 applications for new nuclear reactors." Said Jaczko, "It is important that the NRC maintain our commitment to continuous improvement."

USA Today (3/17, Eisler, 1.83M) notes that Chu said "Americans 'should have full confidence' in the safety of the 104 nuclear power reactors across the USA." The Hill's Andrew Restuccia (3/16) reports in a blog entry that Jaczko "came under tough questioning from lawmakers, many of whom have nuclear plants in their states and are worried that what is happening in Japan could happen in their backyards." Jaczko "said the NRC would 'take action' to address issues in the US if a review of what is happening in Japan yields new information."

NBC Nightly News (3/16, story 4, 3:05, Williams, 8.37M), meanwhile, said during its reporting on "that Fukushima nuclear plant" that "there are 23 similar models here in the US." NBC (Myers) added, "US regulators in the '70s and '80s also expressed concerns about whether the Mark I's containment was strong enough. GE said since those concerns most Mark I reactors have been upgraded, which experts agree improved safety." Moreover, "based on what is now known, experts say the biggest problem in Japan wasn't the reactor design itself but that the tsunami knocked out all power, including backup systems."

McClatchy (3/17, Hotakainen, Lightman) reports on the "debate rekindled by the frightening blasts at the Fukushima Daiichi nuclear complex in Japan," and asks, "Is the potential catastrophe in Japan making this debate any different? Or will...Obama's view that nuclear power is needed to combat climate change be enough to change the dynamics?" While "opponents are seizing the moment...Washington lawmakers have been reluctant to promise any change in policy."

Politico (3/17, Dixon, 25K) reports that "the ongoing crisis in Japan has some Democrats on Capitol Hill casting a more suspicious eye to the nuclear industry and the NRC." Sens. Barbara Boxer and Dianne Feinstein "sent a letter to the NRC on Wednesday expressing their concern for San Onofre and Diablo Canyon, two nuclear plants in their state. The senators want NRC to 'perform a thorough inspection' of the two plants and address questions about their ability to withstand an earthquake or tsunami."

The Huffington Post's Chris Kirkham (3/17) reports that "the Diablo Canyon nuclear plant, which sits less than a mile from an offshore fault line, was not required to include earthquakes in its emergency response plan as a condition of being granted its license more than a quarter of a century ago." And "though experts warned from the beginning that the plant would be vulnerable to an earthquake, asserting 25 years ago that it required an emergency plan as a condition of its license, the Nuclear Regulatory Commission fought against making such a provision mandatory as it allowed the facility to be built." The Wall Street Journal (3/17, Smith, 2.09M) runs a similar story under the headline "Japan Crisis Puts Spotlight On Reactors In US."

The Washington Post (3/17, Yang, Mufson, 605K) reports, "Scott Burnell, a spokesman for the NRC, said that when Congress passed the Atomic Energy Act of 1954, which gave the commission authority to hand out licenses, lawmakers were less concerned with engineering than with blocking companies from developing monopolies in their markets." The Post adds that "the NRC said that regulators are constantly monitoring the plants and that a renewal does not give a reactor free rein to operate more loosely." Said Burnell, "If it's capable of running for 40, we can tack on 20 and then consider things from there."

#### ***WPost Backs Course Outlined By Chu, Jaczko.***

Under the headline "Too Soon To Write Off Nuclear Power," the Washington Post (3/17, 605K) editorializes that "Chu insisted Wednesday that he and President Obama want to retain nuclear energy as an option, and they have good reason to do so. Generating electricity carries risks, no matter how you do it." Chu and Jaczko "are right to have the government closely examine what happens in Japan and adjust US policy as necessary. But the Fukushima plant is old. New plants would use more sophisticated technology."

#### ***Poll Finds Growing Concerns With Nuclear Energy.***

USA Today (3/17, Eisler, 1.83M) reports, "Americans' support for nuclear power has fallen, as 70% of those surveyed in a new USA Today/Gallup Poll say they've grown more concerned about the industry's safety based on the crisis unfolding at reactors in Japan." USA Today adds that according to the poll, "Americans oppose building more nuclear plants by 47%-44%," whereas "support for using nuclear energy was at 57% when Gallup asked a similar question about a week before Friday's earthquake and tsunami left Japan struggling to avert catastrophic meltdowns and fires at three damaged nuclear plants."

The Washington Post (3/17, Wallsten, Eggen, 605K) reports, Sen. Barbara Boxer (D-Calif.), questioning NRC Chairman Jaczko, "wondered about the response in the European Union, which has announced plans to test its plants for emergency preparedness. 'I would very much like to know why those respected allies of us have taken that action' while the United States has not, Boxer said. Industry lobbyists said they were pleased with the administration's reaction, suggesting that moving too quickly to halt building plans or interfere with plant operations would create more problems than it would solve." But "Rep. Edward J. Markey (D-Mass.) called for a moratorium on new construction in seismically active areas and for additional safety measures at existing plants."

The New York Times (3/17, A13, Wald, 1.01M) says that Chairman Jaczko's pledge that the NRC "would take a methodical look at Japan and incorporate lessons from the disaster" drew "praise and criticism that was often consonant with a lawmaker's political position on nuclear power and

other forms of energy. 'US nuclear facilities remain safe,'" Mr. Jaczko told lawmakers, adding, "We will continue to work to maintain that level of protection."

E&ENews PM (3/17, Northey) notes that Chairman Jaczko "said NRC is not planning on changing its approach to permitting new applications but will incorporate any findings from the unfolding disaster in northeast Japan. Those findings, he said, could generate additional costs for the agency, which he said may need to return to Capitol Hill to request new funding." The Asbury Park (NJ) Press (3/17, Chebium) also covered the hearing.

***MSNBC Report Says Indian Point Unit 3 Is Most At Risk Of Damage From Earthquake.*** On its "Open Channel" blog, MSNBC (3/17, Dedman) covers comments from New York Gov. Andrew Cuomo, who "ordered a safety review of the Indian Point nuclear plant" after "one of its reactors ranked first for risk of damage from an earthquake in a study published Wednesday." The MSNBC report was based on NRC damage estimate data for the nation's 104 commercial nuclear power plants, and Indian Point Unit 3 was rated as the most at risk from an earthquake. The NRC said Unit 3 "had a 1 in 10,000 chance each year of damage to its radioactive core from an earthquake." MSNBC said the NRC published the initial data in August, "allowing msnbc.com to rank the plants by risk. The NRC public affairs staff stressed to all callers on Wednesday that it had not done the rankings, but it did not question the accuracy of the data."

The AP (3/17) reports New York Gov. Andrew Cuomo said Wednesday "that he wants to review information from the Nuclear Regulatory Commission about safety of a nuclear plant that lies near a seismic fault line 35 miles north of Manhattan." Cuomo told reporters, "Frankly, that was surprising to me," adding, "So that matter is a concern. We are going to check into it...immediately." The Governor said the state's review will include the Indian Point Energy Center on the Hudson River in suburban Westchester County.

WTOL-TV Toledo, OH (3/17, 6:02AM EST, 35,004) reports that according to a recent ranking by the Nuclear Regulatory Commission, "the Indian Point 3 facility in New York is the most" vulnerable to a catastrophic failure caused by an earthquake. The state of Ohio had two nuclear sites on the list, Davis-Besse Power Plant and Fermi 2." WTOL-TV adds that there was 104 plants total on

WTLV-TV Jacksonville, FL (3/17, 6:04 AM EST, 61,862) adds that "reactors in Massachusetts, Pennsylvania and Tennessee round out at the top five." NRC officials said that the plants that are at the top of the ranking due to the fact that the "design standards may have been lower when earthquake risk was thought to be minimal."

#### ***Beaver Valley Unit 1 Fifth Most Vulnerable Plant.***

The Pittsburgh Tribune-Review (3/17, Olson, 175K) reports, "Pennsylvania is home to three of the 10 US nuclear power

plants most vulnerable to an earthquake, including the Beaver Valley plant in Shippingport, according to Nuclear Regulatory Commission data." On the list of the plants seen as most vulnerable to earthquake damage, "Beaver Valley 1 reactor in Shippingport ranks fifth-most at risk, with a 1 in 20,833 chance of it suffering reactor core damage during an earthquake, according to data reported Tuesday by msnbc.com." FirstEnergy spokesman Todd Schneider said "Beaver Valley remains safe and is capable of withstanding at least a 5.8 scale earthquake, which is highly unlikely for this area."

**Limerick Station Is Third-Highest Earthquake Risk In US.** Similarly, the Montgomery (PA) News (3/17, Brandt, 21K) notes that "A Nuclear Regulatory Commission study released less than a year ago ranked Exelon Nuclear's Limerick Generating Station as being the nation's nuclear plant with the third-highest risk of being [damaged] by an earthquake. The study came about as a result of the US Geologic Survey's 2008 updating of earthquake risks around the country using more sophisticated measurements and modeling than were used in the 1996 and 2002 versions." Thanks to the new data, the NRC "increased the risk of an earthquake damaging both reactors at Limerick by 141 percent, making it the third most at risk, after the Pilgrim Nuclear Plant in Plymouth, Mass., and the Indian Point Atomic Generating Station in Buchanan, N.Y."

**Oconee Nuclear Station Ranked 8th Most At Risk From Earthquake.** The Anderson Independent-Mail (3/17, 39K) reports, "The Oconee Nuclear Station has the eighth-greatest risk of suffering a catastrophic failure from an earthquake among the nation's 66 nuclear power plants," the NRC says. According to the report, "In any given year, there is a 1-in-23,256 chance of an earthquake damaging the cores of the three nuclear reactors at the Duke Energy-owned plant on Lake Keowee." The report finds "Oconee Nuclear Station faces a slightly higher risk of damage from earthquakes than the Diablo Canyon nuclear power plant in Avila Beach, Calif., which has two reactors between the San Andreas Fault and the Pacific Ocean."

**Diablo Canyon Situated On Newly Discovered Shoreline Fault.** The AP (3/17) reports, "Two years before an immense coastal earthquake plunged Japan into a nuclear crisis, a geologic fault was discovered about a half-mile from a California seaside reactor — alarming regulators who say not enough has been done to gauge the threat to the nation's most populous state." At "issue at Diablo Canyon is not what is known, but what is not. Preliminary research at the site, which sits on a wave-washed bluff above the Pacific, found its twin reactors could withstand a potential earthquake generated by the recently identified Shoreline Fault, just off the coast." Still, regulators have pressed plant owner PG&E "to conduct sophisticated, independently reviewed studies

that they say are needed to fully assess the danger at a site within 200 miles of Los Angeles."

The Salem (OR) Statesman Journal (3/17, Barton, 40K) reports, "Sen. Barbara Boxer chastised federal officials Wednesday for not reviewing a 2008 report that raised concerns about how a seismic event could threaten the safety of 8 million Californians who live within 50 miles of the state's nuclear plants." Boxer "accused Nuclear Regulatory Commission officials of lacking interest in an October 2008 report by the California Energy Commission that raised concerns about potential earthquake effects on the Diablo Canyon Power Plant and the San Onofre Nuclear Generating Station. Both are situated near fault lines." Boxer, "demanded to know" whether NRC officials "knew how many people lived within 50 miles of San Onofre in Southern California. Raising her voice, she said, 'I'm going to tell you how many: 7.4 million people.'"

KGTV-TV San Diego, CA (3/17, 1:12am PDT, 4,020) reports, "Senator Barbara Boxer was one of several lawmakers from California grilling the Nuclear Regulatory Commission today, about the threat of a similar disaster, at San Onofre." San Onofre nuclear plant is in an earthquake zone and, according to Sen. Boxer, has 7.4 million people living near it. KGTV-TV adds that the nuclear plant is "built to withstand a 7.0 quake, but a 2008 report by the state said San Onofre could experience larger and more frequent earthquakes than it was designed to handle." KGTV-TV also reports that the "Nuclear Regulatory Commission never acted on that report."

**San Onofre Protected By Sea Wall.** According to Wall Street Journal (3/17, Casselman, Spegele, 2.09M) coverage of the report on whether US facilities can withstand, noted the San Onofre Station's 30-foot sea wall protecting the plant from tsunamis. Commenting on the wall's strength Southern California Edison spokesman Steven Conroy said, "Based on historical information from scientists, the wall is capable of dealing with any type of tsunami that would be generated by an earthquake."

**Kucinich Asks NRC To Close FirstEnergy Nuclear Plants.** The Cleveland Plain Dealer (3/17, Eaton, 266K) reports, "In light of safety problems at Japanese nuclear power plants that have been compromised by natural disasters, Cleveland Democratic Rep. Dennis Kucinich is asking the Nuclear Regulatory Commission to shut down US nuclear facilities run by 'bad actors,' including Akron-based FirstEnergy." Kucinich, in a letter dated March 16, and addressed to NRC Chairman Gregory P. Jaczko, "says Japan's failing nuclear power plants warrant a fresh assessment of US nuclear catastrophe preparedness." The paper says "Kucinich has a history of enmity with FirstEnergy that dates back to his days as Cleveland's mayor, when he

resisted pressure to sell Cleveland's municipal power plant to FirstEnergy's Cleveland Electric Illuminating Co. subsidiary." FirstEnergy spokesman Todd Schneider said "safety is the company's top priority."

The Washington D.C. Examiner (3/16, Spinelli) reported that the nuclear crisis in Japan "has turned some Ohioans' attention to the state's two existing but aging nuclear power plants on Ohio's North Coast and a new one proposed for construction in the south close to the Ohio River." The paper said Kucinich, "a long-time outspoken critic of nuclear power plants," was "referring to what he told the NRC in a 2007 letter were 'a number of serious management problems at the Perry facility' owned by FirstEnergy, Ohio's mega-utility whose failure in August 2003 to trim limbs that touched electric wires resulted in 50 million people from Ohio to New York City falling into darkness when their lights went out."

**Japan Crisis May Dampen Maryland's Nuclear Expansion Plans.** The Delmarva Daily Times (3/17, Marso) reports, "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." Maryland Comptroller Peter Franchot said: "Public opinion has changed in the last couple days." The paper says the state's Calvert Cliffs Nuclear Power Plant, "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."

**Iowa Senators Seek To Delay Nuclear Power Plants.** The AP (3/17) reports, "Some Iowa senators want to delay action on bills that would make it easier for energy companies to build nuclear power plants in Iowa, given the nuclear crisis unfolding in Japan." Notably, "nine Democratic senators sent a letter to their colleagues on Wednesday saying they are 'extremely concerned about proposed legislation that appears to be on the fast track to pave the way' for more nuclear plants in Iowa." The lawmakers sought to delay the legislation, and asked for a commission "to investigate the issue."

**Texas Nuclear Opponents Seek To Halt Proposed Atomic Plant.** The AP (3/17) reports, "Opponents of a proposed Texas nuclear power plant are urging federal regulators" to "halt the permit application" for a proposed nuclear plant in Victoria County in view of the Japan crisis. Exelon Corp. is in the "preliminary stages of trying to acquire permitting for a proposed nuclear plant in Victoria County."

On its website and on the air, KRIV-TV Houston (3/16) reported Exelon Power Texas is defending its plans to construct the power plant. A hearing was held Wednesday over the company's plea for an early site permit, the TV station noted.

On its website, KJTV-TV Lubbock, Texas (3/16) reported the group opposing the nuclear plant, Texans for A Sound Energy Policy Alliance, said the plant in Victoria County will be relying on Guadalupe River, which is drought prone. Bill Jones, a spokesman for the group, said the best place for the nuclear plant is where there is plentiful supply of salt water, which is on the coast.

**New Crack Found At Containment Building Of Crystal River plant.** The Ocala Star Banner (3/17, Hiers) reports, "A new crack in Progress Energy's Crystal River nuclear plant's containment building has forced the utility company to again scrap its plans to fire up the facility in April. The delay marks the fifth time in 18 months the utility giant has pushed back its start-up date." On Monday, Progress reported to the NRC "that testing equipment had detected irregularities in the wall and 'upon further inspection there was a separation that wasn't previously there,' said NRC spokesman Roger Hannah."

**Duke's Rogers Still Committed To Nuclear Power.** The Orlando Sentinel (3/17, 206K) is reporting that Duke Energy CEO Jim Rogers "said Tuesday that the company's desire to build more nuclear plants in the wake of catastrophe in Japan is still strong." According to WRAL-TV, Rogers said, "Our commitment hasn't faltered." Duke "was in front of regulators in North Carolina on Tuesday setting the stage for a law similar to one passed in Florida that would allow it to charge customers up front for new nuclear plants before they decide whether or not they will actually be built."

**Duke Doesn't Plan To Postpone Cherokee County Nuclear Project.** The Anderson Independent-Mail (3/17, 39K) reports, "Duke Energy has no plans to postpone building a nuclear plant in Cherokee County in light of the overheating and explosions at a Japanese nuclear facility after last week's powerful earthquake and tsunami." Duke Energy's Rita Sipe "said it's too early to tell what impact the impending disaster will have on the industry, but the company will continue" with the NRC's "process for building the \$11 billion William S. Lee III plant. The licensing process will likely take two more years, and the plant would come online in 2020 or 2021, according to company plans, Sipe said."

**Exelon's Rowe Reconsidering Nuclear Power Plans.** The Crain's Chicago Business (3/17, Daniels, 45K)

reports, "Exelon Corp., confronting the disquieting questions raised by the unfolding nuclear disaster in Japan, is reconsidering a \$3.7-billion plan to add capacity to the country's largest fleet of nuclear power plants." Exelon CEO John Rowe said "that plans to add a combined 1,500 megawatts of capacity over eight years through improvements to most of its plants were in question, as the Chicago-based power giant awaits safety reviews by the Nuclear Regulatory Commission that are 'sure to come.'" He added that "the NRC was likely to look at backup generators at nukes following the catastrophic power failures at the stricken Japanese plant that disabled cooling systems, leading to overheating, explosions and radioactive releases."

### **Surgeon General Clarifies Comments About Public's Need For Iodine Pills.**

NBC Nightly News (3/16, story 5, 1:35, Williams, 8.37M) remarked on the "run on iodine pills in stores and on eBay where we found a few active auctions at exorbitant prices for them," and added that "while the Surgeon General yesterday said Americans should have the pills as a precaution, she later adjusted those remarks." NBC's Nancy Snyderman said that Surgeon General Regina Benjamin "sent me a text message that said I never intended to imply people go out and buy pills. She was referring to pills like these that people are taking to block the thyroid from taking up radioactive iodine." On Tuesday, NBC Nightly News (3/15, story 5, 2:20, Welker, 8.37M) had reported that Benjamin said that buying iodine pills was "a good idea." Benjamin was shown saying, "It's definitely appropriate, we have to be prepared."

Molly Hennessey-Fiske writes at the Los Angeles Times (3/17, 681K) "L.A. Now" blog that a spokesperson for US Surgeon General Regina Benjamin "has clarified her position on whether people should stock up on potassium iodide as protection against nuclear radiation from Japan." Noting that the CDC identifies the substance as potentially preventing the "thyroid from absorbing radioactive iodine," Hennessey-Fiske reports that on in Tuesday comments in California, Benjamin "appeared to contradict the message from other public health officials that the pills are unnecessary and may have harmful side effects." However, she had "framed her comment within the broad context of disaster preparedness" and told the press "she had not heard about panicked California residents stocking up on potassium iodide." On Wednesday, the spokesperson "clarified Benjamin's position," stating that Benjamin had not recommended stockpiling or prophylactic use of potassium iodide.

**Radiation Fears Prompt West Coast Rush For KI Tablets Despite Warnings.** Noting that "scientists and meteorologists say any trace radiation would be completely diffused as it comes across the Pacific," NBC Nightly News (3/16, story 5, 1:35, Williams, 8.37M) reported that such

assurance "hasn't stopped a run on iodide pills in stores and on eBay where we found a few active auctions at exorbitant prices for them today. While the Surgeon General yesterday indicated Americans should have the pills as a precaution, she later adjusted those remarks. Consumers are warned not to take the pills unless exposed to radiation."

The Washington Post (3/17, Stein, 605K) reports that despite reassurances from scientists and authorities that there is little risk of radiation from the nuclear crisis in Japan reaching US territory, "Fearful residents have flooded health officials in western states...with anxious questions, and some authorities have begun issuing updates about air monitoring for radiation." Meanwhile, "The two US companies that make potassium iodide, which can reduce the risk of thyroid cancer from exposure to iodine-131, are being overwhelmed by demands for the medication from individuals, pharmacies, hospitals, day-care centers and others." Despite increased vigilance on the part of US authorities, "thousands of people are seeking potassium iodide. CVS's online pharmacy sold out of it over the weekend, a spokesperson said."

Julie Mason writes at Politico's (3/17) "44" blog that the reactor breach in Japan "has sparked a run on iodine supplements and Geiger counters on the West Coast – as conflicting messages radiate from the White House about Americans' safety." Noting that President Obama's statement that "any nuclear release dissipates by the time it gets even to Hawaii, much less the mainland of the United States," is in contrast with Benjamin's having said "it was right to be prepared and that stocking up on iodine pills was not an overreaction," Mason adds that "experts warn that taking the supplements can do more harm than good, and aren't even necessary. All the same, the EPA is setting up radiation monitors along the coast, reports the San Jose Mercury News."

Noting that demand for KI pills "was strongest on the US West Coast," AFP (3/17, Thurston) reports that firms making the drug are overwhelmed. "'The spike is enormous ... we were out of stock by Friday night,' said Alan Morris, president of Anbex, which supplies the drug to individuals and retailers, including online." AFP juxtaposes the run on KI with "the head of the US Nuclear Regulatory Commission [having] warned of 'extremely high' radiation levels from the Fukushima plant." Meanwhile, "The California Department of Public Health's interim director, Howard Backer, also stressed the risks involved in taking potassium iodide unnecessarily." This piece also mentions Benjamin's "apparent miscommunication" and her office's subsequent clarification.

**Hawaiian Stores Sold Out Of KI.** AFP (3/17) reports that Hawaiians are also scouring sold-out stores for the pills, though officials there "warned that taking potassium iodide could have unwanted side effects. ... 'As soon as people heard about the first explosion (in Japan), people wiped our

shelves clean,' said Amber Simone of the Honolulu branch of the Down to Earth health food store chain, which has five branches." AFP explains, "Thyroid glands quickly absorb radioactive iodine, causing damage. But iodide pills can block radioactive iodine from being taken into the thyroid gland, according to the CDC."

**Officials Warn Of KI Dangers, Side Effects.** The Chicago Sun-Times (3/17, Guy, McKinney, 256K) reports that as residents as far east as Chicago "scoop up potassium iodide supplements," local officials warn that they "are needless and could cause adverse side effects. 'Residents who take potassium iodide out of concern of possible radiation exposure from the events in Japan could be putting their health at risk due to side effects,' said Dr. Damon Arnold, director of Illinois' Department of Public Health, which recommends against taking the tablets at this time. ... Potassium iodide...can be harmful to people with allergies to iodine or shellfish and to those with thyroid problems, renal disease and certain skin disorders and chronic diseases."

**Pharmaceutical Manufacturers Ramp Up Production Of Potassium Iodide.** CNN Newsroom (3/16, 3:37pm) broadcast, "Despite reassurances from health experts, people are buying up these things, these potassium iodide pills in the US, especially along the west coast. Now some manufacturers like Flemming Pharmaceuticals say they're bombarded with requests for the drug. They've ramped up production. This even as the US Nuclear Regulatory Commission says it does not expect, does not expect, harmful radiation levels from Japan to reach American soil."

**Bilirakis Calls On Obama To Boost US KI Stockpiles.** CQ Today (3/17, Ota) reports that FL9 Rep. Gus Bilirakis (R) is urging the "Obama administration to expand stockpiles of anti-radiation medication for distribution to Americans living near the nation's nuclear power plants." Noting the influence of the Japanese crisis, CQ adds that MA7 Rep. Edward J. Markey (D) has joined Bilirakis in "renewing earlier efforts to get the government to distribute potassium iodide to those living within 20 miles of this country's 104 nuclear plants. A bioterrorism law (PL 107-188) enacted nine months after the 2001 terrorist attacks called on federal authorities to supply states and local governments with sufficient amounts of the medication for residents living less than 20 miles from a plant. But the law allowed changes to the distribution plan if better alternatives were devised."

**US Relying On Aging Reactor Fleet More Than Ever.** The Washington Post (3/17, Yang, Mufson, 605K) reports on the state "of nuclear energy in this country, where the average plant was built in 1980 and the cost of launching new reactors – and, industry executives say, safer ones – remains prohibitively high." The US, "is leaning more heavily

than ever on the first generation of plants built decades ago, even as critics worry that aging reactors have some dangerous weaknesses." While aging plants "are not necessarily failing plants," safety issues have come under "scrutiny as workers in Japan try to fend off a nuclear meltdown at the Fukushima Daiichi plant, whose reactors were designed by General Electric in the 1960s." NRC spokesman Scott Burnell, "said that when Congress passed the Atomic Energy Act of 1954, which gave the NRC authority to hand out licenses, lawmakers were less concerned with engineering than with blocking companies from developing monopolies in their markets."

**Nuclear Industry Lobbying Picks Up Speed In Wake Of Japan Crisis.** In contrast to the observation that most of the commentary over the last several news cycles has come from anti-nuclear interests and activists, the Boston Globe (3/17, Emery, Slack, 253K) reports, "The nuclear power industry has mounted a concerted lobbying push on Capitol Hill this week to reassure members of Congress who are concerned about the Japanese nuclear plant disaster and potential for a similar incident in the United States." The "industry's success at explaining the technical issues and addressing concerns of elected officials and the American public could prove pivotal to the future of nuclear power," which had begun to enjoy renewed support after years of inaction. Rep. Edward J. Markey (D-MA), said the nuclear industry has "a very powerful lobbying force, which is being felt on the Hill right now." Since the weekend, "the Nuclear Energy Institute, the industry's trade organization, and its members have dispatched representatives to conduct large-scale briefings and have prepared fact sheets for lawmakers about safety threats in Japan."

**Nuclear Output Increases Slightly.** Bloomberg News (3/17, McClelland) reports, "US nuclear-power output rose 0.3 percent after power increased at the Calvert Cliffs 2 reactor in Maryland and NextEra Energy Inc. boosted the Turkey Point Unit 3 in Florida, the Nuclear Regulatory Commission said." Constellation "boosted its 867-megawatt Calvert Cliffs 2 reactor to 56 percent of capacity from 10 percent yesterday. Another reactor at the plant, the 867-megawatt Calvert Cliffs 1, is operating at full power."

**Most Top Lawmakers Not Ready For New Nuclear Moratorium.** CNN correspondent Dana Bash said on CNN Newsroom (3/16, 3:40pm) she has "spoken to several lawmakers who are strong supporters of nuclear energy, and they have said they're worried about what this horrible crisis in Japan means for nuclear energy in the US, which has been gaining traction in recent years on both sides of the aisle. Some Democrats who have long opposed

nuclear energy, they are seizing on this, calling for a moratorium on US plants. Talking to congressional leaders on both sides of the aisle, they don't seem to be ready for that."

ABC affiliate, KSPR-TV Springfield, Missouri (3/16, 11:13pm EDT) broadcast, "Helicopters dispatched to drop water on the Fukushima Daiichi nuclear plant in Japan were called off, as a cloud of smoke erupted from one of the reactors Wednesday. Elevated radiation levels were detected. It's the latest setback at the plant that took a direct hit from last week's earthquake and tsunami. The IAEA confirms, three of the six reactors' cores are damaged. The Japanese power company says they're close to getting power to the reactor pumps."

### **Indiana Lawmakers' Nuclear Power Enthusiasm Dampened On Japan Problems.**

Following the events in Japan, the Indianapolis Star (3/17, Russell, 190K) reports that state "leaders are backing away from an effort to promote nuclear power here, and nuclear critics are stepping up their opposition." Having just passed legislation in the Indiana Senate last month that "would encourage the construction of the state's first nuclear plant or perhaps a small, modular nuclear plant," attitudes have "changed in a hurry in recent days, as news from Japan grows bleaker. ... Indiana officials say it's time to pause and reassess the benefits and risks of nuclear power." Sen. Beverly Gard said it was time to "take a step back," and put nuclear power "on the back burner until the crisis in Japan is under control."

### **Space Weather Could Cause Problems For US Nuclear Reactors.**

In his series on space weather, Steve Tracton at the Washington Post (3/17, 605K) "Capital Weather Gang" blog writes on whether nuclear power plants are vulnerable to the effects of solar storms. "The issue is whether diesels and their onsite fuel supply would last long enough to keep the core from melting given that resupply would be a challenging proposition given the societal and infrastructure disruptions caused by effects of a possible catastrophic solar storm." Because of the issues in Japan, Tracton believes this issue "ought to be" considered.

### **VA Disability Claim Described Possible Radiation Exposure At Navy Base.**

On its website, WEWS-TV Cleveland, OH (3/16, Regan) said an "exclusive...investigation" that it conducted "reveals the federal government was aware of possible radiation exposure and failed to act." The "new information was contained within a 2004 disability claim filed" with the Department of Veterans Affairs that "describes possible radiation exposure from a leaking nuclear power plant that supplied power" to a US

Navy base in Antarctica. The "revelation comes on the heels of a request" by US Sen. Sherrod Brown (D-OH) to "Defense Secretary Robert Gates for a full investigation into the extent of radiation exposure for an estimated 15,000 Navy personnel who served at McMurdo Station, Antarctica during the 1960s and 70s." WEWS-TV (3/16, 6:09 p.m. ET) aired a similarly negative story.

**TSA Officials Grilled Over Body Scanners.** Two TSA officials "defended" their agency's use of full-body scanners in front of a "skeptical" House panel yesterday, the Washington Times (3/17, 77K) reports. Republican Rep. Jason Chaffetz was joined by several witnesses in raising safety and privacy concerns regarding the passenger screening machines. On the privacy issue, Chaffetz is quoted saying "nobody has to look at my grandmother naked to secure an airplane." Marc Rotenberg, executive director of the Electronic Privacy Information Center, "expressed doubt about TSA's contention that it does not save images," noting that his organization has "obtained from the US Marshals Service more than 100 images" from a machine in Orlando. Meanwhile, David Brenner, director of Columbia University's Center for Radiological Research, "testified that despite a low individual risk, it's possible that radiation from backscatter machines could cause cancer in 100 people a year."

Brenner "noted that the TSA uses the full-body X-ray scanners at some airports but allows passengers at other airports to pass through millimeter wave scanners, which do not use ionizing radiation," USA Today (3/17, Young, 1.83M) reports. "X-rays," however, "are a carcinogen," he said. Robin Kane, TSA's assistant administrator for technology, maintained that the "technology is safe." He "emphasized that the machines are necessary to protect the public from terrorists and that they have been thoroughly tested by independent experts."

### **FD: OPM Director Calls For New Performance-Review Upgrades For GS System.**

In his "Federal Diary" column for the Washington Post (3/17, 605K), Joe Davidson writes of Office of Personnel Management director John Berry's call for a new federal performance-management system that may prove to be an "evolution" for the General Schedule system and a "reprieve" for the classification that covers most federal workers. In remarks at Gallaudet University, Berry said the new "system that would replace the current methods of performance reviews, which he said are 'infrequent and rote.'" Davidson says Berry had been an archrival of the 60-year-old GS system, but in his speech, he "offered 'a basic blueprint for changing the way we manage personnel performance, and ultimately organizational performance, without changing the law or the pay system.'"

## INTERNATIONAL NUCLEAR NEWS:

**Japanese Plant "Teetering On The Brink."** The situation continued to deteriorate at the Fukushima Dai Ichi nuclear plant, Wednesday. The spent fuel pool at unit 4 was reported to be without water in testimony in the US House and Japanese emergency personnel desperately attempted to stop the damage, but were often prevented from doing so.

ABC World News (3/16, lead story, 4:00, Sawyer, 8.2M) reported, "This is what an American official told us today: It would be hard to describe how alarming the situation is inside Japan's nuclear power plant – teetering on the brink of a multi-reactor meltdown." The "last ditch hope" are 50 "workers heading in on what he called a suicide mission, and even that may be too late." ABC (Raddatz) added, "We are told it is like a horror movie, fighting a monster you cannot see, you cannot touch but you know is coming to get you."

ABC World News (3/16, story 3, 2:00, Sawyer, 8.2M) later reported on the "brave nameless men" who "stand ready to lay down their lives to slay a fire-breathing dragon," and noted (Chang) their "one last ditch effort, as the world holds its collective breath."

The Los Angeles Times (3/17, Magnier, King, Hall, 681K) reports, "Japanese authorities embarked Thursday on a series of desperate new measures to try to avert full reactor meltdowns at a stricken nuclear complex." The Times adds that "as US and Japanese officials disagreed on how to characterize the seriousness of the nuclear crisis, police planned to use a water cannon truck – normally used for crowd control – to try to cool an overheated and possibly dry spent-fuel pool, one of an escalating series of malfunctions at the Daiichi plant in Fukushima prefecture, 150 miles north of Tokyo."

The AP (3/17) reports, "Japanese military helicopters dumped loads of seawater onto a stricken nuclear reactor Thursday, trying to avoid full meltdowns as plant operators said they were close to finishing a new power line that could restore cooling systems and ease the crisis." The AP adds, "A Japanese military CH-47 Chinook helicopter began dumping seawater on the damaged reactor of Unit 3 at the Fukushima complex at 9:48 a.m., said defense ministry spokeswoman Kazumi Toyama. The aircraft dumped at least four loads on the reactor, though much of the water appeared to be dispersed in the wind."

On ABC World News (3/16, story 2, 2:50, Sawyer, 8.2M), nuclear expert Joe Cirincione said, "It's hard to see what they can do," and added that "the situation's been getting worse. This is really a last line of defense. The 50 workers are doing their best, they may give their lives in this. But it's hard for me to see how they can get enough water or have enough reinforcement to the containment vehicles to

prevent the core meltdown and a possible breach of two reactors."

On the CBS Evening News (3/16, story 2, 2:05, Couric, 6.1M), James Acton, a nuclear safety expert with the Carnegie Endowment, said, "Right now the biggest cause of concern is the highly radioactive used nuclear fuel because that material is sitting outside of the heavily reinforced containment building. And all that's standing between it and the outside world is a big pool of water, and a weak outer containment shell."

The Los Angeles Times (3/17, Demick, 681K) reports, "An awful realization is setting in for those trapped in the vicinity of the crippled Fukushima nuclear complex: People are afraid to help them. ... Aid agencies are reluctant to get too close to the plant," and "radiation fears mingled with a sickening sense of abandonment Wednesday."

Meanwhile, USA Today (3/17, Weise, 1.83M) reports, "millions of people struggled for a sixth day with inadequate food, heat and no water service. Temperatures hovered in the mid-30s, with biting winds and snow flurries. Police say more than 452,000 people are staying in temporary shelters, some sleeping on the floor in school gymnasiums." Moreover, "several thousand people are listed as missing."

Asked on CNN's Situation Room (3/16, Blitzer) if it is time for Americans to leave Japan, Secretary of State Clinton replied, "Well, we are monitoring that. And we are listening to the experts, because we want to make an informed decision if a decision becomes necessary." Blitzer: "So as of now, you're not telling people to leave?" Clinton: "As of this minute. But again, we are in close touch with our embassy."

The AP (3/17, Hosaka) reports that "Australia, Britain and Germany advised their citizens in Japan to consider leaving Tokyo and earthquake-affected areas, joining a growing number of governments and businesses telling their people it may be safer elsewhere."

**Helicopters Make Water Drops As Technicians Work To Restore Power To Dai Ichi Plant.** On its website, CNN (3/17) reports Japanese military helicopters "dumped water Thursday on and near the Nos. 3 and 4 units at Japan's Fukushima Daiichi nuclear plant in the latest attempt to halt the nuclear accident that appeared to be spinning out of control." Initially, "just a few drops were carried out before the operation was suspended," and an NHK "commentator said about 100 would be needed for the operation to succeed." Earlier in the day, "engineers were planning to begin the process of restoring power to the stricken nuclear complex," a critically important effort "using the power lines from outside," said the official with the Nuclear and Industrial Safety Agency."

USA Today (3/17, Vergano, 1.83M) reports, "Emergency workers shuttled into and out of Japan's Fukushima Dai-ichi nuclear plant today as they scrambled to

contain melting nuclear cores and even wider releases of dangerous radiation. After temporarily evacuating the plant for five hours in the face of high radiation, the 180 workers, in shifts of 50 at a time, resumed pumping seawater into the plant's three damaged reactors." The "workers were hailed as heroes in Japan." Keiichi Nakagawa of the Department of Radiology at University of Tokyo Hospital said, "I don't know any other way to say it, but this is like suicide fighters in a war."

On its "OnDeadline" blog, USA Today (3/17, Winter, 1.83M) says, "Among the emergency efforts at the Fukushima plant," TEPCO "says it trying to install new power lines to restart the cooling systems that failed after Friday's magnitude 9 earthquake and resulting tsunami. NHK TV says the plant operator hopes to run the new lines from another power plant through a makeshift switchboard Thursday, essentially creating giant jumper cables. High radiation thwarted work Wednesday."

The New York Post (3/17, 474K) adds that according to NHK, three "twin-rotor CH-47 Chinooks from the Japanese Self-Defense Forces (SDF) were used in the operation" to drop two loads of seawater "on the plant's damaged No. 3 reactor, with the third load dropped on the No. 4 reactor." Eleven "water cannon trucks were also en route to the plant to spray water from the ground onto the No. 3 reactor."

ABC News (3/16, Muir, Hopper, Tanglao, Forer) reported on its website, "When radiation levels surged following a fire at Unit 4 and a rising cloud of radioactive vapor from unit 3, officials deemed it too risky for the plant workers to continue their critical work of pumping sea water on the damaged reactors and fuel ponds. 'The workers cannot carry out even minimal work at the plant now,' Chief Cabinet Secretary Yukio Edano told the Associated Press. 'Because of the radiation risk we are on standby.'"

**Containment On Dai Ichi No. 2 Reactor May Be Breached.** Bloomberg News (3/17, Lundgren, Srivastava) reports, "Japanese authorities are concerned about the condition of the pools of units 3 and 4, the International Atomic Energy Agency said yesterday. ... The crisis at Fukushima worsened yesterday when Tokyo Electric said the containment chamber at the No. 2 reactor may have been breached because pressure dropped suddenly. Clouds of steam were seen rising from the reactor building after a fire at the No. 4 Reactor. The 50 workers remaining at the plant were pulled out yesterday after radiation temporarily rose to unsafe levels," though they returned later.

**Jaczko Says Loss Of Water Could Hamper Ability To Make Repairs.** According to Financial Times (3/17, Kirchgassner, McGregor, 448K) Jaczko testified that he believed the water loss in the No 4 reactor spent fuel pool "could possibly impact the ability to take corrective measures."

Wall Street Journal (3/17, Tracy, 2.09M) carried similar coverage.

Reuters (3/17, Doggett) adds Jaczko said the NRC's information "is limited" as to what's happening onsite, but he added that with the high levels of radiation, "It would be very difficult for emergency workers to get near the reactors. The doses they could experience would potentially be lethal doses in a very short period of time."

**TEPCO, Japanese Nuclear Regulators, Dispute Jaczko's Claim.** The AP (3/17, Talmadge, Yamaguchi) reports that if "Jaczko was correct, this would mean there was nothing to stop the fuel rods from heating and ultimately melting down. The outer shell of the rods could also ignite with enough force to propel the radioactive fuel inside over a wide area." Japan's nuclear safety agency and TEPCO "which operates the six-unit Fukushima Dai-ichi complex, denied Jaczko's statements that the water is gone from the pool. Utility spokesman Hajime Motojuku said the 'condition is stable' at Unit 4, which was shut when the earthquake and tsunami hit last week." The AP (3/17) ran a shorter version of its coverage.

**Gunter Says Water Could Feed Spent Fuel Pool Fire.** Paul Gunter of Beyond Nuclear appeared on MSNBC's "Last Word with Lawrence O'Donnell" (3/16, 11:09pm EDT) and said that in Japan, there is an "unparalleled event where an entire reactor core is melting down or poised to meltdown. Certainly slumping. It's turning into this mass that is issuing hydrogen and oxygen gas, and in fact, as it heats up, if you try to put water on it, the water that goes on to this heating up mass will actually again separate out, chemically separate out into more hydrogen, more oxygen, and you actually could feed this accident with the water to try to quench it."

**Many Viewers Oppose New Reactor At Callaway Plant.** NBC affiliate, KOMU-TV Columbia, Missouri (3/16, 11:10pm EDT) broadcast, "Some mid-Missourians flocked to our Facebook more convinced than ever about the danger of legislation leading to a second nuclear reactor at the Callaway nuclear power plant. Republican lawmakers argue a second plant could bring jobs and growth. But our viewers think higher utility rates to fund nuclear energy could keep businesses away."

**Kan Government Faulted For Failing To Inform On Nuclear Crisis.** In a commentary for Tokyo Sankei Shimbun (3/17) Political Desk Editor Mataso Inui wrote that the government of Prime Minister Naoto Kan has "totally failed to take an adequate initial action to deal with explosion at the No. 1 nuclear reactor building of the Fukushima No. 1 nuclear power plant. In almost an hour after the accident, Nippon Television Network Corporation aired the video footage of the explosion, which was then released to the rest of the world by BBC. It was 2 hours after the explosion when the chief spokesman held a news conference and 5 hours after the

accident when he admitted the occurrence of the blast." Inui adds the "delay in disclosing information has led to various rumors such as that saying, 'The government might be hiding the real information.'"

**Jaczo Urges Personnel To Withdraw To About 80 Kilometers From Fukushima.** BBC News (3/16, 11:14pm EDT) reports, "We heard from Gregory Jaczo, who is the chair of the Nuclear Regulatory Commission. Now, he warned that US military personnel and citizens in Japan should actually withdraw to a radius of about 80 kilometers from Fukushima and the current exclusion zone is about 20 kilometers. The United States is assessing the situation in more serious terms, or at least their assessment is serious."

**IAEA, G-7 To Hold Meetings On The Situation In Japan.** Bloomberg News (3/16, Inajima, Sato) reports, "The United Nations' nuclear agency will call an emergency meeting to discuss the crisis in Japan as a breach at the stricken Fukushima Dai-Ichi plant increased the risk of a radioactive leak." IAEA head Yukiya Amano "is flying to Tokyo to talk with authorities today and will return for the meeting as soon as possible, he told reporters in Vienna yesterday. It will be the first extraordinary meeting of the agency's 35-member board since his election to succeed Mohamed ElBaradei two years ago."

Under the headline "Atomic Agency's Assessment Lags," the Wall Street Journal (3/17, Crawford, Hansen, 2.09M) reports on criticism of the IAEA's performance, particularly its failure to send a team of experts to Japan until six days after the crisis got underway – a development that forced the agency to rely on assessments from the Japanese government.

Meanwhile, the New York Times (3/17, Saltmarsh, 1.01M) notes that "France is arranging a discussion among finance ministers and central bankers from the Group of 7 countries to assess the economic effects of the crisis in Japan and a possible response." According to an anonymous "French official," the G-7 would weight "measures to support Japan, improve liquidity if needed and calm financial markets. The official said the discussion was likely to take place by conference call Thursday or Friday, depending on the availability of hard-pressed Japanese officials."

Bloomberg News (3/17, Tirone, Biggs, Lomax) reports, "The United Nations' nuclear agency plans an emergency meeting on the crisis. Japan faces a 'serious situation,' Yukiya Amano, head of the International Atomic Energy Agency, told reporters in Vienna before departing for talks with authorities in Tokyo today. Amano said fuel stored in units 4, 5 and 6 at the Tepco facility is exposed and releasing radiation. Separately, Tepco official Masahisa Otsuku said the No. 2 reactor's containment vessel may have been breached."

**Military Keeps "Watchful Eye" On Health Of US Solders Involved In Relief Efforts.** The Christian Science Monitor (3/17, Mulrine, 48K) reports, "The US military is keeping a watchful eye on the health of US forces in Japan and on radiation levels emitted by Japan's Fukushima I nuclear power plant as it continues its extensive relief efforts." The Monitor adds that "there is reason for concern among US military officials. Already the US Navy's 7th Fleet was forced to reposition its ships and aircraft 'after detecting low-level contamination in the air and on its aircraft operating in the area,' according to a statement released by the fleet Monday." And "perhaps the most alarming development is that radiation has also been detected on US troops themselves."

**Crisis Plays Havoc With World Markets, Presents Challenge To US Economy.** The Financial Times (3/17, Mackenzie, Politi, 448K) reports that top G-7 finance officials were to hold talks this morning on the Japanese crisis' effect on world markets. Yesterday, the New York Times (3/17, Wassener, 1.01M) reports, "the Japanese stock market sank again Thursday morning and the yen hit a record high against the US dollar after a US nuclear official warned that the situation at a damaged reactor was more serious than Tokyo has acknowledged." The Wall Street Journal (3/17, Frischkorn, Ng, 2.09M) runs a similar report.

Politico (3/17, White, 25K) reports that "the unfolding crisis...has begun to have an impact on the fragile recovery of the US economy despite assurances by Obama administration officials and many analysts that it does not pose a significant threat to economic growth here or across the globe." On Wednesday, "stocks plunged again," and "despite a modest late day recovery, Wall Street's three major indices have been falling for nearly a week, wiping out most of their gains for the year after rising sharply on hopes for a robust US economic rebound."

"Financial markets," says the AP (3/17), "were jolted for a third day," and "the losses were broad. Each of the 30 stocks that make up the Dow Jones industrial average fell, with IBM Corp. and General Electric Co. losing the most. All 10 company groups in the Standard & Poor's 500 index, the basis for most US mutual funds, lost ground."

USA Today (3/17, Shell, 1.83M) notes that "the Standard & Poor's 500 index fell nearly 2% to 1257. The drop extended its decline since its Feb. 18 bull market high to 6.4%."

AFP (3/17) reports that the Dow "posted a sharp triple-digit fall, sinking 242.12 points (2.04 percent) to finish at 11,613.30," and "the tech-rich Nasdaq Composite plummeted 50.51 points (1.89 percent) to 2,616.82." The Wall Street Journal (3/17, Conway, 2.09M) and Financial Times (3/17, Stafford, Blas, Farchy, 448K) also note the Wall Street numbers.

**More Commentary On Japan.** In a New York Times (3/17, 1.01M) op-ed, Hiroki Azuma of Waseda University writes, "The Japanese are an unfortunate people who have rarely felt pride in their country or government since the defeat in World War II. This has been particularly true in the last 20 years, during the prolonged recession after our economic bubble burst. ... But this time, the situation is different. ... Only recently the Japanese people and the government were seen as indecisive and selfish, muddled with complaints and bickering. But now, they are boldly trying to defend the nation together, as if they are a changed people. ... Oddly enough, the Japanese are proud to be Japanese now."

In a New York Times (3/17, 1.01M) op-ed, author Ryu Murakami writes, "There is a mass of confused and conflicting information. Some say the situation is worse than Three Mile Island, but not as bad as Chernobyl; others say that winds carrying radioactive iodine are headed for Tokyo, and that everyone should remain indoors and eat lots of kelp, which contains plenty of safe iodine. ... I want to remain here [in Yokohama], side by side with my family and friends and all the victims of the disaster. I want to somehow lend them courage, just as they are lending courage to me."

**Experts Say Risks Of Radiation Diminish With Distance.** AFP (3/17, Kwek) reports that the head of France's Institute for Radiological Protection and Nuclear Safety, Jacques Repussard said a plume of radioactivity would likely "extend from 'several dozen kilometres'" around Fukushima Daiichi nuclear plant, but would "have no consequences for health in Tokyo, 250 kilometres to the south-east. Britain's Chief Scientific Officer, Professor John Beddington, told the British embassy in Tokyo that even in the worst-case scenario, an explosion following a meltdown would only be serious for the local area." Thinking about the Chernobyl plant disaster, Professor Beddington "said the problems with Chernobyl were exacerbated by people 'continuing to drink the water and continuing to eat vegetables'."

**Japan Nuclear Crisis Forces Re-Evaluation Among Other Atomic Power Countries.** The AP (3/17, Charlton) reports, "Japan's nuclear crisis reverberated in atomic power-friendly countries Wednesday, with China saying it would hold off on approving new nuclear plants and French lawmakers questioning top energy executives about the safety of their reactors." AP says several governments "have put their nuclear future on hold" for the time being "as concerns grown even among pro-nuclear governments about the safety of the 442 reactors operating around the world." European Union "energy officials agreed Tuesday to apply stress tests on plants across the 27-nation bloc," while

Spanish Prime Minister Jose Luis Rodriguez Zapatero has requested studies on the vulnerability of the six nuclear plants in Spain to earthquakes and flooding. Venezuelan President Hugo Chavez has called off plans to develop nuclear energy following the Japan crisis.

The Wall Street Journal (3/17, Carney, 2.09M) provided details of the European Union response, saying Brussels has made efforts for a united response to the Japan crisis, saying members states should carry out tests to check the security status of their nuclear plants.

The Financial Times (3/17, Hook, 448K) reports China's suspension of approval for nuclear plants in the country means halting a program that makes up nearly 40 percent of the proposed reactors across the globe.

**New Nuclear Units In US Could Come Under Increased Scrutiny.** Reuters (3/17, Driver, O'Grady), citing analysts, says requests for setting up new nuclear reactors in the US will receive increased scrutiny as a result of the Japan crisis. Some say the new rules could even threaten the existence of some nuclear plants.

**Chile Sticks To Nuclear Plan Despite Growing Crisis In Japan.** The AP (3/17, Quilodran, Warren) reports, "Chile's president insisted Wednesday on signing a nuclear accord with the United States during President Barack Obama's visit next week, saying the country must keep reactors as a potential option for fueling the booming economy despite anxieties about Japan's disaster." AP says doubts "about nuclear power is rising in Chile, too, but President Sebastian Pinera said the country needs to double its energy resources and can't be afraid to consider all the alternatives."

**Czech Prime Minister Reaffirms Support To Nuclear Power.** The Wall Street Journal (3/16, Carney, 2.09M) "New Europe" blog reported Czech responded to Germany's decision to idle several nuclear plants in view of the Japan crisis by reaffirming its support for nuclear power. Czech Prime Minister Petr Necas said he sees no reason to succumb to "hysteria," noting that the central European region doesn't face any risks of tsunami or major earthquakes.

A separate "New Europe" blog in the Wall Street Journal (3/16, Kruk, 2.09M) reported that, citing Poland's Economy Ministry, Poland would not face a nuclear catastrophe that is unfolding in Japan because of its geographic location as well as the modern nuclear power plants it proposes to build. Poland has plans to construct two nuclear power plants.

**Indonesia Says Won't Waver From Plans To Build Nuclear Plants.** Reuters (3/16, Nathalia, Suharmoko) reported that Indonesia said it will not waver in its plans to build nuclear plants, in spite of the current nuclear crisis in Japan. Indonesia, like Japan, is located in an earthquake prone region.

## **Malaysia Seizes Suspected Nuclear Weapons**

**Parts.** AFP (3/17) reports, "Malaysian police confirmed on Thursday they have seized two containers which may contain parts used to make nuclear weapons, from a ship bound for western Asia." The confirmation follows "a front page story in the influential Sun daily which said police had seized 'parts of an equipment believed used to make weapons of mass destruction, including nuclear warhead' from a ship about 10 days ago."

According to the AP (3/17), Home Minister Hishamuddin Hussein said the "seized suspicious equipment found in two containers" were "shipped from a Chinese port." He said the parts need to be "verified by both local and international agencies," a process he said could take "weeks or months." Malaysia, he added, "is seeking information from China."

**US Criticizes Iranian Arms Smuggling.** The AP (3/17) reports the Administration on Wednesday "implicitly" criticized Iran after Israel intercepted a ship carrying weapons bound for "Palestinian militants" in Gaza. In a statement, State Department spokesman Mark Toner said in the US "condemns illicit smuggling of arms and ammunition."

Meanwhile, another AP (3/17) report from Ankara says Turkey grounded an Iranian cargo plane yesterday "so its shipment could be searched." The Foreign Ministry, however, denied reports "that Turkish military jets forced the plane to land at Diyarbakir airport on Tuesday night to search it for an alleged cargo of arms from Iran to Syria."

AFP (3/17) reports the plane "was still grounded at Diyarbakir airport on Wednesday where the search was ongoing."

**After Intel Briefing, Lieberman Says Iran "Seriously" Seeking Nukes.** AFP (3/17) reports, "An influential US Senator said Wednesday after a closed-door, classified intelligence briefing on Iran that Tehran is working "seriously" to develop nuclear weapons." Said Sen. Joe Lieberman, "I can't say much in detail, but it's pretty clear that they're continuing to work seriously on a nuclear weapons program."

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# NUCLEAR REGULATORY COMMISSION NEWS CLIPS

THURSDAY, MARCH 17, 2011 7:00 AM EDT

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**NRC NEWS:**

**NRC Sounds Alarm On Japan Crisis (POLITCO)**

By Darius Dixon  
Politico, March 17, 2011

American experts dispatched to Japan say the crisis at the Fukushima Daiichi nuclear plant warrants greater precautions than previously acknowledged, the top US nuclear official said Wednesday, which touched off a flurry of new speculation about the severity of the disaster.

Nuclear Regulatory Commission Chairman Gregory Jaczko said the spent-fuel pools at Fukushima Daiichi's Unit 4 reactor may be empty and a crack may be present in the spent-fuel pool for the No. 3 reactor. Without proper cooling, spent-fuel rods will continue to heat and potentially ignite, dispersing radioactive elements and making an already complicated situation evermore difficult to contain.

In addition, the State Department has recommended that American citizens within a 50-mile radius of the stricken power plant evacuate, contradicting advice from the Japanese government.

Jaczko, who briefed President Barack Obama and senior White House officials earlier in the day, made the rounds on the network and cable broadcasts Wednesday evening.

"The information that we have is coming from staff people that we have in Tokyo who are interfacing with counterparts in the nuclear industry in Japan, and I've confirmed with them that they believe the information they have is reliable," Jaczko told ABC News.

"We believe that there is no water in the spent-fuel pool known as No. 4, and I would say that it is my great hope that the information that we have is not accurate," he added. "I would hope for the sake of everyone that the situation is not at the state that we think it is."

Meanwhile, Tokyo Electric Power Co., the nuclear plant operator, denied Jaczko's assessment, saying that the "condition is stable" at Unit 4, according to the AP.

The 50-mile evacuation recommendation created confusion as well, as for the first time the advice to American citizens in Japan differed from advice from the Japanese government.

Jaczko and White House press secretary Jay Carney said the State Department suggestion came based on NRC's standards for evacuating citizens.

Carney, under heavy questioning from the White House press corps, insisted that the difference "is not about the quality of information" from Japan.

The NRC chairman also appeared in front of the House Energy and Commerce Committee and a Senate Environment and Public Works Committee gathering filled mostly with Democrats.

"We're working off the best information available that we have," Jaczko told reporters Wednesday. "Some of that information is coming from a team that we have dispatched to Japan that is working with the utility."

The ongoing crisis in Japan has some Democrats on Capitol Hill casting a more suspicious eye to the nuclear industry and the NRC.

California Democratic Sens. Barbara Boxer and Dianne Feinstein sent a letter to the NRC on Wednesday expressing their concern for San Onofre and Diablo Canyon, two nuclear plants in their state. The senators want NRC to "perform a thorough inspection" of the two plants and address questions about their ability to withstand an earthquake or tsunami.

At the Environment and Public Works Committee briefing, Boxer told Jaczko, "I don't hear anything proactive" coming out of the NRC, "and I worry about that."

## **US Officials Express Strong Concerns About Japan Nuclear Crisis (LAT)**

**Gregory Jaczko, head of the US Nuclear Regulatory Commission, says the crisis is worse than Japanese officials appear to be letting on. 'This is a situation where people may be called in to sacrifice their lives,' he says of the crew working there.**

By Thomas H. Maugh II, Los Angeles Times  
Los Angeles Times, March 17, 2011

– As the crisis continues to unfold at the Fukushima No. 1 (Daiichi) nuclear power plant, a growing disparity between Japanese and US attitudes toward the problem is becoming apparent.

Whereas Japanese authorities have generally been restrained in their pronouncements about the risks, American officials are becoming increasingly vocal.

Japanese officials, for example, have consistently said the amount of radiation escaping from the damaged power plant remains relatively small. But on Wednesday, Gregory Jaczko, head of the US Nuclear Regulatory Commission, said that he believes the spent fuel cooling pond atop reactor no. 4 at the facility about 150 miles north of Tokyo has boiled dry and that it is now spewing large amounts of radiation into the air.

"We believe that around the reactor site there are high levels of radiation," he said. "It would be very difficult for emergency workers to get near the reactors. The doses they could experience would potentially be lethal doses in a very short period of time."

About 180 workers are now back at the site, up from the skeleton crew of 150 who were there overnight. Jaczko later told CNN that, "This is a situation where people may be called in to sacrifice their lives. ... It's very difficult for me to contemplate that, but it's... it may have reached that point."

Further illustrating the split between the two countries, the US military warned all its personnel in Japan not to go within 50 miles of the Fukushima No. 1 facility without specific clearance. The US Embassy in Tokyo cautioned civilians within the 50-mile zone to either evacuate or stay inside their houses and keep all windows closed.

The Japanese government, in contrast, called for a much more limited evacuation of everyone living within a 12-mile radius of the plant and warned those within 18 miles to stay inside.

The government's "repeated assurances that the [observed doses outside the plant are] too low to affect people's health does not square with what we know," said Dr. Ira Helfand, a past president of Physicians for Social Responsibility.

Perhaps reflecting the growing concern Thursday morning over the radiation leakage from the spent fuel pool, officials of Tokyo Electric Power Co., which owns the plant, began using helicopters to dump water onto the pool on reactor no. 4. Engineers had planned to do that Wednesday but called off the operation because steam and radioactivity rising from the pool made it too dangerous for the pilots. The helicopters, from Japan's Self-Defense Forces, dropped water on both reactor no. 3 and the spent fuel pool on the building containing reactor no. 4.

Instead, they had hoped to shoot water into the pool using water cannons. But they have not been able to do that yet because too much debris from the tsunami and the earlier explosions is blocking the way.

The pool contains an estimated 125 tons of uranium fuel pellets, much more than is contained in any of the reactors. Moreover, the fuel rods in the pool are not enclosed in a containment vessel, so that if they start burning, radiation will escape directly into the environment.

Company officials also said they are nearing completion of a new power line that will bring electricity to the site from the grid. That will provide a consistent source of power for valves and controllers in the plant and perhaps could be used to power the pumps that supply water to the cooling ponds. It will not help the damaged reactors, however, because their cooling pumps were too badly damaged in the series of explosions that racked the three reactors that were in operation at the time of the magnitude 9.0 earthquake.

The US Air Force also plans to use a Global Hawk drone based in Guam on Thursday to take high-resolution images of the plant to help officials better assess the extent of the damage. The cameras on the drone can take better pictures than are possible with manned aircraft, which have to avoid the radiation plumes at the site.

thomas.maugh@latimes.com

Times wire services were used in compiling this report.

## **US Urges Wider No-Go Area Around Nuclear Plant (NYT)**

By Mark McDonald And Kevin Drew

New York Times, March 17, 2011

TOKYO — The United States told its citizens and military personnel on Wednesday to stay at least 50 miles away from the stricken nuclear plant in northern Japan, a much wider radius of safety than the Japanese government has set for its people.

"We are recommending, as a precaution, that American citizens who live within 50 miles (80 kilometers) of the Fukushima Nuclear Power Plant evacuate the area, or to take shelter indoors if safe evacuation is not practical," the American Embassy in Tokyo said in its statement to civilians. Separately, American military personnel have been told that unless they are given specific orders to the contrary, they should not go within 50 miles of the plant on the ground or in the air.

Japanese officials have evacuated the area within 20 kilometers (12 miles) of the plant and told people who live 20 to 30 kilometers away (12 to 19 miles) to stay indoors and seal their homes. But the top government spokesman, Yukio Edano, told reporters on Wednesday that the levels of radiation detected at the edge of the evacuation zone on Wednesday do not pose an immediate danger to human health.

The American recommendation to stay outside a 50-mile radius came after a review of radiation data by the United States Nuclear Regulatory Commission, and was based on what the commission would recommend "in a comparable situation in the US," its chairman, Gregory Jaczko, said on Wednesday.

The divergent advice on the safe distance to keep from the power plant reflected the spreading anxiety in Japan and around the world about the unfolding nuclear disaster. Neighboring nations scoured atmospheric data for any sign of radiation

blowing their way, expatriates prepared to relocate away from the plant or leave Japan entirely, and jittery investors sold stocks heavily, pushing major market indexes down sharply for a third day.

Emperor Akihito took the unprecedented step of addressing his people on television Wednesday, telling them in a recorded message broadcast nationwide that he was "deeply worried" about the ongoing nuclear crisis and asking them to act with compassion "to overcome these difficult times."

An official with the Imperial Household Agency said that Akihito had never before delivered a nationally televised address of any kind, not even in the aftermath of the Kobe earthquake in 1995 that killed more than 6,000 people. His address on Wednesday was videotaped.

The message broadcast on Wednesday afternoon was the first public comment from Akihito, 77, since a devastating earthquake and tsunami struck northern Japan last Friday, and they underscored the urgency of multiple crises confronting the country. Akihito expressed his concern for the survivors of the disaster and thanked the rescue teams working under difficult conditions in the north. Before the emperor's address, the crisis took another turn for the worse. The authorities said a containment vessel in a second reactor unit at the stricken Fukushima Daiichi plant in northeastern Japan might have ruptured and appeared to be releasing radioactive steam. That would be the second vessel to be compromised in two days.

A spike in radiation levels at the plant suspended some critical efforts to pump water into several reactors to keep them cool. Earlier in the morning, the company that runs the plant reported that a fire was burning at a different reactor.

A huge relief operation continued as an estimated 440,000 people prepared to spend a sixth night in temporary shelters and evacuation centers in a region where the weather has turned blustery and cold. Local officials expressed frustration at the handling of the evacuation.

"The anxiety and anger being felt by people in Fukushima have reached a boiling point," Yuhei Sato, the governor of Fukushima prefecture, told the NHK broadcast network. While the government plans for further evacuations if conditions worsen, he said, the shelters housing people who have already been evacuated are already short of food and other supplies. "We lack everything," he said.

Weather forecasters predicted a cold front moving into the region would send the overnight temperatures in northeast Japan below freezing, and the government said the cold posed a health risk for evacuees.

The death toll from the combined natural and manmade disasters climbed inexorably. By Wednesday night, more than 4,300 people had been confirmed killed and more than 7,800 remained unaccounted for; the authorities say the final tally of the dead is likely to exceed 10,000.

Aftershocks kept people across northern Japan on edge Wednesday. The United States Geological Survey recorded 54 earthquakes by midafternoon, four of them with magnitudes higher than 6.0. A strong morning shock caused buildings to sway in central Tokyo for about 30 seconds.

Rescue teams from 13 nations continued to search for survivors, and more nations were preparing to send teams. Helicopters shuttled back and forth, part of a mobilization of some 100,000 troops, the largest in Japan since World War II, to assist in the rescue and relief work.

More foreign nations on Wednesday issued cautionary advice to their citizens in Japan. Serbia, Croatia and Belgium told their citizens to leave the country, while France, Australia and the Philippines urged their nationals to either leave Japan or move south, away from the stricken nuclear plant. China continued a mass evacuation of its citizens from the earthquake and tsunami zone begun earlier in the week, while the French Embassy asked Air France to provide planes to ferry its citizens out of Japan.

A number of foreign airlines have suspended flights to Tokyo and have shifted operations to cities farther south.

The United States ambassador to Japan, John V. Roos, issued a statement on Wednesday addressing the growing public unease over the nuclear crisis. American officials agreed with the Japanese government's advice urging people living within about 12 miles of the damaged plant to evacuate, and within about 18 miles to remain indoors.

"Let me also address reports of very low levels of radiation outside the evacuation area detected by US and Japanese sensitive instrumentation," Mr. Roos said in the statement. "This bears very careful monitoring, which we are doing. If we assess that the radiation poses a threat to public health, we will share that information and provide relevant guidance immediately."

The Japanese stock market recouped some of the losses from the previous two days of steep selloffs, despite the continued uncertainty. The benchmark Nikkei 225 index closed up 5.7 percent on Wednesday, and the broader Topix gained 6.6 percent, though both indexes remained far below their levels of a week ago. Even so, shares of Tokyo Electric Power, the operator of the Fukushima Daiichi nuclear plant, continued to plunge on Wednesday.

Mark McDonald reported from Tokyo, and Kevin Drew from Hong Kong. Ken Belson contributed reporting from Tokyo, Sharon LaFraniere from Beijing, and Bettina Wassener from Hong Kong.

## Japanese Drop Water From Air On Stricken Nuclear Plant (WP)

By Rick Maese

Washington Post, March 17, 2011

TOKYO — Six days into the world's worst nuclear emergency in 25 years, the crisis at one of Japan's damaged power plants worsened, prompting the United States to urge Americans to stay at least 50 miles from the plant — four times the distance recommended by the Japanese government.

The dire warning from American officials came on the heels of congressional testimony from Gregory Jaczko, chairman of the US Nuclear Regulatory Commission, who said that a deep pool holding uranium fuel at the Fukushima Daiichi facility sat empty of water needed to prevent releases of radiation.

That assessment, the first detailed comments by an American official about Fukushima Daiichi, provided an even more worrisome picture than the one provided by the government in Tokyo and gave millions in Japan on Thursday a heightened sense of concern as they try to determine how far and how fast radioactive material might spread.

In their latest efforts to contain the growing problems at the plant, Japanese officials returned to a plan they had aborted just one day earlier, regarding it as too dangerous. A military helicopter flew four times over the unstable reactors in units 3 and 4 Thursday morning, the Boeing CH-47 dropping 7 1 / 2 tons of seawater on the buildings each time in a bid to replenish the water in the storage pool.

If left exposed to the air, the spent-fuel rods would start to decay and release radioactivity into the air.

Japanese police stood ready to also address the problem from the ground, using a water cannon to spray the reactors from outside — a plan that NHK television, which broadcast the helicopter mission nationally, characterized as a “last-ditch effort.”

With Japan's northeastern coastline ravaged and fears of radiation growing, Emperor Akihito made rare public remarks Wednesday, saying he was “deeply concerned about the nuclear situation.”

The emperor's televised address — his first at a time of national crisis — underscored the gravity of the moment and highlighted the myriad problems still plaguing Japan nearly a week after the 9.0-magnitude earthquake and tsunami struck: a death toll that grows by the day; conflicting safety and evacuation information; growing distrust by locals and foreigners who call Japan home; a scarcity of gas, food and other resources; and the difficulty some aid workers have had delivering supplies.

The National Police Agency released updated numbers Thursday morning: 4,377 people dead and 9,083 missing. But the list of casualties is expected to reach far higher.

Failed attempts by Japanese officials to bring the Fukushima Daiichi reactors under control, coupled with the US analysis of the situation inside the facility, suggested a greater likelihood that high levels of radiation are leaking from the plant.

Jaczko, speaking in Washington before members of the House Energy and Commerce Committee, said that Fukushima Daiichi's unit 4 reactor appeared to have suffered a hydrogen explosion and that there “is no water in the spent fuel pool. And we believe that radiation levels are extremely high.”

A report on the Japanese crisis this week by Barclays Capital said, “Never, never, never allow the water level in a nuclear reactor to fall below the level of the fuel. This is the mantra pounded into the minds of nuclear power plant operators all over the world.” The report added, “It is hard to overemphasize the importance of the ‘keep the fuel covered’ training and design of these plants.” One of the report's authors formerly provided such training at a US commercial nuclear plant.

The lack of water in at least one spent-fuel pool sparked fears of a worst-case scenario: the fuel could combust.

“If there's no water in there, the spent fuel can start a fire,” said Eric Moore, a consultant to the NRC on plant design and safety issues. “Once you have that fire, there's a high risk of radiation getting out, spewed by the fire.”

Japanese officials have called for a 121 / 2-mile evacuation zone around the coastal nuclear plant, about 150 miles north of Tokyo, and asked that people between 121 / 2 and 19 miles away stay indoors. Their assessment did not change Wednesday, even though plumes of white steam billowed from unit 3 of the Fukushima Daiichi plant.

NHK footage Thursday morning showed relatively small amounts of steam rising from units 2, 3 and 4 at Fukushima Daiichi. The exact cause of the steam was not immediately clear.

US Ambassador John V. Roos said Wednesday afternoon that he thought Tokyo was still safe from radiation, and he initially supported Japan's estimation that those beyond the 19-mile radius from the nuclear plants were not at risk. “Our experts continue to be in agreement . . . to continue to follow the advice of the Japanese government in this regard,” Roos said.

But later, when radiation levels in the air above the plant spiked dangerously for the second consecutive day, Roos issued a recommendation based on a review of “the deteriorating situation” by experts from the NRC and the Energy Department.

“Consistent with the NRC guidelines that apply to such a situation in the United States, we are recommending, as a precaution, that American citizens who live within 50 miles (80 kilometers) of the Fukushima Nuclear Power Plant evacuate the area or to take shelter indoors if safe evacuation is not practical,” Roos said in a statement.

The recommendation appeared to reflect more stringent US standards on radiation exposure, rather than differing assessments of radiation that had escaped from the plants.

Earlier Wednesday, the Pentagon announced that US forces participating in relief operations in Japan would not be allowed within 50 miles of the plant. Officials also said some flight crews are being issued potassium iodide tablets, which can reduce the risk of thyroid cancer from radiation exposure. The measure was described as precautionary. Several US helicopter crews have been exposed to low levels of radiation, but no service members have shown signs of illness.

In order for the workers at Fukushima Daiichi to resume trying to cool the damaged reactors, Japan's health and welfare minister had to waive the nation's standard of radiation exposure, increasing the level of acceptable exposure from 100 millisieverts to 250 — five times the level allowed in the United States.

Japanese officials were working on a plan to deliver water and cool the reactors from the ground. In addition, a spokesman for Tokyo Electric Power, which owns the facility, said that a power line being laid to the plant to help restore the reactor cooling systems is almost complete and that engineers plan to test it “as soon as possible,” according to the Associated Press.

## **US Sounds Alarm On Radiation (WSJ)**

By Norihiko Shirouzu And Rebecca Smith

Wall Street Journal, March 17, 2011

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

## **US Calls Radiation "Extremely High," Sees Japan Nuclear Crisis Worsening (NYT)**

By David E. Sanger, Matthew L. Wald And Hiroko Tabuchi

New York Times, March 17, 2011

WASHINGTON — The chairman of the United States Nuclear Regulatory Commission gave a far bleaker appraisal on Wednesday of the threat posed by Japan's nuclear crisis than the Japanese government had offered. He said American officials believed that the damage to at least one crippled reactor was much more serious than Tokyo had acknowledged, and he advised Americans to stay much farther away from the plant than the perimeter established by Japanese authorities.

The announcement opened a new and ominous chapter in the five-day-long effort by Japanese engineers to bring the six side-by-side reactors under control after their cooling systems were knocked out by an earthquake and a tsunami last Friday. It also suggested a serious split between Washington and its closest Asian ally at an especially delicate moment.

The Congressional testimony by Gregory Jaczko, the chairman of the commission, was the first time the Obama administration had given its own assessment of the condition of the plant, apparently mixing information it had received from Japan with data it had collected independently.

Mr. Jaczko's most startling assertion was that there was now little or no water in the pool storing spent nuclear fuel at the No. 4 reactor of the Fukushima Daiichi Nuclear Power Station, leaving fuel rods stored there exposed and bleeding radiation into the atmosphere.

As a result, he said, “We believe that radiation levels are extremely high, which could possibly impact the ability to take corrective measures.”

His statement was quickly but not definitively rebutted by officials of Tokyo Electric Power, the Daiichi's plant's operator, and Japan's nuclear regulatory agency.

“We can't get inside to check, but we've been carefully watching the building's environs, and there has not been any particular problem,” said Hajime Motojuku, a spokesman for Tokyo Electric. Speaking on Thursday morning in Japan, Takumi Koyamada, a spokesman for the regulatory agency, said that when it was checked 12 hours earlier, water remained in the spent fuel pool at reactor No. 4.

“We cannot confirm that there has been a loss in water,” he said.

On Wednesday night, Mr. Jaczko reiterated his earlier statement and added that commission representatives in Tokyo had confirmed that the pool was empty. He said Tokyo Electric and other officials in Japan had confirmed that, and also stressed that high radiation fields were going to make it very difficult to continue having people work at the plant.

If the American analysis is accurate and emergency crews at the plant have been unable to keep the spent fuel at that inoperative reactor properly cooled — it needs to remain covered with water at all times — radiation levels could make it difficult not only to fix the problem at reactor No. 4, but to keep servicing any of the other problem reactors at the plant. In the worst case,

experts say, workers could be forced to vacate the plant altogether, and the fuel rods in reactors and spent fuel pools would be left to meltdown, leading to much larger releases of radioactive materials.

While radiation levels at the plant have varied tremendously, Mr. Jaczko said that the peak levels reported there “would be lethal within a fairly short period of time.” He added that another spent fuel pool, at Reactor No. 3, might also be losing water and could soon be in the same condition. Efforts to pour in water by dumping it from helicopters were suspended, for fear that the helicopter crews would receive too large a dose of radiation.

Mr. Jaczko’s testimony came as the American Embassy in Tokyo, on advice from the Nuclear Regulatory Commission, told Americans to evacuate a radius of “approximately 50 miles” from the Fukushima plant.

The advice to Americans in Japan represents a graver assessment of the risk in the immediate vicinity of Daiichi than the warnings made by the Japanese themselves, who have told everyone within 20 kilometers, about 12 miles, to evacuate, and those 20 to 30 kilometers to take shelter. While maps of the plume of radiation being given off by the plant show that an elongated cloud will stretch across the Pacific, American officials said it would be so dissipated by the time it reached the West Coast of the United States that it would not pose a health threat.

“We would recommend an evacuation to a much larger radius than has currently been provided by Japan,” Mr. Jaczko said. That assessment seems bound to embarrass, if not anger, Japanese officials, suggesting they have miscalculated the danger or deliberately played down the risks.

It was not immediately clear how many people live within the zone around the plant that American officials believed should be evacuated. But the zone gets far closer to the city of Sendai, with its population of one million, which took the brunt of the earthquake last week.

At a hearing on Wednesday, Senator Barbara Boxer, chairman of the Senate Environment and Public Works Committee, pointed out that 50 miles could take in a huge number of people; San Onofre, in her home state, California, has seven million people living within that radius, she said.

American officials were careful to offer no public comparisons to past nuclear accidents when discussing the Fukushima disaster. But clearly the crisis in Japan already far outstrips what happened at Three Mile Island in Pennsylvania, where very little radiation escaped a crippled reactor. The effort now is to keep the Japanese crisis, involving at least three reactors that had been in active use before the quake, and three others that were inactive but had storage pools for spent fuel, from escalating to the levels of the worst nuclear disaster in history: Chernobyl.

Though the plant’s reactors shut down automatically when the quake struck on Friday, the subsequent tsunami wiped out the backup electronic pumping and cooling system necessary to keep the fuel rods in the reactors and the storage pools for spent nuclear fuel covered with cool water.

The spent fuel pools can be even more dangerous than the active fuel rods, as they are not contained in thick steel containers like the reactor core. As they are exposed to air, the zirconium metal cladding on the rods can catch fire, and a deadly mix of radioactive elements can spew into the atmosphere. The most concern surrounds Cesium-137, which has a half-life of 30 years and can get into food supplies or be inhaled.

Mr. Jaczko (pronounced YAZZ-koe) said radiation levels might make it impossible to continue what he called the “backup backup” cooling functions that have so far helped check the fuel melting inside the reactors. Those efforts consist of using fire hoses to dump water on overheated fuel and then letting the radioactive steam vent into the atmosphere.

Those emergency measures, carried out by a small squad of workers and firefighters, represent Japan’s central effort to forestall a full-blown fuel meltdown that would lead to much higher releases of radioactive material into the air.

Mr. Jaczko’s testimony, the most extended comments by a senior American official on Japan’s nuclear disaster, described what amounts to an agonizing choice for Japanese authorities: keep sending workers into an increasingly contaminated area in a last-ditch effort to cover nuclear fuel with water, or do more to protect the workers but risk letting the pools of water boil away — and thus risk a broader meltdown.

The Japanese authorities have never been as specific as Mr. Jaczko was in his testimony about the situation at reactor No. 4, where they have been battling fires for more than 24 hours.

According to Tokyo Electric’s data, the spent fuel pool at the No. 4 reactor contains 548 fuel assemblies that were in use at the reactor until last November, when they were moved to the storage pool on the site. That means that the fuel rods were only recently taken out of active use and that their potential to burn and release radioactivity is higher than spent fuel in storage for a longer period.

Experts say workers at the plant probably could not approach a fuel pool that was dry, because radiation levels would be too high. In a normally operating pool, the water not only provides cooling but also shields workers from gamma radiation. A plan

to dump water into the pool, and others like it, from helicopters was suspended because the crews would be flying right into a radioactive plume.

Earlier in the day, Japanese authorities announced a different escalation of the crisis at Daiichi when they said that a second reactor unit at the plant might have suffered damage to its primary containment structure and appeared to be releasing radioactive steam.

The break, at the No. 3 reactor unit, worsened the already perilous conditions at the plant, a day after officials said the containment vessel in the No. 2 reactor had also cracked.

But in one of a series of rapid and at times confusing pronouncements on the crisis, the authorities insisted that damage to the containment vessel at the No. 3 reactor — the main focus of concern earlier on Wednesday — was unlikely to be severe.

At a hearing in Washington on Wednesday held by two subcommittee of the House Energy and Commerce Committee, Energy Secretary Steven Chu said, "We think there is a partial meltdown" at the plant.

"We are trying to monitor it very closely," he said. "We hear conflicting reports about exactly what is happening in the several reactors now at risk. I would not want to speculate about what is happening."

David E. Sanger and Matthew L. Wald reported from Washington, and Hiroko Tabuchi from Tokyo. Keith Bradsher contributed reporting from Hong Kong.

## **US Officials: Japanese Should Widen Nuclear Evacuation Zone (MCT)**

By Greg Gordon, McClatchy Newspapers

McClatchy, March 17, 2011

WASHINGTON — Energy Secretary Steven Chu said Wednesday that US officials believe at least one Japanese nuclear power reactor is in "partial meltdown," and the top federal nuclear power regulator said that radiation is so high it warrants a much wider evacuation zone.

Gregory Jaczko, the chairman of the Nuclear Regulatory Commission, said the US embassy in Japan has advised American citizens to move at least 50 miles from the earthquake-devastated Fukushima Daiichi Nuclear Power Station. The Japanese government has so far ordered evacuations in a 20-kilometer, or 12-mile, radius of the plant, and urged people within 20 to 30 kilometers merely to take shelter.

Their frank assessment stood in contrast to Japanese officials, who continue to downplay the threat posed by the damaged plant. However, since the disaster began to unfold over the weekend, each reassuring statement was followed by a new setback.

Testifying back-to-back at what was slated to be a mundane House budget hearing, Chu and Jaczko described the event as the worst nuclear calamity in a quarter century and perhaps ever, based on reports from a team of 39 US technicians dispatched to monitor the situation.

Unlike the 1979 Three Mile Island incident in Pennsylvania and the deadly 1986 disaster at the Chernobyl nuclear plant in the former Soviet Union, the Fukushima crisis entails at least four of the six reactors at a single plant. The events raise the specter that a meltdown of one reactor could spew so much radiation as to hobble already impaired attempts to avoid disasters at the others.

Chu told a joint hearing of two House Energy and Commerce subcommittees that the Japanese incidents "actually appear to be more serious than Three Mile Island," the worst-ever US accident.

Questioned later by Rep. Doris Matsui, D-Calif., he noted that the Pennsylvania reactor also had a partial meltdown, but its containment vessel didn't fail and was able to contain the radiation. Chu said he "wouldn't want to speculate on exactly what will happen" in Japan.

Jaczko was measured as he described the predicament in the Fukushima plant's No. 4 reactor, which was actually off line when last week's 9.0 earthquake hit the region and triggered a towering tsunami that leveled property and knocked out electric power. In that reactor, however, a cooling system failed for nearly as dangerous spent fuel.

"What we believe at this time is that there has been a hydrological explosion in this unit due to an uncovering of the fuel in the fuel pool," he said. "We believe that the secondary containment has been destroyed, that there is no water in the spent fuel pool.

"And we believe that radiation levels are extremely high, which could possibly impact the ability to take corrective measures."

Absent water, nuclear fuel rods can rapidly heat toward their 2,200-degree melting point, beginning a meltdown, in which uranium forms a puddle and begins to melt anything beneath it. If it reaches critical mass, it could explode, sending a white cloud of highly radioactive dust into the air.

Jaczko said the three reactors that were operating when the earthquake hit were shut down following normal procedures.

"We believe that, in general for these three reactors, they have suffered some degree of core damage from insufficient cooling from loss of offsite power and inability of diesel generators to operate successfully following the tsunami," he said.

While pumping of seawater has provided some cooling, he said, the No. 2 reactor core "is not stable," though its thick reactor containment vessel appears to be intact. Water levels in the spent fuel pools of both that reactor and reactor No. 3 appear to be decreasing, heightening the risks further, he said.

US crews took 1,700 pounds of monitoring equipment, including aerial measurement systems, with them, Chu told the panels.

## **US Fears Worsening Japan Crisis (FT)**

By Jonathan Soble And Michiyo Nakamoto In Tokyo And April Dembosky

Financial Times, March 16, 2011

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

## **Flaws In Japan's Leadership Deepen Sense Of Crisis (NYT)**

By Hiroko Tabuchi, Ken Belson And Norimitsu Onishi

New York Times, March 17, 2011

TOKYO — With all the euphemistic language on display from officials handling Japan's nuclear crisis, one commodity has been in short supply: information.

When an explosion shook one of many stricken reactors at Japan's Fukushima Daiichi nuclear plant on Saturday, power company officials initially offered a typically opaque, and understated, explanation.

"A big sound and white smoke" were recorded near Reactor No. 1, the plant's operator, Tokyo Electric Power, announced in a curt memo. The matter "was under investigation," it added.

Foreign nuclear experts, the Japanese press and an increasingly angry and rattled Japanese public are frustrated by government and power company officials' failure to communicate clearly and promptly about the nuclear crisis. Pointing to conflicting reports, ambiguous language and a constant refusal to confirm the most basic facts, they suspect officials of withholding or fudging crucial information about the risks posed by the ravaged Daiichi plant.

The sound and white smoke on Saturday turned out to be the first in a series of explosions that set off a desperate struggle to bring four reactors under control after their cooling systems were knocked out by the earthquake and tsunami.

Evasive news conferences followed uninformative briefings as the crisis intensified over the past five days. Never has postwar Japan needed strong, assertive leadership more — and never has its weak, rudderless system of governing been so clearly exposed. With earthquake, tsunami and nuclear crisis striking in rapid, bewildering succession, Japan's leaders need skills they are not trained to have: rallying the public, improvising solutions and cooperating with powerful bureaucracies.

"Japan has never experienced such a serious test," said Takeshi Sasaki, a political scientist at Gakushuin University. "At the same time, there is a leadership vacuum."

Politicians are almost completely reliant on Tokyo Electric Power, which is known as Tepco, for information, and have been left to report what they are told, often in unconvincing fashion.

In a telling outburst, the prime minister, Naoto Kan, berated power company officials for not informing the government of two explosions at the plant early Tuesday morning.

"What in the world is going on?" Mr. Kan said in front of journalists, complaining that he saw television reports of the explosions before he had heard about them from the power company. He was speaking at the inauguration of a central response center of government ministers and Tepco executives that he set up and pointedly said he would command.

The chief of the International Atomic Energy Agency said late Tuesday in a press conference in Vienna that his agency was struggling to get timely information from Japan about its failing reactors, which has resulted in agency misstatements.

"I am asking the Japanese counterparts to further strengthen, to facilitate, communication," said the agency's chief, Yukiya Amano. A diplomat in Vienna familiar with the agency's operations echoed those sentiments.

"It's so frustrating to try to get good information" from the Japanese, the diplomat said, speaking on the condition of anonymity so as not to antagonize officials there.

The less-than-straight talk is rooted in a conflict-averse culture that avoids direct references to unpleasantness. Until recently, it was standard practice not to tell cancer patients about their diagnoses, ostensibly to protect them from distress. Even Emperor Hirohito, when he spoke to his subjects for the first time to mark Japan's surrender in World War II, spoke circumspectly, asking Japanese to "endure the unendurable."

There are also political considerations. In the only nation that has endured an atomic bomb attack, acute sensitivity about radiation sickness may be motivating public officials to try to contain panic — and to perform political damage control. Left-leaning news outlets have long been skeptical of nuclear power and of its backers, and the mutual mistrust led power companies and their regulators to tightly control the flow of information about nuclear operations so as not to inflame a spectrum of opponents that includes pacifists and environmentalists.

“It’s a Catch-22,” said Kuni Yogo, a former nuclear power planner at Japan’s Science and Technology Agency. He said that the government and Tepco “try to disclose only what they think is necessary, while the media, which has an antinuclear tendency, acts hysterically, which leads the government and Tepco to not offer more information.”

The Japanese government has also decided to limit the flow of information to the public about the reactors, having concluded that too many briefings will distract Tepco from its task of bringing the reactors under control, said a senior nuclear industry executive.

At a Tepco briefing on Wednesday, tempers ran high among reporters. Their questions focused on the plumes of steam seen rising from Daiichi’s Reactor No. 3, but there were few answers.

“We cannot confirm,” an official insisted. “It is impossible for me to say anything at this point,” another said. And as always, there was an effusive apology: “We are so sorry for causing you bother.”

“There are too many things you cannot confirm!” one frustrated reporter replied in an unusually strong tone that perhaps signaled that ritual apologies had no place in a nuclear crisis.

Yukio Edano, the outspoken chief cabinet secretary, has been one voice of relative clarity. But at times, he has seemed unable to make sense of the fast-evolving crisis. And even he has spoken too ambiguously for foreign news media.

On Wednesday, Mr. Edano told a press conference that radiation levels had spiked because of smoke billowing from Reactor No. 3 at Fukushima Daiichi, and that all staff members would be temporarily moved “to a safe place.” When he did not elaborate, some foreign reporters, perhaps further confused by the English translator from NHK, the national broadcaster, interpreted his remarks as meaning that Tepco staff members were leaving the plant.

From CNN to The Associated Press to Al Jazeera, panicky headlines shouted that the Fukushima Daiichi plant was being abandoned, in stark contrast to the calm maintained by Japanese media, perhaps better at navigating the nuances of the vague comments.

After checking with nuclear regulators and Tepco itself, it emerged that the plant’s staff members had briefly taken cover indoors within the plant, but had in no way abandoned it.

The close links between politicians and business executives have further complicated the management of the nuclear crisis.

Powerful bureaucrats retire to better-paid jobs in the very industries they once oversaw, in a practice known as “amakudari.” Perhaps no sector had closer relations with regulators than the country’s utilities; regulators and the regulated worked hand in hand to promote nuclear energy, since both were keen to reduce Japan’s heavy reliance on fossil fuels.

Postwar Japan flourished under a system in which political leaders left much of the nation’s foreign policy to the United States and domestic affairs to powerful bureaucrats. Prominent companies operated with an extensive reach into personal lives; their executives were admired for their roles as corporate citizens.

But over the past decade or so, the bureaucrats’ authority has been greatly reduced, and corporations have lost both power and swagger as the economy has floundered.

Yet no strong political class has emerged to take their place. Four prime ministers have come and gone in less than four years; most political analysts had already written off the fifth, Mr. Kan, even before the earthquake, tsunami and nuclear disaster.

Two years ago, Mr. Kan’s Japan Democratic Party swept out the virtual one-party rule of the Liberal Democratic Party, which had dominated Japanese political life for 50 years.

But the lack of continuity and inexperience in governing have hobbled Mr. Kan’s party. The only long-serving group within the government is the bureaucracy, which has been, at a minimum, mistrustful of the party.

“It’s not in their DNA to work with anybody other than the Liberal Democrats,” said Noriko Hama, an economist at Doshisha University.

Neither Mr. Kan nor the bureaucracy has had a hand in planning the rolling residential blackouts in the Tokyo region; the responsibility has been left to Tepco. Unlike the orderly blackouts in the 1970s, the current ones have been carried out with little warning, heightening the public anxiety and highlighting the lack of a trusted leader capable of sharing information about the scope of the disaster and the potential threats to people’s well-being.

“The mistrust of the government and Tepco was already there before the crisis, and people are even angrier now because of the inaccurate information they’re getting,” said Susumu Hirakawa, a professor of psychology at Taisho University.

But the absence of a galvanizing voice is also the result of the longstanding rivalries between bureaucrats and politicians, and between various ministries that tend to operate as fiefdoms.

"There's a clear lack of command authority in the current government in Tokyo," said Ronald Morse, who has worked in the Defense, Energy and State Departments in the United States and in two government ministries in Japan. "The magnitude of it becomes obvious at a time like this."

Keith Bradsher contributed reporting from Hong Kong, William J. Broad from New York, and Mark McDonald from Tokyo.

## **The Crisis In Japan: A Hunger For Information (WSJ)**

By John Bussey

Wall Street Journal, March 17, 2011

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

## **Japan's Slow Tsunami Response Stirs Anger (WP)**

By Andrew Higgins

Washington Post, March 17, 2011

With city hall under water, phones dead and his superiors tending to their own private agonies, Chikara Abe faced a bureaucrat's nightmare: "Everything is in chaos. I don't get any orders," said the local government official.

Fed up with waiting for instructions, Abe offered his services to a group of teachers who have stepped in to help fill a void left by the breakdown of one of the world's most capable and usually omnipresent government bureaucracies.

Since a 9.0-magnitude quake Friday, Japan's machinery of state has been swamped by a cascade of crises: a tsunami that wiped towns and village off the map; an out-of-control nuclear power plant that has put the entire country on edge; and shortages of food, power and gasoline that have left the northern part of one of Asia's richest nations with the miseries of the world's paupers.

Authorities have hardly been idle. But in places such as Ishinomaki, a town on Japan's northeast coast now half-submerged in water, many are asking what happened to the country's much-vaunted flair for organization.

Unlike victims of earthquakes in Haiti, Indonesia or China, those suffering in Japan expect their government to work and can't understand why a country as affluent as theirs can't keep gasoline, the lifeblood of a modern economy, flowing and why towns across the northeast have been plunged into frigid darkness for five days.

"I never expected anything like this in modern Japan. It is like fiction," said Yutaka Iwasawa, a 25-year-old forklift operator. With the first floor of his house under water, he and his family huddle on the second floor. They go to bed as soon as the sun goes down because it is too cold and damp to do anything else.

The military, which has mobilized 100,000 troops for relief work, delivers water in stricken areas, hunts for bodies and has flown risky missions to dump water on a nuclear power plant belching radioactive smoke. In Ishinomaki, soldiers operate from a baseball stadium on dry land.

But the state, overwhelmed by problems, has abdicated some of its most basic duties, some say. "The government is not doing anything. They are not present here," said Akase Hiroyuki, the principal of Ishinomaki's Nakazato Primary School. Along with 20 of his teaching staff, he runs a shelter for 1,200 people left homeless and hungry by the tsunami. Classrooms serve as dormitories, and the school's gymnasium has become a food-distribution center.

When Emperor Akihito made a rare television address on Wednesday, his soothing words were not heard in Ishinomaki: No one has watched TV since power failed Friday.

Foreign governments and charities have pledged money and sent a few rescue teams to Japan, but fear of exposure to radiation and uncertainty over what they can accomplish has limited their role. A German medical aid group pulled out after barely 24 hours in Japan.

China has trumpeted the work of a 15-man rescue team it sent Sunday to assist its former archenemy and current rival. The US Marine Corps made its own highly publicized but minuscule contribution Wednesday: It delivered a few pallets of bottled water.

What riles Japanese, though, is the seeming inability of their government to get a grip on the scale of a disaster that has left about 450,000 people without homes, left thousands still uncounted for and snatched away the certainties by which tens of millions had lived their lives.

Masayoshi Funabasama, a civil engineer who lives near Ishinomaki in an area not damaged by the tsunami, fumed at official assurances that there is no need for alarm. He got up before dawn to go hunting for gasoline. "Things may look normal, but I can assure you nothing is normal," he said. "We have no fuel, no water, no food, and we have children to take care of."

At the refugee center at Ishinomaki's primary school, Abe, the government worker in search of orders and order, has been put to work at a registration desk for survivors seeking shelter. It posts their names on blackboards — a vital service for people who are looking for lost family members and friends.

"To be honest, I don't do much," he said. "The teachers are doing most of the work."

Katsuyoshi Hiyasaka, a scrap-metal worker, took shelter at the school with his wife, a cleaner, after their house was flooded. He is still wearing the work uniform he had on when he fled. His workplace has vanished beneath the muddy lake that covers the town center.

Asked what officials are doing to help, he laughed and said: "I've been looking for them, but I haven't seen them yet."

The food provided by the teachers comes mostly from private donors, although the local government provided a now-exhausted supply of instant noodles. No one here is starving, but reliance on random gifts from shops and local farmers has produced a bizarre menu that mixes strawberries and sugared crackers, bananas and bars of chocolate.

Supplies are running low, and daily rations have been cut. Hiyasaka, the scrap worker, said he used to watch TV coverage of natural disasters in Haiti and other impoverished countries and was shocked by the chaos.

Even Japanese order has a breaking point, he said. "The less food there is and the more strain there is, patience will run out. I don't know what will happen."

[higginsandrew@washpost.com](mailto:higginsandrew@washpost.com)

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## **American Official Warns Significant Radiation Risk In Japan (VOA)**

By Cindy Saine

[Voice of America](#), March 17, 2011

U.S Nuclear Regulatory Chairman Gregory Jaczko told a congressional panel that his commission is recommending a larger evacuation radius from Japan's Fukushima nuclear plant than Japan has ordered.

Jaczko arrived late to Wednesday's hearing because he had been called for a meeting to the White House on Japan's nuclear crisis. Jaczko described the dire situation at Japan's Fukushima nuclear plant, saying radiation levels at the fourth reactor at that plant are "extremely high." He said the State Department is issuing a new recommendation for US citizens in Japan.

"For a comparable situation in the United States, we would recommend an evacuation to a much larger radius than has currently been provided in Japan," he said.

Watch William Ide's report on the severity of the nuclear crisis

Jaczko said the US Ambassador in Japan has been told that it would be appropriate to evacuate US citizens to a 80 kilometer radius from the Fukushima nuclear plant. Japan had ordered citizens to take precautions within a 30 kilometer-radius, with a 20 kilometer evacuation radius from the nuclear plant, and advising those within a 30 kilometer radius to stay indoors.

The combined natural disasters of an earthquake and a tsunami have put Japan's Fukushima nuclear power plant in danger of a meltdown. Jaczko and Energy Secretary Steven Chu were both on Capitol Hill to testify on their agencies' budget proposals for 2012, but the crisis in Japan dominated the hearing.

Democratic Congresswoman Doris Matsui of California expressed the concern felt by many across the world when she posed this question to Energy Secretary Chu: "Mr. Secretary, what happens if there is a meltdown in one or more of the Japanese reactors, and the containment system fails?"

Chu said he is getting conflicting reports from Japan about the current situation. "We are trying to monitor very closely, we hear conflicting reports about exactly what is happening at the several reactors that are now at risk, and I would not want to speculate on exactly what will happen," he said.

Chu admitted that the situation in Japan is already worse than the nuclear disaster at Three Mile Island in the US state of Pennsylvania in 1979, America's worst nuclear accident. Nuclear Regulatory Chairman Jaczko sought to reassure Americans that nuclear power plants are built in the United States to withstand earthquakes, tsunamis and all kinds of natural disasters. Energy Secretary Chu reaffirmed President Obama' support for nuclear power as one of a diverse set of energy sources, and said the administration is committed to learning from Japan.

A number of US lawmakers expressed their support for nuclear power as an important source of electricity and of well-paid jobs for those who work at the 104 nuclear plants in the United States.

"Obviously nuclear energy plays a vital role in the energy needs of our country today. It provides roughly 20 percent of all electricity generated in America," said Republican Congressman Ed Whitfield of Kentucky.

But some, such as Democratic Representative Ed Markey of Massachusetts, said the unfolding tragedy in Japan should make the United States fundamentally re-think its energy policy as other countries are.

"China, Venezuela, Germany, Switzerland and other countries are shutting down older plants and scrapping plans for new ones. We too need a seismic shift in our approach to nuclear reactor safety," Markey said.

In its 2012 budget proposal, the Obama administration has asked for an additional \$36 billion for loan guarantees for nuclear power plant construction.

## **Nuclear Chief Jaczko Says 'No Water' In Spent-Fuel Pool At Japan Reactor (BLOOM)**

By Simon Lomax

Bloomberg News, March 17, 2011

US Nuclear Regulatory Commission Chairman Gregory Jaczko said all the water has drained from the spent-fuel pool at a crippled nuclear reactor in Japan, resulting in the release of high levels of radiation.

"We believe that the secondary containment has been destroyed and there is no water in the spent-fuel pool," Jaczko said today at a hearing of a House Energy and Commerce Committee panel.

The unit at the Fukushima Daiichi plant wasn't operating at the time of the March 11 earthquake and tsunami, Jaczko said.

The spent-fuel pool at the plant's Unit 3, which was in service, may be cracked and losing water, Jaczko said.

## **Japan Reactor Loses All Cooling Water For Spent Fuel, NRC Head Jaczko Says (BLOOM)**

By Simon Lomax

Bloomberg News, March 17, 2011

All cooling water has drained from the spent-fuel pool at one of the crippled nuclear reactors in Japan, causing the release of high levels of radiation, US Nuclear Regulatory Commission Chairman Gregory Jaczko said.

"We believe that the secondary containment has been destroyed and there is no water in the spent-fuel pool," he said today at a hearing of a House Energy and Commerce Committee panel in Washington. "We believe that radiation levels are extremely high, which could possibly impact the ability to take corrective measures."

The unit at the Fukushima Daiichi plant wasn't operating at the time of the March 11 earthquake and tsunami, said Jaczko, the chief US regulator of nuclear-power plants.

The Associated Press reported that Japanese officials denied all the water has drained and said the reactor, known as Unit 4, is stable.

Radiation at the Japanese site is fluctuating and at peak levels is life-threatening, Jaczko said.

The peak levels "would be lethal within a fairly short period of time," he said. The pool at the plant's Unit 3, which was in service, may be cracked and losing water, Jaczko said.

US citizens in the area have been urged to evacuate to 50 miles (80 kilometers) from the plant site, the same distance in the event of a nuclear accident in the US, Jaczko said.

"We would recommend an evacuation to a much larger radius than has currently been provided by Japan," Jaczko said.

The NRC has 11 officials in Tokyo helping the Japanese government respond to the nuclear crisis. Japanese officials are injecting seawater into three reactors to try to keep them cool, Jaczko said.

The earthquake and tsunami in Japan crippled Tokyo Electric Power Co.'s Fukushima Daiichi nuclear plant with explosions, fires and radiation leaks. The containment vessels for the three operating reactors are reportedly functional, Jaczko said.

Jaczko said US nuclear plants remain safe, and harmful radiation from damaged reactors in Japan isn't expected to reach the US. The US power plants are designed to withstand natural disasters, including earthquakes and tsunamis, Jaczko said.

"At this time we don't have any specific actions that are necessary to add to the safety" of US reactors, he said. A "thorough and systematic review" will be conducted after the Japanese crisis passes for possible additional actions, he said.

## **US Still Wants To Expand Nuclear Energy: Chu (AFP)**

By Kerry Sheridan

AFP, March 17, 2011

WASHINGTON (AFP) – The United States still wants to expand nuclear plant construction despite the Japan disaster and sees nuclear power as a key part of clean energy efforts, Energy Secretary Steven Chu said Wednesday.

Testifying at a House subcommittee hearing about President Barack Obama's request for energy funds in the fiscal year 2012 budget, Chu defended the US nuclear industry, which provides about 20 percent of America's power through 104 nuclear plants.

Nuclear energy "has an important role to play in our energy portfolio," Chu said, noting that the president's budget asks Congress for \$36 billion in loan guarantee authority to "jumpstart the domestic nuclear industry."

Asked by Texas Democratic Congressman Joe Barton if Obama still supports nuclear construction in the United States, given the crisis in Japan following a potent quake and tsunami there last week, Chu answered:

"We are asking for loan guarantees. The present budget is also calling for small modular reactors. That position has not been changed."

Barton responded: "So that's a yes?"

"Yes," Chu answered.

"Given, again, what has happened, do you and the president want Congress to support the full 36 billion that you have put in the budget?" Barton asked.

"Yes," Chu said.

The US nuclear industry has largely stalled, with no new plants built to completion since the March 28, 1979 accident at Three Mile Island, a partial reactor meltdown that led to "very small" releases of radioactivity, according to the US Nuclear Regulatory Commission (NRC).

No one was killed and no immediate injuries were linked to the incident, but it stirred an outcry that blocked further expansion of the US nuclear program.

"I think the events unfolding in the Japan incidents actually appear to be more serious than Three Mile Island. To what extent we don't really know now," Chu added.

"I think we will, no matter what happens, going forward try to take the lessons of Fukushima and apply them to our existing fleet and any future reactors we will be building."

An attempt to launch nuclear renaissance in the United States has faltered due to heavy costs associated with reactor construction, which the Obama administration hopes can be overcome through government-backed loan guarantees.

Obama vowed on Tuesday to "further improve" the safety of US atomic facilities.

The NRC chairman Gregory Jaczko said the commission is currently reviewing 12 applications for new nuclear reactors.

"It is important that the NRC maintain our commitment to continuous improvement," Jaczko said in prepared remarks ahead of his testimony, which was to begin at 1730 GMT.

"We also, however, have an additional imperative, in light of the prevailing budgetary climate and the strong desire by many to see federal agencies do more with less."

## **Poll: Fears Of Nuclear Disaster In US Rise After Japan Quake (USAT)**

By Peter Eisler, Usa Today

USA Today, March 17, 2011

WASHINGTON — Americans' support for nuclear power has fallen, as 70% of those surveyed in a new USA TODAY/Gallup Poll say they've grown more concerned about the industry's safety based on the crisis unfolding at reactors in Japan.

Americans oppose building more nuclear plants by 47%-44%, the poll finds. Support for using nuclear energy was at 57% when Gallup asked a similar question about a week before Friday's earthquake and tsunami left Japan struggling to avert catastrophic meltdowns and fires at three damaged nuclear plants.

The new poll shows that worries about a similar disaster in the USA have climbed amid the crisis in Japan: 39% of those surveyed say they've grown "a lot more concerned," and 31% say they've become "a little more concerned."

The poll of 1,004 adults has a margin of error of +/-4 percentage points.

Those concerns were reflected Wednesday in Congress as members of both parties quizzed federal officials about the likelihood that similar problems could occur at US nuclear power plants.

Americans "should have full confidence" in the safety of the 104 nuclear power reactors across the USA, Energy Secretary Steven Chu said in response to questions from lawmakers at a hearing on President Obama's proposed energy budget for 2012. Nevertheless, he said, the administration will be "gathering whatever lessons that can be learned (from the events in Japan) ... and will apply them to all the nuclear facilities we have in the United States."

Chu noted that the Energy Department and the Nuclear Regulatory Commission have sent a few dozen staff members to Japan to offer technical assistance "and also, for our own sake, to know what's happening directly."

Opinion among lawmakers at the hearing mirrored the public sentiment measured in the poll: Republicans are slightly more likely to support development of nuclear energy and Democrats a bit more inclined to oppose it.

"I am not straying from my support for nuclear energy as a vital component of America's present and future energy mix," said Rep. Fred Upton, R-Mich., who chairs the House Committee on Energy and Commerce. "It is just as important to dispel overstated fears as it is to discuss legitimate concerns."

Several lawmakers said the events in Japan are particularly worrisome because the reactors in peril there are similar in design to roughly two dozen operating in the USA. What's more, they said, Japan is a country widely viewed as among the most prepared in the world to handle such crises.

Japan "is not some Third World country with rinky-dink technology," said Rep. Diana DeGette, D-Colo. Noting that the Japanese had multiple fail-safe systems in place and had used computer models and other sophisticated planning tools to prepare for such events, she asked, "Do we really have the kinds of modeling we need to develop nuclear energy safely in this country?"

Chu said the administration remains committed to nuclear power as one component of a balanced energy strategy and reiterated support for an administration plan to provide \$54 billion in loan guarantees for companies seeking financing to build nuclear power plants.

Public opinion on nuclear power has ebbed and flowed in various polls over the years.

Surveys in the early 1970s found support as high as 70% for increased reliance on nuclear power, but that number slid to around 40% in 1979 after the partial meltdown at the Three Mile Island nuclear plant in Pennsylvania. Support rebounded then dropped again after the 1986 meltdown at the Chernobyl plant in Ukraine. In recent years, it has hovered around 50%.

Industry officials say they're not surprised that public support for nuclear power has slipped again amid the crisis in Japan, where the earthquake and tsunami damaged critical systems at reactors and fuel storage facilities across three different power plants. In several instances, power failures crippled cooling systems that are used to keep nuclear fuel rods from superheating. That led to radiation releases and ongoing risks of a nuclear meltdown, which could release dangerous levels of contamination into the environment.

"Given virtually a week of wall-to-wall coverage of the events in Japan, it would be shocking if there weren't some slippage in support" for nuclear power, said Steve Kerekes, a spokesman for the Nuclear Energy Institute, which does research and advocacy for the nuclear industry. Rebuilding that support "will take time," he added. "It means we will have to work that much harder, which we are prepared to do, both in terms of operating our facilities even more safely than we do, and in communicating that to Americans across the country."

The new poll shows that women have a lower regard for nuclear power than men — 56% of women responding to the survey said they oppose it, while 36% of male respondents held that opinion. And there was greater support for nuclear power among people at higher income levels, with a peak of 63% support among respondents from households making \$7,500 or more a month.

## **Senate Dems Call For Broad Review Of Nation's Nuclear Reactors (HILL)**

By Andrew Restuccia

The Hill, March 17, 2011

Senate Democrats on Wednesday called for a broad review of the nation's nuclear reactors after the head of the Nuclear Regulatory Commission (NRC) offered an assessment of the evolving nuclear crisis in Japan.

Gregory Jaczko, the head of the commission, came under tough questioning from lawmakers, many of whom have nuclear plants in their states and are worried that what is happening in Japan could happen in their backyards.

"We've got an inferno in front of us and we have to make sure that we do whatever we can to stop it," Sen. Frank Lautenberg (D-N.J.) said during a Senate Environment and Public Works Committee hearing.

He and other panel members accused Jaczko of not doing everything he could to ensure that US nuclear reactors can withstand major natural disasters.

Jaczko said the NRC would "take action" to address issues in the US if a review of what is happening in Japan yields new information.

"We want to get good facts and make good, credible, reliable decisions, and that may take a bit of time," Jaczko said.

Jaczko testified as the situation in Japan appeared to take a turn for the worse. The White House advised Americans to stay at least 50 miles away from the Fukushima Daiichi Nuclear Power Station, where workers have struggled to prevent a complete meltdown. Japan has advised people to stay only 12 miles away from the power station.

Sen. Barbara Boxer (D-Calif.), the panel's chairwoman, was among those calling for a review. "I don't hear anything proactive, and I worry about that," said Boxer, who argued that the NRC is "doing nothing" to assess US reactor safety.

She said the NRC needs to act immediately to conduct a review of the safety of US reactors.

But Jaczko countered that the NRC is indeed taking proactive measures.

"We are going to be looking very seriously at what happened in Japan, and if we get any information that says there's a safety issue, we'll take action," Jaczko said. "We are not doing nothing."

Boxer called on the NRC to begin reviewing all nuclear reactors in earthquake-prone areas.

She raised concerns that reactors might not be prepared for an earthquake of historic proportions, noting that the reactors at the Fukushima Daiichi Nuclear Power Station plant were prepared to deal with a magnitude-7.9 quake. Last week's temblor registered a 9.0.

"I don't have the answer on how many plants are near earthquakes, but the fact that there's any disturbs me and the fact that a tsunami could come without warning worries me," she said.

Jaczkowski stressed that the NRC requires all nuclear facilities to show that they can withstand earthquakes beyond those expected in the region.

He also said the NRC took a series of steps after 9/11 to ensure that US reactors are prepared for a terrorist attack. Those procedures, which require reactors to be able to cool the reactor core in the event of a loss of power, would apply to a major natural disaster, he said.

The Obama administration, along with many pro-nuclear lawmakers, has stood by its support for nuclear power despite the disaster in Japan.

Nuclear industry officials, who have blanketed Washington in the days since the earthquake and tsunami in Japan, have cautioned lawmakers against condemning nuclear power in light of the crisis, advocating a go-slow approach.

Many Democrats, in contrast, are saying the nation should rethink nuclear power. They argued on Wednesday that lawmakers need to be able to reassure their constituents that nuclear energy is safe and said they cannot do that right now given the crisis in Japan.

"We also have a responsibility to our constituents," Boxer said. "I can't really look them in the eye and say never."

Boxer and Sen. Dianne Feinstein (D-Calif.) sent a letter to Jaczkowski on Wednesday calling for an "immediate inspection" of two nuclear power plants in the state.

Lautenberg said Wednesday that it may be necessary to shut down certain reactors in order to conduct adequate safety inspections.

"This fire alarm has now gone off, and it's screeching for help," Lautenberg said.

Sen. Tom Carper (D-Del.) echoed Lautenberg's concerns.

"Everything I do I know I can do better. The same is true for the nuclear power industry," Carper said.

The disaster in Japan could be an "opportunity to look at every one of our 104 facilities, starting with the ones that would be most at risk if we had a tsunami," he said.

Sen. Bernie Sanders (I-Vt.) pressed Jaczkowski on whether the NRC would relicense nuclear power plants that have similar designs to those facing a meltdown in Japan.

"I don't want to speculate right now about whether we'd license any particular design," Jaczkowski said. "We don't have detailed information about what caused the problem in Japan."

## **Japan's Crisis Intensifies Debate: Is Nuclear Worth It? (MCT)**

By Rob Hotakainen And David Lightman, McClatchy Newspapers

McClatchy, March 17, 2011

WASHINGTON — As the six-day nuclear crisis worsened in Japan on Wednesday, China announced it was suspending construction to rethink its designs for nuclear plants, following the lead of Switzerland and Germany.

In Washington, Energy Secretary Steven Chu, a big proponent of nuclear power, told Congress that the Obama administration wants money to help power companies build from six to eight new plants in the US

And opponents of nuclear power were busy arguing that the health risks facing Japanese citizens are much worse than the public is being led to believe.

They're all examples of a debate rekindled by the frightening blasts at the Fukushima Daiichi nuclear complex in Japan: For the first time since the nuclear disasters at Three Mile Island and Chernobyl, people around the globe are trying to figure out the pros and cons of nuclear safety.

Committees are meeting on Capitol Hill, with politicians demanding answers. And experts on all sides are offering their views. Such a roiling debate, combined with escalating costs, stopped the industry cold in America three decades ago.

Now comes the question: Is the potential catastrophe in Japan making this debate any different? Or will President Barack Obama's view that nuclear power is needed to combat climate change be enough to change the dynamics?

The debate intensified Wednesday as the US urged all Americans living within 50 miles of the damaged plant in Japan to evacuate. And the chairman of the Nuclear Regulatory Commission said Japan faces an increasingly dangerous situation.

Opponents are seizing the moment — but Washington lawmakers have been reluctant to promise any change in policy.

Senate Commerce Committee Chairman Jay Rockefeller, D-W.Va., for instance, noted that while he's "not a big fan of nuclear power . . . We don't make (decisions) out of emotion; we don't make them because of a catastrophe in another country. So before we make the decision, let's be thoughtful about it."

Nevertheless, foes of nuclear power pushed hard.

In a conference call with reporters, Ira Helfand, past president of the Physicians for Social Responsibility, said a meltdown of each reactor at Japanese plant would be the equivalent of "a thousand Hiroshimas."

He said that people living as far away at Tokyo are at risk, and that any assurance that the total dose of radiation is low "needs to be taken with a grain of salt." He said that people could be susceptible to cancers if they inhale or ingest just a small dose of radiation, even if they're far away from an exploding reactor.

"No dose is safe," he said.

"It's an extremely serious situation," added David Richardson, an associate professor of epidemiology at the University of North Carolina.

Most health officials say there's no health risk to Americans, because any radioactive material would disperse by the time it reached the West Coast.

And Marvin Resnikoff, a nuclear physicist and an international consultant on radioactive waste issues, said it would take from five to eight days for any radioactive material to get across the ocean.

"This is going to be a continual problem for months," he noted.

Chu went to Capitol Hill for the second consecutive day to sell the president's plan, which seeks \$36 billion in loan guarantees for new power plants as part of the White House's 2012 budget.

He dismissed a suggestion by Democratic Rep. Henry Waxman of California that Congress needs to hold hearings on the safety of the industry, saying an internal assessment will "naturally occur" as US officials study what went wrong in Japan.

"We're always increasing the safety of our reactors," Chu said.

While the \$36 billion would pay for six to eight nuclear plants, Chu said the White House hopes for the industry to have enough confidence that the private sector would then step in and pay more of the costs.

He said the administration hasn't changed its thinking on nuclear power since the crisis in Japan began unfolding.

Most lawmakers aren't eager to pursue policy changes, either. While they want more information about the safety of nuclear power in the US, and are proposing more hearings, most stopped short of proposing any legislation.

"I don't think there should be a mad rush to say nuclear power generation is bad. I think we need a timeout and take a look at it," said Senate Majority Leader Harry Reid, D-Nev. "And I'm sure we'll have the experts tell us some things we could have done better."

Senate Republican leader Mitch McConnell, R-Ky., took a similar view. "I just don't think we ought to, in the wake of a crisis, be making long-term decisions about America's energy sufficiency."

Part of their dilemma is that a lot of lawmakers have nuclear plants in their districts and states, plants that have long operated efficiently and provided much-needed power — with no emissions. About 20 percent of the country's electricity is generated by nuclear plants.

House Minority Whip Steny Hoyer, D-Md., who calls himself a "strong supporter of nuclear power" and has a nuclear plant in his southern Maryland district, was also circumspect.

"I think (the Japan crisis) is a wake-up call to look very seriously at the safety of (nuclear) reactors," he said, "to make sure that they are, in fact, as secure as we can possibly make them from natural disasters, as well as manmade attacks on them."

As a result, Reid said, "There will be some activity, some hearings. I think there's nothing wrong with that as it relates to nuclear power. But I think the main issue is let's not be rambunctious. Let's take our time."

Meanwhile, Sen. Patty Murray, D-Wash., the chairwoman of the Senate Veterans' Affairs Committee, urged the military to carefully track radiation exposure for US service members who are aiding in the Japanese relief efforts.

She said that 17 military personnel who had been aboard three helicopters were exposed to low levels of contamination when they flew through a plume of radioactive contaminants.

In the past, Murray said, the military has had a "track record of failing to monitor exposures," which has made it difficult for previous generations of veterans to receive benefits.

(Tom Lasseter contributed to this article from Beijing.)

## **At California Nuclear Plant, Emergency Response Plans Don't Include Earthquakes (HUFFPOST)**

By Chris Kirkham

Huffington Post, March 17, 2011

As the world's attention remains focused on the nuclear calamity unfolding in Japan, American nuclear regulators and industry lobbyists have been offering assurances that plants in the United States are designed to withstand major earthquakes.

But the Diablo Canyon nuclear plant, which sits less than a mile from an offshore fault line, was not required to include earthquakes in its emergency response plan as a condition of being granted its license more than a quarter of a century ago. Though experts warned from the beginning that the plant would be vulnerable to an earthquake, asserting 25 years ago that it required an emergency plan as a condition of its license, the Nuclear Regulatory Commission fought against making such a provision mandatory as it allowed the facility to be built.

Officials at Pacific Gas and Electric Company, the utility that operates Diablo Canyon, did not respond to calls seeking comment before the story was published. After publication, a spokesman for the company said the plant does have an earthquake procedure that had been implemented during a 2003 earthquake near the facility, and that staff are trained to respond. The company did not provide further details upon request.

As Americans absorb the spectacle of a potential nuclear meltdown in Japan – one of the world's most proficient engineering powers – the regulatory review that ultimately enabled Diablo Canyon to be built without an earthquake response plan amplifies a gnawing question: Could the tragedy in Japan happen at home?

Experts who recall how the California plant came to be erected offer a disconcerting answer: Yes. And some are calling for more urgent government action to review safety at nuclear plants across the country.

"What they're displaying now is exactly what was wrong in the past with the nuclear establishment, which is that they didn't have their priorities right," said Victor Gilinsky, who served on the Nuclear Regulatory Commission during the Diablo Canyon debate and agreed with the call for greater attention to earthquakes in emergency plans. "They're more concerned about the protection of the plants, and installation of further plants, than they are about public safety. The president should be saying, 'I want every single plant reviewed.'"

Back when the California plant was being finalized in the mid-1980s, local activists and environmental lawyers sued the Nuclear Regulatory Commission in an effort to slow the project, arguing that the clear risks from earthquakes nearby required additional planning.

The case made its way to the US Court of Appeals in Washington, D.C., where a 5-4 majority – including current Supreme Court Justice Antonin Scalia and former Clinton independent counsel Kenneth Starr – ruled that earthquakes did not have to be included in the plant's emergency response plans.

The underlying theory was that the plant's design, which came after years of planning and geological studies, could withstand any foreseeable earthquake in the area – the same assumption that guided thinking in Japan.

"What they're saying is that there could be an earthquake, but in no way could it ever cause a radioactive release at the same time," said Rochelle Becker, who led the San Luis Obispo, Calif., group that first sued the Nuclear Regulatory Commission over earthquake preparedness in the 1980s. "I'm pretty sure we now have evidence that it does."

A spokeswoman for the Nuclear Regulatory Commission confirmed that the Diablo Canyon plant is not required to have an emergency response plan for earthquakes because the commission is satisfied that the plant's structure will be able to withstand an earthquake in the area – calculated as a maximum magnitude of 7.5.

But officials at Tokyo Electric Co., the operator of Japan's stricken Fukushima Daiichi plant, said over the weekend that the strongest earthquake they had anticipated was much lower than the magnitude-9.0 quake that struck last Friday.

"That's a lesson that we ignore at our own peril, because we could be wrong, too," said Joel Reynolds, the attorney who originally brought the case against the Nuclear Regulatory Commission and who is now a senior attorney with the Natural Resources Defense Council in California. "It is a story as old as science that we're always learning new things. We're always discovering the unexpected."

Critics have raised particular questions about how a standard emergency response to a nuclear disaster could be complicated if it had been caused by an earthquake, where roads and other surrounding infrastructure would also be impaired.

So far, the commission has not specifically recommended any changes to safety regulations or emergency response procedures at nuclear plants in the United States.

"All our plants are designed to withstand significant natural phenomena like earthquakes, tornadoes and tsunamis," the commission's chairman, Gregory B. Jaczko, said earlier this week. "We believe we have a very solid and strong regulatory infrastructure in place now." He added that the commission would "continue to take new information and see if there are changes that we need to make with our program."

Michael Mariotte, the executive director of the Nuclear Information and Resource Service, a group critical of the nuclear industry and the regulatory process, said the pushback on response planning reflects an environment where the industry is helped along by regulators.

"That's the logic behind a lot of our nuclear regulation, unfortunately, is that it's designed to accommodate the operation of a plant, and not necessarily the protection of the public," Mariotte said. "If they acknowledged that an earthquake occurred that damaged the plant, then they're also acknowledging that an earthquake has damaged the transportation infrastructure, that you can't get people out properly, that the plant doesn't work, and then it can't be approved."

At the time the Diablo Canyon case was being litigated in the mid-1980s, the Nuclear Regulatory Commission and the electric utility looking to build the plant had been dealing with more than a decade's worth of federal and state reviews for the facility. Federal regulators were comfortable with their seismic reviews of the remote coastal area between Los Angeles and San Francisco.

Comments made during closed meetings, later released to the public, showed that some NRC commissioners were concerned that additional public hearings surrounding the emergency response plan and earthquakes would slow the process further.

"One of the things that I think makes me shy away often from hearings is because as soon as we hear the word 'hearing,' you see so much time elapse that it maybe over-influences one," then-NRC Chairman Nunzio J. Palladino, who has since passed away, said at the time. "I do feel that at this late stage, requiring a delay while we wait for a hearing is not in the best national interest."

When the case involving earthquake response was eventually litigated all the way to the federal appeals court in D.C., which ultimately sided with the Nuclear Regulatory Commission, the five-member majority noted that there had already been extensive review of seismic activity around the plant.

"We can think of no potential natural or unnatural hazards, regardless of their improbability, that the Commission would not be required to consider," failed Reagan Supreme Court nominee Robert Bork wrote in an opinion for the appellate court. "That is a prescription for licensing proceedings that never end and plants that never generate electricity."

The four dissenting judges, including current Supreme Court Justice Ruth Bader Ginsburg, noted: "The very purpose of the exercise is to plan for the unthinkable eventuality that the design safeguards will not prevent an accident."

"It defies common sense to exclude evidence about the complicating effects of earthquakes from a proceeding dealing with how to respond to a nuclear accident at a plant located three miles from an active fault, a plant in which seismic concerns dominated the design and construction proceedings for well over a decade," the justices wrote.

In recent years, the utility that operates Diablo Canyon, Pacific Gas and Electric Company, has recently found another fault line less than a mile from the plant after conducting research with the US Geological Survey. The plant's original design had accounted for a fault that was farther offshore – about three miles from the plant.

The spokeswoman for the Nuclear Regulatory Commission, Lara Uselding, said the utility has not found evidence that the newly discovered fault line would pose a risk to the plant. The commission is currently reviewing the company's geological report. [Subscribe to the HuffPost Money newsletter!](#)

## **Japan Crisis Puts Spotlight On Reactors In US (WSJ)**

By Rebecca Smith

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

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

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

By Jia Lynn Yang And Steven Mufson

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

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

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

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

Aging plants are not necessarily failing plants. US nuclear facilities have less down time than they did a decade or two ago.

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

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

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

#### 'Arbitrary' time frame

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

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

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

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

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

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

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

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

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

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

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

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

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

#### Ripples from Japan

Japan's crisis is giving people pause far beyond Vermont, threatening efforts by utilities to build new facilities.

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

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

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

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

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

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

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

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

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

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

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

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

yangji@washpost.com

mufsons@washpost.com

## **Too Soon To Write Off Nuclear Power (WP)**

Washington Post, March 17, 2011

FIRST CAME an earthquake so powerful that it shifted Japan's largest island, Honshu, eight feet eastward. Thirty minutes later a tsunami washed away thousands of lives. Now, a third disaster threatens as technicians desperately try to keep the Fukushima Daiichi nuclear power station from releasing radioactive material.

During all of this, the Japanese people have reacted with fortitude. In a rare television appearance, the emperor asked Japanese to "hand in hand, treat each other with compassion and overcome these difficult times." That seems to be exactly what they are attempting; and the skeleton staff at Fukushima Daiichi is taking on more than its share, only briefly evacuating the site after detecting a radiation spike on Tuesday, then returning to continue cooling the reactors.

Though the reactors are shut down, they are still producing immense quantities of heat. It doesn't appear that catastrophic levels of radiation have leaked from the plant's thick containment barriers, but US officials still have few details. The next few days will be critical.

On this side of the Pacific, the crisis has reinvigorated a debate on nuclear safety. Opponents of atomic power say this crisis proves that the risks can never be eliminated. That's true. There will always be challenges that designers don't fully anticipate.

Yet Energy Secretary Steven Chu insisted Wednesday that he and President Obama want to retain nuclear energy as an option, and they have good reason to do so. Generating electricity carries risks, no matter how you do it. Burning fossil fuels pumps harmful gases and particulates into the air every day, causing respiratory illness and cancer in thousands. People die in explosions of coal mines, oil drilling rigs and natural gas pipelines. Unlike nuclear energy, burning fossil fuels contributes to the gravest environmental threat of our time — climate change, which is likely to affect not thousands or millions of people, but billions.

Nuclear accidents pose a uniquely frightening danger: the prospect, in a worst case, of large swaths of territory being poisoned and uninhabitable for decades or longer. Mr. Chu and Nuclear Regulatory Commission Chairman Gregory B. Jaczko are right to have the government closely examine what happens in Japan and adjust US policy as necessary. But the Fukushima plant is old. New plants would use more sophisticated technology, such as small-scale high-temperature gas reactors that use fuel in forms that shrink the risk of meltdown further still. A proposed nuclear plant in Georgia would not require backup power in order to activate emergency cooling systems.

Events in Japan will affect the "nuclear renaissance" to some extent, no matter what Mr. Chu or anyone else says, and all the more if the damage is not contained. Our thoughts, as ever, are with the Japanese people struggling to cope; beyond that, it is too soon to form broad and absolute judgments on relative risks.

## **US Takes Conservative Approach In Response To Nuclear Crisis In Japan (WP)**

By Peter Wallsten And Dan Eggen

Washington Post, March 17, 2011

In sharp contrast to governments across the world that are moving to warn their citizens in Japan about radiation hazards and to reassess their own nuclear power programs, the Obama administration is pursuing a cautious course - standing firmly behind the US nuclear industry.

As France and Germany advised their citizens to leave the Tokyo metropolitan area, the United States urged Americans to move beyond a 50-mile radius of the damaged Fukushima Daiichi plant. That's farther than the 20-mile buffer imposed by the Japanese government, but short of an evacuation of the country.

And as governments from Berlin to Beijing this week were closing older nuclear plants for inspection or halting new permits, Obama administration officials reiterated support Wednesday for keeping nuclear power as a key part of US policy and said there were no plans to shut down plants.

In recent days, White House officials have said that the US program, with 104 plants, is safe and that the independent Nuclear Regulatory Commission monitors every facility.

Testifying on Capitol Hill, Energy Secretary Steven Chu told House members that the federal budget called for new nuclear plants. "That position hasn't been changed," he said.

The approach underscores the prominent role that nuclear power has played in President Obama's broader energy agenda. He has called for investing in a range of energy sources - including wind, solar and nuclear power - in addition to oil to increase US energy independence and reduce carbon emissions. As part of his 2012 budget request, Obama is seeking \$36 billion in additional loan guarantees to help jump-start the costly process of building new nuclear plants.

But the administration's stance also highlights the political challenges Obama confronts as he deals with energy policy. Republicans and many Democrats, eyeing rising gas prices, are pushing for more oil drilling in the Gulf of Mexico and elsewhere, in addition to a stepped-up commitment to nuclear energy. At the same time, in the wake of the gulf oil spill and as the Japan crisis unfolds, the White House faces pressure from many on the left to restrict drilling and rethink nuclear power.

Sen. Barbara Boxer (D-Calif.), questioning an NRC official in a Senate hearing, wondered about the response in the European Union, which has announced plans to test its plants for emergency preparedness.

"I would very much like to know why those respected allies of us have taken that action" while the United States has not, Boxer said.

Industry lobbyists said they were pleased with the administration's reaction, suggesting that moving too quickly to halt building plans or interfere with plant operations would create more problems than it would solve.

NRC Chairman Gregory Jaczko said Monday that the agency "will always take whatever steps are necessary to ensure the safety and security of nuclear power plants in this country." He said that "right now, we believe we have a very strong program in place." Since then, some critics have tried to apply more pressure.

Rep. Edward J. Markey (D-Mass.) called for a moratorium on new construction in seismically active areas and for additional safety measures at existing plants. Another Democrat, Sen. Richard Blumenthal of Connecticut, sent a letter to the NRC asking whether the United States can learn lessons from the Japan disaster. Blumenthal wrote that the crisis has "raised concerns - expressed to me by Connecticut residents - about whether a similar problem could occur in the United States."

The Union of Concerned Scientists plans to issue a report Thursday assessing 14 "near misses" last year at US nuclear plants and is urging the Obama administration to reconsider its stance.

"To run around and basically say this can't happen here and we need to move forward is not really the message I would be coming out with right now," said Ellen Vancko, the union's nuclear energy and climate change project manager.

Dave Hamilton, director of global warming and energy programs at the Sierra Club, said that the Obama administration appears trapped by its efforts to use nuclear power to attract Republican support for its energy policies.

"They've made a commitment that they can't just walk away from," Hamilton said. "But I have a hard time believing they will be able to hold to that path as the public continues to be exposed to the hazards of radiation and the limits of this technology. . . . You only think nuclear is a good idea if you really don't think about the risks."

## **Nuclear Agency Tells A Concerned Congress That US Industry Remains Safe (NYT)**

By Matthew L. Wald

New York Times, March 17, 2011

WASHINGTON — Facing questions about the implications of Japan's nuclear catastrophe for power plants in the United States, the Nuclear Regulatory Commission's top official said Wednesday at two Congressional hearings that his agency would take a methodical look at Japan and incorporate lessons from the disaster.

The pledge from the official, Gregory Jaczko, the commission's chairman, drew praise and criticism that was often consonant with a lawmaker's political position on nuclear power and other forms of energy.

"US nuclear facilities remain safe," Mr. Jaczko told two House Energy and Commerce subcommittees, which had originally planned to consider his agency's budget for the coming fiscal year at the hearing. "We will continue to work to maintain that level of protection."

Reactors are designed to meet the challenges of "the most severe natural phenomena historically reported," he said. For earthquakes, that means any that occur within 200 miles of the reactor, and a margin of error, he said.

While it remains unclear if the crisis at Fukushima will be as serious as the Chernobyl nuclear plant explosion in Ukraine in 1986, it will have much more direct implications for the American civilian power plant industry. At the time of the accident in Ukraine, then ruled by the Soviet Union, the United States had only one reactor that remotely resembled the Soviet one, and it was soon closed.

Yet a score of reactors in this country are very similar to the ones in Japan.

Some members of the committee seemed satisfied with Mr. Jaczko's replies and turned to a variety of other energy questions. "I personally believe that nuclear energy must be part of any portfolio of renewable energy sources that will fuel this country moving forward," said Representative Bobby L. Rush of Illinois, the ranking Democrat on the Subcommittee on Energy and Power of the House Energy and Commerce Committee.

On the Senate side, Barbara Boxer, the California Democrat who is chairwoman of the Environment and Public Works Committee, told Mr. Jaczko that his agency should consider shutting down some older plants until more was known about the shortcomings of the reactors in Japan and the dimensions of the crisis. "I'm looking at you for more leadership than I've gotten," she said.

The secretary of energy, Steven Chu, took a position similar to Mr. Jaczko's in testimony at the House hearing. "We are going to be looking very, very closely at the events happening in Japan and take those lessons," he said.

"You can be assured, with the Nuclear Regulatory Commission leading, but the Department of Energy providing any assistance, to look again at the current, existing nuclear power plants and any that are being considered."

Representative Joe L. Barton, Republican of Texas, badgered Dr. Chu on whether the administration still favored federal help for new reactors. Dr. Chu gave a professorial answer, but Mr. Barton cut him off and cornered him into whittling his response down to one word, "yes."

"That's what I wanted you to say," Mr. Barton said.

Representative Henry A. Waxman, Democrat of California, was not satisfied.

"We do have a problem that now, so much of our eggs are in the nuclear basket," he said, referring to the nation's reliance on nuclear power for roughly 20 percent of its electricity.

"After Chernobyl, many said such an event could not happen in the US, because the Soviet Union's nuclear sector was not as advanced as our own," Mr. Waxman said. "But Japan is a highly developed country. It is as technologically sophisticated as us, and there's much concern in the US that a similar accident could here."

Representative Edward J. Markey, Democrat of Massachusetts, renewed calls for delaying the licensing of a new reactor, the Westinghouse AP1000, until everyone was satisfied about its ability to perform in earthquakes.

Last month the Nuclear Regulatory Commission signaled that it was moving toward approving the reactor design, which would be deployed for projects like an expansion of Plant Vogtle in Georgia, where holes have been dug for two AP1000 reactors.

Mr. Jaczko tried to explain to the House committee that his agency did not require reactors to be designed to meet an earthquake of a certain magnitude, but rather the likely ground-shaking motion at their locations. He demonstrated by filling a glass half full of water and thumping his hand on the table to make the water move.

Representative Lois Capps, a California Democrat, complained that the commission had stopped short of considering the possibility of near-simultaneous catastrophes, like an earthquake and a tsunami. "We have just witnessed an earthquake, a tsunami and a meltdown," she said.

## **Radiation Levels 'Extremely High' At Fukushima Plant -- NRC Chairman (EPPM)**

By Hannah Northey

E&ENews PM, March 17, 2011

The Nuclear Regulatory Commission chairman painted a grim picture of the nuclear crisis at Japan's crippled Fukushima Daiichi power plant for a House subcommittee today.

While conceding his agency has "limited information" about what is happening at the plant, Chairman Gregory Jaczko told lawmakers the commission believes "core cooling is not safe at" Unit 2 and is concerned about falling water levels in the spent fuel pool.

At Unit 3, he said, the spent fuel "integrity has been compromised." And at Unit 4, the situation was more dangerous following a hydrogen explosion, Jaczko told the Energy and Power Subcommittee.

"We believe that secondary containment has been destroyed, that there is no water in the spent fuel pool, and we believe that radiation levels are extremely high" and that could hinder operators' efforts, Jaczko said.

After prompting by lawmakers, the NRC chief said elevated radiation readings at one spent fuel pool "would be lethal within a short period of time."

NRC has sent at least 11 experts with knowledge of boiling water reactors to Japan, he said, and reaffirmed the agency's earlier stance that the United States would not experience dangerous levels of radioactivity from the power plant hit by a tsunami after a mammoth earthquake Friday. But NRC has advised Japanese officials to evacuate people from a larger area around the reactor.

Lawmakers peppered the chairman with site-specific questions on the safety of plants and whether US reactor proposals -- including license extensions for existing power plants and 12 applications for 20 new reactors -- could withstand the impacts of earthquakes, tsunamis, tornadoes or other natural disasters.

Jaczko said NRC is not planning on changing its approach to permitting new applications but will incorporate any findings from the unfolding disaster in northeast Japan. Those findings, he said, could generate additional costs for the agency, which he said may need to return to Capitol Hill to request new funding.

The chairman spoke in the wake of another hearing today at which Energy Secretary Steven Chu asserted that the Obama administration is firmly supporting the continued licensing of nuclear power plants, as well as its ongoing request for nuclear loan guarantees of \$36 billion in its fiscal 2012 budget request (Greenwire, March 16).

Jaczko defended the president's fiscal 2012 budget request, including more than \$1 billion for the nuclear reactor safety program and nuclear materials and waste safety programs. Those funds allow the agency to oversee the country's 104 nuclear reactors and 31 research and test reactors and to conduct rulemakings and inspections.

NRC is also asking for more than \$279 million for new reactors, an increase of \$12.5 million, for licensing and inspecting new projects, including 15 combined licenses and two new combined license applications.

## **Nuclear Regulator Says US Plants Safe (ASBPP)**

By Raju Chebium

Asbury Park Press, March 17, 2011

WASHINGTON — Added safety measures US nuclear plants were required to adopt after the Sept. 11, 2001, terrorist attacks would help prevent catastrophic problems like the ones Japan is grappling with, the top federal nuclear regulator told Congress this afternoon.

Gregory B. Jaczko, chairman of the US Nuclear Regulatory Commission, said the government required nuclear plants to keep emergency equipment on the premises, build backup power systems and have enough coolant available to cool down the reactors and prevent meltdowns.

Those and other adaptations made over the past few decades should help US nuclear plants withstand cataclysmic events like the earthquake and tsunami that struck Japan last week, Jaczko said.

The US government will study what went wrong in Japan to modify domestic response strategies in the case of nuclear accidents, he added.

"We want to get hard facts from Japan," he said in response to questions from Sen. Frank Lautenberg, D-N.J. "We don't have detailed information about what exactly caused the problems in Japan. We don't know what systems were disabled and why they were disabled."

During a briefing Jaczko provided to the Senate Environment and Public Works Committee, Lautenberg said he was worried by news that harmful radiation appears to have spread 50 miles from the Fukushima Daiichi Nuclear Power Plant in northern Japan. Millions of New Jerseyans live within 50 miles of the Oyster Creek Generating Station in Lacey Township.

## **Blog: Open Channel - Gov. Cuomo Orders Review Of N.Y. Reactor After Report On Quake Data (MSNBC)**

By Bill Dedman

MSNBC, March 17, 2011

New York Gov. Andrew Cuomo ordered a safety review of the Indian Point nuclear plant just up the Hudson River from New York City, after one of its reactors ranked first for risk of damage from an earthquake in a study published Wednesday.

The report by msnbc.com was based on damage estimates for 104 commercial nuclear power plants from the Nuclear Regulatory Commission, the federal agency that supervises the industry. The highest risk of damage from an earthquake, according to the NRC's data, was at Indian Point's reactor No. 3, which the NRC said had a 1 in 10,000 chance each year of damage to its radioactive core from an earthquake. The plant lies near the Ramapo Fault zone.

"We are going to check into it ... immediately," Cuomo, the state's new Democratic governor and former attorney general, told WNBC TV in New York. "This plant in this proximity to New York City was never a good risk. But this is new information we are going to pursue."

Cuomo told WNBC that he discussed the issue with leaders of the state Senate and General Assembly in a closed-door session on Wednesday. It was not immediately clear what sort of review Cuomo plans, or who would conduct it.

The NRC data had been published in August for nuclear power plants in the central and eastern United States, and this week the NRC provided additional data to msnbc.com for the few plants in the western states, allowing msnbc.com to rank the plants by risk. The NRC public affairs staff stressed to all callers on Wednesday that it had not done the rankings, but it did not question the accuracy of the data.

The NRC has emphasized that it believes the risk is low of damage to a nuclear power plant from an earthquake.

"Operating nuclear power plants are safe," the NRC said when it reported the new risk estimates. Every plant is designed with a margin of safety beyond the strongest earthquake anticipated in that area, the NRC says, but the new data on earthquakes show that the margin of safety has been reduced.

The full ranking of 104 nuclear power plants is here.

The Indian Point plant, which has two active reactors, provides up to one-third of the electric power for New York City and suburban Westchester County, N.Y. The plant's second reactor had a lower risk of major damage from a quake, according to the NRC, estimated at 1 in 30,303 each year, still about twice the risk of the typical nuclear power plant. The plant is 24 miles from New York City. Statewide, New York has six commercial nuclear reactors at four plants.

The plant's license is up for renewal. Cuomo, when he was attorney general, said the plant should be closed. In 2007 he called the plant "a catastrophe waiting to happen."

A spokesman for EntergyCorp., the New Orleans company that operates Indian Point, dismissed the possibility of it having troubles like the Fukushima Dai-ichi plant in Japan.

"I say only if a tsunami could make its way ... up New York Harbor and the Hudson River, somehow avoid New York City, and drench our plant," Jim Streets, director of communications at Entergy Nuclear Northeast, told CBS New York on Wednesday. "It just doesn't seem very realistic to me."

The NRC study based its damage estimates on US Geological Survey data for earthquakes, as well as each plant's type of design and construction.

The study was also mentioned at Wednesday's US Senate hearing on nuclear power. Sen. Kirsten Gillibrand (D-N.Y.) read from the article to the NRC chairman, Gregory B. Jaczko. He said he wasn't aware of it.

## **Cuomo: NY Will Review Safety At Nuclear Plant (AP)**

Associated Press, March 17, 2011

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

## **NRC: Shippingport Reactor 5th Of 10 Riskiest US Plants (PITTR)**

**Shippingport reactor 5th of 10 riskiest US plants**

By Thomas Olson

Pittsburgh Tribune-Review, March 17, 2011

Pennsylvania is home to three of the 10 US nuclear power plants most vulnerable to an earthquake, including the Beaver Valley plant in Shippingport, according to Nuclear Regulatory Commission data.

The federal agency that oversees nuclear energy evaluates the nation's 104 nuclear power reactors for the chance of an earthquake causing a catastrophic failure each year, based on 2008 and 1989 geological data.

The Beaver Valley 1 reactor in Shippingport ranks fifth-most at risk, with a 1 in 20,833 chance of it suffering reactor core damage during an earthquake, according to data reported Tuesday by msnbc.com.

The power plant is operated by FirstEnergy Corp. in Akron, Ohio. The Beaver Valley 1 nuclear reactor was designed by Westinghouse Electric Co. and came on line in 1976.

"Beaver Valley remains safe and is capable of withstanding at least a 5.8 scale earthquake, which is highly unlikely for this area," said FirstEnergy spokesman Todd Schneider.

"Safety is our top priority. So residents shouldn't be concerned," Schneider said. "If an event did occur, we have an emergency plan to protect the public."

Westinghouse designed the Beaver Valley reactor, as well as five others in the top 10 list of vulnerable reactors. The ratio is not surprising, given that the Cranberry company designed 62 of the 104 nuclear reactors in the United States and roughly 45 percent of the world's 440 nuclear reactors.

Westinghouse spokesmen could not be reached for comment.

The earthquake that struck Japan was initially recorded as magnitude 8.9 but was upgraded Tuesday by the US Geological Survey to a 9.0 event.

The commission assessed earthquake risk to nuclear reactors to "screen for plants needing a further look," said Diane Screnci, spokeswoman for the NRC's regional office in King of Prussia.

"Currently, the operating nuclear power plants in the United States remain safe, with no need for immediate action," Screnci said. The NRC evaluated reactors based on "ground motions" associated with the largest earthquake that could hit a plant's vicinity.

However, handicapping the odds of an earthquake is a difficult science, experts said.

"The longer the period I look at, the more confidence I have in my predictions," said Kent Harries, associate professor of structural engineering mechanics at the University of Pittsburgh, who has studied seismic events and effects on buildings.

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"If you want to predict whether an earthquake will occur this year, your estimate is probably pretty poor," Harries said. "But if you want to predict whether there would be one in the next 30 years, your prediction is probably pretty darn good."

The NRC data show the nuclear reactor most at risk of failure from an earthquake is the Indian Point 3 reactor in Buchanan, N.Y., along the Hudson River, 24 miles north of New York City. Also designed by Westinghouse, the plant stands a 1 in 10,000 chance of failure from an earthquake.

Harries said that a 1 in 10,000 chance in a given year is about the same as a 1 percent chance of an event in the next 100 years.

"There is risk in any human activity. US power plants pose extremely low risk when compared to other activities including dying from heart disease, smoking cigarettes and driving a car," said Tom Kauffman, spokesman for the Nuclear Energy Institute, an industry trade organization in Washington.

America's nuclear reactors operate "with an additional margin of safety" above the standards set in NRC regulations, Kauffman said. The commission used "conservative" analytics to drive risk levels, which are not indicative of a "Fukushima-level accident," he said, referring to the power plant in Japan affected by the country's devastating earthquake and tsunami.

The report stated the third-highest risk was found at the Limerick 1 and 2 reactors at a power plant 21 miles northwest of Philadelphia. They stand a 1 in 18,868 chance of core damage in a quake and were designed by General Electric Co., according to NRC data.

Three Mile Island, the Middletown plant, remembered for a radiation leak and partial core meltdown in 1979, ranks 10th-most at risk. The reactor there was designed by Babcock & Wilcox and stands a 1 in 25,000 chance of suffering core damage in an earthquake.

Each year, the odds are 1 in 74,176 that the typical nuclear power reactor in the United States will experience a catastrophic failure and radioactive leak from an earthquake, according to the msnbc.com report, citing NRC calculations.

Those odds are 10 times better than a person winning \$10,000 with a ticket in the Powerball multistate lottery – which is a 1 in 723,145 chance.

"We, as a society, have to determine what is an acceptable risk," Harries said.

## **NRC: Limerick Nuclear Plant Is Third-highest Earthquake Risk In US (MONTNWS)**

By Evan Brandt

Montgomery (PA) News, March 17, 2011

This map of earthquake risks in the US, updated in 2008 by the United States Geologic Survey, is one reason Exelon Nuclear's Limerick Generating Station was ranked by the Nuclear Regulatory Commission as the nation's third most at risk of being damaged by an earthquake.

View and purchase photos A Nuclear Regulatory Commission study released less than a year ago ranked Exelon Nuclear's Limerick Generating Station as being the nation's nuclear plant with the third-highest risk of being damaged by an earthquake.

The study came about as a result of the US Geologic Survey's 2008 updating of earthquake risks around the country using more sophisticated measurements and modeling than were used in the 1996 and 2002 versions.

As a result of the new data, the NRC has increased the risk of an earthquake damaging both reactors at Limerick by 141 percent, making it the third most at risk, after the Pilgrim Nuclear Plant in Plymouth, Mass., and the Indian Point Atomic Generating Station in Buchanan, N.Y.

The chance of an earthquake damaging the plant has now been raised to 1 in 18,868.

The previous risk rating was 1 in 45,455.

For comparison purposes, as outlined in an MSNBC article, the chance of winning the grand prize in the next Powerball lottery is 1 in 195,249,054.

The study also reveals that of the top 10 nuclear plants most at risk from earthquake damage, three are in Pennsylvania, more than any other state.

The other two are the Shippingport Atomic Power Station in Shippingport, Beaver County; and the Three Mile Island plant in Middletown, Dauphin County.

This story will be updated as more information is made available.

## **Oconee Nuclear Station Ranked 8th-highest On List For Quake Risk (ADERSN)**

Anderson Independent-Mail, March 17, 2011

ANDERSON — The Oconee Nuclear Station has the eighth-greatest risk of suffering a catastrophic failure from an earthquake among the nation's 66 nuclear power plants, according to the US Nuclear Regulatory Commission.

In any given year, there is a 1-in-23,256 chance of an earthquake damaging the cores of the three nuclear reactors at the Duke Energy-owned plant on Lake Keowee, according to a report that the federal agency released in November.

To put those odds in perspective, consider that a person who buys a \$1 Powerball lottery ticket has a 1-in-195,249,054 chance of winning the jackpot.

Last year's report was intended to update the assessment of risks that earthquakes pose to the nation's nuclear power plants. The odds of an earthquake damaging the Oconee Nuclear Station previously had been listed at 1 in 100,000. The new earthquake risk figure represents an increase of 330 percent over the earlier estimate for the plant, which began operating in 1973.

According to the report, Oconee Nuclear Station faces a slightly higher risk of damage from earthquakes than the Diablo Canyon nuclear power plant in Avila Beach, Calif., which has two reactors between the San Andreas Fault and the Pacific Ocean.

Two of the other three nuclear power plants in South Carolina also are in the nation's top 20 in terms of risks for earthquake damage, according to the report.

The V.C. Summer Nuclear Station, which is about 20 miles northwest of Columbia, faces the 12th-greatest risk of earthquake-related damage, with annual odds of 1 in 26,316. South Carolina Electric & Gas Co. is the plant's majority owner.

"Regardless of where a plant lies on the list, there is an extremely low risk for damage to any nuclear plant in the United States," said Rhonda Maree O'Banion, a spokeswoman for Scana Corp., the parent company of South Carolina Electric and Gas. "V.C. Summer Nuclear Station is designed to withstand an earthquake greater in size than the area has ever experienced."

The Catawba Nuclear Station in York, which is owned by Duke Energy, faces the 13th-highest risk of earthquake-related damage, with annual odds of 1 in 27,027.

Duke Energy officials could not be reached for comment Wednesday. But the company's website says each of Duke's nuclear power plants feature designs that protect them from earthquakes and other disasters.

The US nuclear power plant facing the greatest risk of core damage from an earthquake is the Indian Point facility in Buchanan, N.Y., which has an annual risk of 1 in 10,000, according to the report. A nuclear power plant in Fulton, Mo., has the lowest risk of earthquake damage, with annual odds of 1 in 500,000.

While California has a well-known reputation for earthquakes, South Carolina also has a history of seismic activity.

Summerville, which is near Charleston, was at the epicenter of the largest earthquake on the East Coast. That quake, which happened on Aug. 31, 1886, was estimated at 7.0 on the Richter scale. It damaged 2,000 buildings.

Pickens County was the apparent center of an earthquake on Oct. 20, 1924, that shook most of South Carolina, western North Carolina, northeastern Georgia and eastern Tennessee, according to the US Geological Survey.

A moderate earthquake awakened many residents in Anderson on Oct. 20, 1958.

The most recent earthquake in the Palmetto State happened near Summerville on Feb. 25. It measured 1.5 on the Richter scale.

Duke Energy and South Carolina Electric & Gas Co. have proposed building four additional nuclear reactors in South Carolina.

Some experts are warning that the nuclear crisis in Japan could derail efforts to revive the US industry. But a Scana Corp. executive said earlier this week that the company remains hopeful about gaining approval for its plans to add two more reactors to the V.C. Summer Nuclear Station by 2019.

"We remain committed to our new nuclear generation strategy and our intent is to remain on schedule," Scana Corp. President Kevin Marsh said.

## **US Nuclear Plants Located Near Geologic Faults (AP)**

Associated Press, March 17, 2011

LOS ANGELES (AP) — Two years before an immense coastal earthquake plunged Japan into a nuclear crisis, a geologic fault was discovered about a half-mile from a California seaside reactor — alarming regulators who say not enough has been done to gauge the threat to the nation's most populous state.

The situation of the Diablo Canyon plant is not unique. Across the country, a spider's web of faults in the Earth's crust raises questions about earthquakes and safety at aging nuclear plants, amplified by horrific images from Japan, where nuclear reactors were crippled by a tsunami caused by a 9-magnitude quake.

The Indian Point Energy Center, for example, lies near a fault line 35 miles north of Manhattan; on Wednesday, New York Gov. Andrew Cuomo ordered a safety review at the plant.

But none of the questions are more pressing than in quake-prone California, where about 10 powerful shakers — stronger than magnitude 7 — have hit since 1900.

At issue at Diablo Canyon is not what is known, but what is not.

Preliminary research at the site, which sits on a wave-washed bluff above the Pacific, found its twin reactors could withstand a potential earthquake generated by the recently identified Shoreline Fault, just off the coast.

But that hasn't satisfied California regulators. Since late 2008, when the undersea crack was identified, they have pressed plant owner Pacific Gas & Electric Co. to conduct sophisticated, independently reviewed studies that they say are needed to fully assess the danger at a site within 200 miles of Los Angeles.

The recently discovered fault is close to, and might intersect with, another bigger crack three miles offshore, and the fear is the two faults could begin shaking in tandem, creating a larger quake than either fault would be capable of producing on its own.

"We don't yet have a firm idea of the hazard posed by the Shoreline Fault," says Thomas Brocher, director of the Earthquake Science Center at the US Geological Survey in Menlo Park, Calif., who led the team that discovered the fault.

State Sen. Sam Blakeslee, a Republican who holds a doctorate in earthquake studies, wants PG&E to pull back an application to extend the plant's operating license for 20 years until more is known.

"Aging nuclear power plants and large, active fault systems should not be in close proximity. This isn't exactly rocket science," Blakeslee says. Because the Shoreline Fault is so close to the Diablo Canyon plant it "can produce shaking far in excess of what's expected."

The US Nuclear Regulatory Commission and PG&E say the plant is safe and built to withstand a magnitude 7.5 earthquake, the maximum considered possible for the site. Damage from a Japan-like tsunami is unlikely, because the reactors sit on an 85-foot cliff above the ocean and fault structure in the area differs from the Pacific Rim.

Critics around the United States say the government has moved too slowly to assess possible threats from earthquakes.

NRC spokeswoman Lara Uselding said she did not know of a single case in which a US reactor was damaged by a quake. But this does not dispel concerns that may be unavoidable because the study of earthquakes remains an imprecise science. They cannot be predicted, and the damage — as witnessed in Japan — can be catastrophic.

The dangers of earthquakes have been raised repeatedly by opponents of nuclear energy. The Perry nuclear plant, east of Cleveland, lies within 40 miles of two faults; in 1986, a year before the plant opened, a 5.0 earthquake shook the area, but didn't damage the plant, said Todd Schneider, a FirstEnergy spokesman. There have since been less severe quakes.

A citizens group filed suit after the quake, trying to block the plant from opening. They argued that an earthquake greater than the plant was built to withstand was likely to occur in the future; US Supreme Court Justice Antonin Scalia turned down their request.

The plant's design includes piping with shock absorbers intended to prevent breakage in a quake. "Before the plants are even built, there's research done by seismologists and geologists to determine what the maximum earthquake could be," Schneider said. "The plants are designed beyond that."

Indian Point, too, is safe and built to withstand earthquakes, says a spokesman for owner Entergy Nuclear. But earlier this week, Rep. Nita Lowey, D-N.Y., urged the NRC to look closely at the earthquake preparedness there. A 2008 analysis of earthquake activity around New York City found that many small faults that were believed to be inactive could contribute to a major temblor, and that a line of seismic activity comes within two miles of the plant on the Hudson River.

Another fault line near Indian Point was already known, so the findings suggest Indian Point is at an intersection of faults. The environmental group Riverkeeper says seismic studies used to assess safety are decades out of date.

Major earthquakes are rare in the southeast United States, although the region is crossed by the New Madrid fault in the west and a fault near Charleston, S.C. in the east. University of Georgia geologist Jim Wright said although the plate sitting under the southeast is stable it's also rigid, meaning the jolt from an earthquake would carry farther than in a region where the earth's crust has been fragmented by seismic activity.

The Atlanta-based Southern Co. has reviewed seismic activity in the area that could impact the Wayneboro, Ga., site where it has two operating reactors and hopes to build two more. Among the largest known regional earthquakes was an 1886 earthquake that struck Charleston, S.C., about 85 miles from the Plant Vogtle site, according to the company's regulatory filings.

To this day, geologists are divided on exactly which faults caused the earthquake. Southern Co. spokesman Beth Thomas said the company's reactors comply with federal requirements that they be able to safely withstand the strongest earthquake that could be expected in a 10,000-year period. Thomas said the company has not seen anything in Japan to make it alter its current operations.

The Tennessee Valley Authority's Browns Ferry plant, which is located near Athens, Ala., has boiling water reactors similar in design to the malfunctioning reactors in Japan. That plant was designed to withstand a 6.0-magnitude earthquake based on its proximity to the New Madrid fault, TVA spokesman Duncan Mansfield said.

The TVA's 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. Arkansas Nuclear One officials said the plant is designed to withstand natural disasters including quakes, has an emergency plan in place, and routinely trains for the worst-case scenario.

Using increasing sensitive technology, scientists are constantly identifying new faults in the country, sometimes after earthquakes are detected. In Southern California alone, there are an estimated 10,000 earthquakes a year, though most of them are too small to be noticed by residents.

The state's senators, Barbara Boxer and Dianne Feinstein, on Wednesday sent a letter to Nuclear Regulatory Commission Chairman Gregory Jaczko, asking that the agency "perform a thorough inspection" of the plants at Diablo Canyon and San Onofre.

A 30-foot concrete seawall surrounds San Onofre, built along the beach in northern San Diego County, where officials say it's strong enough to withstand major quakes and any potential tsunami.

Diablo Canyon, whose reactors began operating in the mid-1980s, has a long history of seismic issues. The discovery of the offshore Hosgri Fault in 1971, after the plant's construction permits were issued, forced a major, costly redesign.

Brocher, the USGS scientist, said scientists do not know how fast the adjacent sides of the Shoreline Fault are sliding, a key measurement to determine potential danger. A higher rate of slippage leads to increased pressure — and a greater chance for an earthquake.

With the two faults in proximity "the uncertainty is ... to what extent they might interact," says Barbara Byron, a senior nuclear policy adviser for the California Energy Commission. Since 2008, the commission has urged the plant to conduct three-dimensional mapping of the Shoreline Fault, using technology employed in oil exploration.

Funding has been approved for the study. In testimony to the NRC last year, she called the plant's seismic data "incomplete ... outdated" and urged a review of its evacuation plans.

Uselding, the NRC spokeswoman, said preliminary reviews found that it's unlikely an earthquake would take place directly under Diablo Canyon, but that potential shaking could cause minor damage to buried piping and conduits.

Diablo Canyon has an extensive seismic monitoring system, ready to detect any shifts in the area. "Potential impacts of the Shoreline Fault fall within all safety margins," company spokesman Kory Raftery said.

To University of Southern California professor Naj Meshkati, an expert on earthquakes and nuclear power plants, the risk is not the massive plant structures but the reliability of backup systems that failed in the Japanese tsunami.

While such a large quake and killer wave is unlikely in California, the plants face similar dangers in backup equipment.

"If someone says this cannot happen here, they should really ... take a very hard look at some of their assumptions," Meshkati said.

## **Boxer Worried About Nuke Plants Near California Coastal Faults (SSJ)**

By Paul C. Barton

Salem (OR) Statesman Journal, March 17, 2011

WASHI NGTON -- Sen. Barbara Boxer chastised federal officials Wednesday for not reviewing a 2008 report that raised concerns about how a seismic event could threaten the safety of 8 million Californians who live within 50 miles of the state's nuclear plants.

The California Democrat accused Nuclear Regulatory Commission officials of lacking interest in an October 2008 report by the California Energy Commission that raised concerns about potential earthquake effects on the Diablo Canyon Power Plant and the San Onofre Nuclear Generating Station. Both are situated near fault lines.

She made the charge at special briefing for the Senate Environment and Public Works Committee on the implications for US nuclear plants of the earthquake and tsunami-generated fires and explosions at Japan's Fukushima Dai-ichi plant.

Boxer, chairwoman of the panel, demanded to know at one point whether NRC officials knew how many people lived within 50 miles of San Onofre in Southern California. Raising her voice, she said, "I'm going to tell you how many: 7.4 million people." Later, she told them 500,000 were living within a 50-mile radius of Diablo Canyon, in Central California.

Fifty miles is regarded as the immediate danger zone for radiation released in a severe nuclear power plant incident.

The California Energy Commission report said more information was needed at both plants to assess how they would hold up in a major earthquake. It said the state had a 99.7 percent chance of a magnitude-6.7 quake or greater occurring in the next 30 years. The quake that hit Japan last week was magnitude 9.

"Right now we don't have detailed information about the accident in Japan," said Gregory B. Jaczko, chairman of the federal panel. But he pledged that the agency would undertake a "systematic and methodical review" of all 55 U. S. nuclear plants, including 104 nuclear reactors.

Japan's nuclear crisis began with Friday's earthquake and the resulting tsunami that struck the country's northeastern coast. The tsunami knocked out backup diesel generators at Fukushima Dai-ichi that are used to pump water over nuclear fuel to keep it cool. Since then, reactors at the plant have been rocked by explosions and have leaked radiation. Technicians at the plant have desperately tried to cool the plant's reactor cores with seawater.

Winds were expected to blow the radiation out to sea Wednesday and Thursday. Some of that radiation could reach the US, but not at harmful levels, experts say.

At least 23 American plants employ a reactor similar to the one in Japan.

Making a proper assessment of lessons for American plants from the Japanese incident "will take a little bit of time," Jaczko said, adding, "We want to get good facts and make good decisions."

Boxer, though, said other countries were already taking steps at their nuclear reactors of the same make and design as the one in Japan.

"I'm not hearing anything proactive" from NRC officials, she said.

Boxer, joined by Democratic Sen. Frank Lautenberg of New Jersey and Independent Sen. Bernie Sanders of Vermont, told Jaczko and his staff that the matter was urgent.

"People tend to think a tragic event will never occur until the day after it happens," Sanders said.

Lautenberg said what's happening in Japan "is scaring the life out of people."

Jaczko said he was confident that American plants had electrical backup if power needed for water cooling was lost. When it comes to electrical power, American plants have "backups of backups," he said.

Administration officials also said Wednesday that there is no reason to worry about the safety of nuclear plants in the US

"The American people should have full confidence that the United States has rigorous safety regulations in place to ensure that our nuclear power is generated safely and responsibly," Energy Secretary Steven Chu told lawmakers at a House

subcommittee hearing. "The administration is committed to learning from Japan's experience as we work to continue to strengthen America's nuclear industry."

Nuclear energy supplies about 20 percent of America's electricity and 70 percent of its electricity from clean, non-carbon sources, according to the administration. Energy officials are seeking up to \$36 billion in additional loan guarantee authority in fiscal 2012 to promote nuclear power.

Americans' support for nuclear power has fallen, as 70 percent of those surveyed in a new USA TODAY/Gallup Poll say they've grown more concerned about the industry's safety based on the crisis unfolding in Japan.

Boxer said the Japanese thought their plant could withstand a major quake were got horribly surprised.

She said she wanted immediate inspections of the California plants.

## **Reactors On Fault Lines Getting Fresh Scrutiny (WSJ)**

### **Critics Ask if Facilities Can Withstand Worst-Case Quakes**

By Ben Casselman And Brian Spegele

Wall Street Journal, March 17, 2011

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

## **Rep. Dennis Kucinich Asks Feds To Shut Down FirstEnergy Nuclear Plants (Plain Dealer)**

By Sabrina Eaton

Plain Dealer, March 17, 2011

In light of safety problems at Japanese nuclear power plants that have been compromised by natural disasters, Cleveland Democratic Rep. Dennis Kucinich is asking the Nuclear Regulatory Commission to shut down US nuclear facilities run by "bad actors," including Akron-based FirstEnergy.

In a March 16 letter to NRC Chairman Gregory P. Jaczko, Kucinich says Japan's failing nuclear power plants warrant a fresh assessment of US nuclear catastrophe preparedness.

He cites incidents as far back as 1985 at FirstEnergy's Davis Besse nuclear plant near Toledo in claiming that "operators of nuclear power plants with demonstrated poor safety records should not be allowed to continue to put the public at risk."

"This conduct is the product of an inveterate, corrupt culture of long standing deceit and corner-cutting on safety," Kucinich's says of FirstEnergy. "With such an abysmal record, they, and other nuclear power plant operating companies with poor performance records should not be allowed to continue to operate nuclear power plants."

FirstEnergy spokesman Todd Schneider said safety is the company's top priority.

"It's unfortunate that Congressman Kucinich is using the tragic situation in Japan to further his political agenda," said Schneider.

NRC spokeswoman Viktoria Mityng said Kucinich has contacted the NRC before about FirstEnergy, and the commission will "respond to this letter as we do to all correspondence from members of Congress."

She said NRC believes US nuclear power plants are built to withstand natural disasters "at the highest possible level, plus a margin," and that FirstEnergy has adequately addressed past safety issues.

"If the NRC didn't have confidence that the plant can be operated safely, the plant would be shut down," Mityng said.

Kucinich has a history of enmity with FirstEnergy that dates back to his days as Cleveland's mayor, when he resisted pressure to sell Cleveland's municipal power plant to FirstEnergy's Cleveland Electric Illuminating Co. subsidiary.

## **Failures At Fukushima Turn Eyes To Troubled, Proposed Nuclear Plants In Ohio (DCEX)**

Washington D.C. Examiner, March 17, 2011

COLUMBUS, Ohio (CGE) - The magnitude 9 earthquake last week off the coast of northern Japan that triggered a tsunami that devastated large swaths of the small country, and created a riveting crisis of four nuclear reactors that are failing by the hour, has turned some Ohioans' attention to the state's two existing but aging nuclear power plants on Ohio's North Coast and a new one proposed for construction in the south close to the Ohio River.

Kucinich to NRC: Sort out bad actors

Ohio Congressman Dennis Kucinich, a long-time outspoken critic of nuclear power plants, intends to ask the Nuclear Regulatory Commission Wednesday to look at the safety of the nation's 104 nuclear power plants "through the prism" of the failing Fukushima nuclear power in northeast Japan that is failing further by the hour. Now the ranking minority member of a subcommittee of the Oversight and Government Reform Committee that he chaired last year that has oversight authority over the

NRC, Kucinich, speaking on MSNBC Tuesday night, said he wants "to make sure all the bad actors in the industry are sorted out quickly" and that nuclear plants with a history of difficulty, including dishonesty by their operators, should be shut down.

Kucinich was referring to what he told the NRC in a 2007 letter were "a number of serious management problems at the Perry facility" owned by FirstEnergy, Ohio's mega-utility whose failure in August 2003 to trim limbs that touched electric wires resulted in 50 million people from Ohio to New York City falling into darkness when their lights went out. Among the management problems Kucinich spoke of were a 2002 finding by the NRC Office of Investigations that concluded that FirstEnergy's application for access was falsified at Perry; that overtime records were deliberately falsified at Perry so as to appear to comply with technical specifications; and that the NRC found "creative timekeeping" at the Perry plant.

Kucinich has called for the shuttering of Ohio's two FirstEnergy-owned nuclear power plants - Davis-Besse Nuclear Power Station, Unit 1 [35 miles NE of Cleveland] and Perry Nuclear Power Plant, Unit 1 [21 miles ESE of Toledo].

Arguing that nuclear power plants are horrendously expensive - recent costs associated with facilities in San Antonio, TX and Canada are between \$18-\$26 billion - take upwards of a decade to build, are unappealing to Wall Street investors, are susceptible to earthquakes and attacks by terrorist and produce nuclear waste that are difficult to transport and store, Kucinich said the US has a generation of older plants that become more prone to problems the longer they are operated, but which are being pushed further because their owners want to "wring every dime of profit" out of them.

Kucinich, who made news a few weeks back when dental problems from chomping down on a surprise olive pit caused such severe dental work that the cost to repair it ended in a lawsuit that was settled out of court, said the incident in Japan with its now-failed nuclear reactor "should be a cautionary tale" he wants the NRC to heed.

Kucinich recalled an event at Davis-Besse that resulted in a football-sized crater in the reactor vessel that, had it not been contained, would have escalated to the magnitude of the incident at Three Mile Island, the nation's worst nuclear event. The Cleveland congressman said a mandated independent assessment into the incident showed FirstEnergy tried to deceive the government about safety violations at its Davis-Besse facility. "Only a slim steel liner stood in the way of radioactive release into the air, which would have jeopardized the safety of millions of residents of the state of Ohio," he wrote in his letter to the NCR.

FirstEnergy draws distinction to Japan crisis

With an elected official like Kucinich calling for a new review of nuclear power plants, especially the two Ohio plants owned by FirstEnergy, it's no surprise that FirstEnergy has a different view. A FirstEnergy spokesman said that while there are similarities between The Fukushima nuclear power plant, now in serious trouble with four of its six reactors leaking radioactive materials, and its Perry plant in Lake County, there are differences, too. Todd Schneider told Dan Haggerty of WEWS news that both plants are boiling water nuclear reactors built by General Electric, with Perry being an evolution from the plants in Japan. Schneider also identified differences, saying the Perry plant has a larger containment unit and underground backup fuel tanks while the Fukushima reactors have above-ground backup fuel tanks, which rushing waters from the tsunami washed away.

A Nuclear Regulatory Commission spokesman told Haggerty that the Perry plant "met all cornerstone objectives," and ranks among the highest scoring nuclear facilities in the US

Sierra Club oppose Davis-Besse license extension

Patricia Marida, chairman of the Nuclear Issues Committee of the Ohio Sierra Club, testified to the NCR against renewing a 20-year extension of FirstEnergy's license to operate Davis-Besse. Speaking on behalf of The Sierra Club, whose policy is to oppose nuclear energy in its entirety based on environmental, health, and public expense issues throughout the nuclear fuel cycle, Marida first noted that use of electricity in Ohio has been decreasing for a number of years. Based on this fact, Marida said a 20-year extension of the Davis Besse operating license is unfounded on the grounds of future electric generating needs.

She argued that the process by which First Energy and the NCR allowed a delay in the inspection of the reactor head in 2002, coming within 1/8 inch of a nuclear disaster that would have left the Midwest uninhabitable and the Great Lakes, the world's largest supply of fresh water, filled with radioactive contamination, "shows that the public should have no confidence whatsoever in the ability of First Energy to self-regulate or in the NRC to rigorously enforce and inspect so dangerous an operation as a nuclear reactor."

FirstEnergy, Marida said, was willing to take these incredible risks simply based on profits. "Not only that, but corporate culture makes it difficult for any one person to buck the system or feel responsible for anything other than following the orders of their immediate superiors," she said in her written testimony.

Duke Energy proposes 3rd nuclear reactor for Ohio?

Ohio's third and newest nuclear power plant, a \$10 billion proposal for a facility in Piketon in southern Ohio, about 95 miles east of Cincinnati, is being proposed by Duke Energy, which has about 800,000 electric customers in Greater Cincinnati and Northern Kentucky. The project, announced nearly a year and half ago, could depend on the outcome of the Japanese nuclear crisis, Dan Haggerty of WEWS reported.

Proposed as a public-private initiative, the 1,600 megawatt nuclear plant, to be sited at the former uranium processing facility in Piketon, is part of the Southern Ohio Clean Energy Park Alliance. The proposed Piketon facility would be Ohio's third nuclear power plant and the first since the Perry nuclear plant in Lake County came on line in 1987.

Duke operates three nuclear plants in the Carolinas and is developing a fourth one there. Haggerty said the Ohio project would require other investors to share in the massive costs as well as unspecified changes in state utility law.

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## **Japan Crisis Casts Pall Over Md. Nuclear Power Expansion (delmarva)**

By Marso

Delmarva Daily Times, March 17, 2011

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 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."

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David Saleh Rauf contributed to this report.

## **Iowa Senators Want To Wait On Nuclear Power Plants (AP)**

Associated Press, March 17, 2011

DES MOINES, Iowa (AP) – Some Iowa senators want to delay action on bills that would make it easier for energy companies to build nuclear power plants in Iowa, given the nuclear crisis unfolding in Japan.

Nine Democratic senators sent a letter to their colleagues on Wednesday saying they are "extremely concerned about proposed legislation that appears to be on the fast track to pave the way" for more nuclear plants in Iowa. They asked that such legislation not be advanced this year, and that a commission be formed to investigate the issue.

The senators – Daryl Beall, Dennis Black, Joe Bolkcom, Dick Dearden, Bob Dvorsky, Gene Fraise, Jack Hatch, Rob Hogg and Pam Jochum – cited several areas of concern in their letter, including the potential danger nuclear facilities can pose to the public.

"There are significant safety and financial liability concerns, especially after the nuclear disaster in Japan," the senators wrote.

Japan is struggling to avoid complete reactor meltdowns at a plant badly damaged by last Friday's powerful earthquake and tsunami.

The senators expressed concern about the costs involved with determining where to build new plants, and with the permitting and monitoring processes once they're built.

Former Gov. Chet Culver signed a bill last year allowing MidAmerican Energy to study the viability of building a nuclear power plant in Iowa.

Hogg, D-Cedar Rapids, said legislation in the Senate would require MidAmerican Energy to apply with the state to build a nuclear plant and effectively guarantees a recovery of the company's costs. He said that would cost each customer of the company several thousand dollars.

Hogg also said nuclear power should be the main issue for an entire legislative session, as any decisions the Legislature makes will affect generations of Iowans. The bill amounts to a statement that Iowa is giving a green light for a nuclear plant to be built, he said.

"Nuclear power is being sold as something that's safe and reliable," Hogg said. "But the problem is when something goes wrong it goes very wrong."

Ann Thelen, spokeswoman for MidAmerican, said the plant design the company is considering for Iowa is newer and safer than Japan's Fukushima Dai-ichi plant.

"Advances in nuclear technology have dramatically changed the prospects for adding nuclear generation to the state's energy portfolio," Thelen said. "While we haven't ruled out certain plant designs, we are very interested in small modular reactors. Small modular reactor designs have a number of benefits, including enhanced safety features."

Proponents of nuclear power note there have only been three major reactor accidents in the 50-year history of civil nuclear power: Chernobyl, Three Mile Island and the ongoing crisis in Japan.

Jane Magers, who represents a number of groups opposed to nuclear energy, commended the senators for signing the letter but questioned why a letter is even necessary.

"They're going out on a limb," Magers said. "I just cannot understand why the Legislature is holding on to this, but they're apparently holding on to it hard."

Iowa has one nuclear power plant near Cedar Rapids, and MidAmerican Energy is studying building another plant.

The letter comes a day before a Senate subcommittee is set to debate the legislation. MidAmerican Energy President and CEO William Fehrman is expected to attend the subcommittee meeting on Thursday.

Follow Yahoo! Finance on ; become a fan on Facebook.

## **Nuclear Opponents In Texas Seize On Japan Crisis (AP)**

Associated Press, March 17, 2011

VICTORIA, Texas

Opponents of a proposed Texas nuclear power plant are urging federal regulators to consider Japan's emergency efforts to avert a nuclear meltdown.

The Atomic Safety and Licensing Board on Wednesday began a two-day hearing in Victoria. Chicago-based Exelon Corp. is in the preliminary stages of trying to acquire permitting for a proposed nuclear plant in Victoria County.

The Nuclear Regulatory Commission scheduled the hearing before last week's earthquake in Japan crippled nuclear reactors and caused radiation levels to soar.

The group Texans for a Sound Energy Policy wants federal regulators to halt the permit application. It planned to tell the panel that "everyone should be sobered" by the events in Japan.

## **Opinions Clash On Victoria Nuclear Plant Permit (KRIVTV)**

KRIV-TV Houston, TX, March 17, 2011

Exelon Power Texas is defending preliminary plans to build a nuclear power plant near Victoria.

A Wednesday hearing in Victoria focused on the company's request for an early site permit.

"The whole concept behind an early site permit is once that is issued, it would allow us to reserve a particular parcel of land here in Victoria County for up to 20 years," said Exelon's William Scott.

Scott said it's not known if or when the company would actually seek to build the plant.

But a plant opponent, Regional Water Planning Board member Bill Jones, insisted an early site permit should be denied.

"Once the early site permit is in, the camel's got his nose under the tent and there's no telling what will happen after that," Jones said.

Jones argued the Japan disaster is a warning to those who want to build the Victoria plant. Scott, however, said it's grossly unfair to compare Japan with the proposed Victoria project.

"You would have to assume that there's a major earthquake somewhere along the Texas Gulf Coast and there would be a subsequent tsunami following that would somehow push inland 35 miles."

## **Possible Nuclear Sites In Texas Look To Learn From Japan|myFOXlubbock (KJTV)**

KJTV-TV Lubbock (TX), March 17, 2011

Opponents of building a nuclear power plant in Victoria are urging federal regulators to consider Japan's emergency efforts to avert a nuclear meltdown. The Atomic Safety and Licensing board is holding a two day hearing in Victoria. Chicago-based Exelon Corporation is in the preliminary stages of trying to acquire permitting for a proposed nuclear plant in the Guadalupe River Estuary. The group "Texans for A Sound Energy Policy wants federal regulators to halt the permit application. Texas Land Commissioner Jerry Patterson said nuclear energy is safe and we'll likely see more of it in the future. He says the main concern is how to deal with nuclear waste.

Bill Jones, Texans for A Sound Energy Policy Alliance: "The best place for any new nuclear power plant is where there is an infinite supply of salt water, and that is on the coast, where the south Texas nuclear project is. Our problem with Victoria, is that the plant is relying on the drought prone Guadalupe River. The Exelon plant depends on billions of gallons of fresh water from a drought prone river for cooling and so that poses a serious safety concern. It also poses a threat to the whole eco-system from here to the bay."

Commissioner Patterson: "Last news report that I got on that, it's the spent fuel rods. Those fuel rods ought to be off site, being re-processed into good commodities for energy. It's all about science, it's all about technology. With the appropriate application of science and technology, nuclear will remain safe and become even safer."The Nuclear Regulatory Commission scheduled the Victoria hearing before last week's earthquake in Japan crippled the Fukushima Daiichi nuclear reactors and caused radiation levels to soar. The Commission announced on March 2nd that expansion plans for the existing south Texas project nuclear power plant has passed a final environmental impact assessment. The plant near Bay City, about 11 miles inland from Matagorda Bay, is seeking permission to add two new reactors.

Tokyo Electric, which operates the Fukushima plant, has a small ownership stake in the south Texas project.

3/11/11

[Click here for Texas Tech's Near Real-Time Map of quake aftershocks](#)

[Link Ministries website](#)

Ag Day Lubbock - The Cooking Cowboy's Cowboy Spaghetti

<http://pedersonsfarms.com/2011/03/cowboy-spaghetti/> Ag Day Lubbock - High Plains Underground Water Conservation

District Public Meeting Schedule

<http://www.hpwd.com/>

3/9/11

Submit tips to Lubbock Police or call Crimeline at 741-1000

[Citibus website](#)

Ag Day Lubbock - High Plains Underground Water District proposed Restrictions:  
<http://www.hpwd.com/HPWD%202011%20Rule%20Amendments/HPWD%20Proposed%20Amendments%20Drafted%2022-11.pdf>

Ag Day Lubbock - Corn Producers Association of Texas Prese . Release:  
[http://texascorn.org/cornwebsite/files/22511\\_HPWDRegulations.pdf](http://texascorn.org/cornwebsite/files/22511_HPWDRegulations.pdf)

3/8/11

FOX 34 Your Health - info on peanut butter

3/7/11

Ag Day Lubbock - National Resources Conservation Service information for assistance with wildfires

3/5/11

Ag Day Lubbock - Groundwater Debate information [http://www.texascattleraisers.org/news\\_releases\\_blog/](http://www.texascattleraisers.org/news_releases_blog/)

3/4/11

Forbes Magazine's Top 10 Happiest Jobs

03/03/11

Texas Superintendent Salary Table

03/02/11

To follow Zoe Romano, who is running coast to coast to help benefit the Boys and Girls Clubs of America, you can find her blog here.

Telephone number for the Clovis Police Department: (575) 769-1921 [begin\\_of\\_the\\_skype\\_highlighting](#) (575) 769-1921 [end\\_of\\_the\\_skype\\_highlighting](#) [begin\\_of\\_the\\_skype\\_highlighting](#) (575) 769-1921 [end\\_of\\_the\\_skype\\_highlighting](#).

Renovations of facility providing basic amenities for homeless at 13th & Ave A

Monetary Donations can be mailed to:

c/o Gary Light

[Link Ministries](#)

1117 65th Drive

Lubbock, TX 79412

Call: (806) 747-2542

Unapproved Drugs

Mayor's Beans & Cornbread Luncheon

11 a.m. to 1:30 p.m. Friday, March 4

Tickets \$10

Specialty Crop Block Grant Program

03/01/11

To vote for your favorite Blue Ribbon Small Business Award winner [click here](#).

CASA of the South Plains needs more volunteers - [click for more info](#)

02/28/11

To attend Barbara Bush speech at Lubbock Women's Club:

Reservations for the event will be accepted by phone beginning at 9 a.m., Tuesday, March 8, by calling (806) 763-6448. Due to limited seating, reservations will be restricted to no more than four per person. Tickets are \$75 each and require payment by credit card. Cancellations are required by Wednesday, April 13.

More information on the CHL course featured in news story

2/25/11

Children's Health Insurance meeting - 10 a.m. to 1 p.m. Saturday, Feb. 26, Monterey High School Cafeteria

More information on CHIP

2/23/11

Federal Government Continuing Resolution (HR-1)

2/22/11

Find the Hero in You - United Blood Services

More information on collections in Lubbock County

2/21/11

TAWC Field Day

Thursday, Feb. 24 from 8 a.m. to 1 p.m.

Floyd County Unity Center in Muncy, Texas

Sick Children's Clinic

1002 Avenue A

Lubbock, Texas 79401

806-762-1805

2/19/11

Llano Estacado Roboraiders - Team 1817

[www.team1817.org](http://www.team1817.org)

2/17/11

Census county-by-county population changes

Census county-by-county population

Instructions on how to text a tip to the Lubbock Police Department.&nbsp;

Click here&nbsp;to submit a tip online for the Lubbock Police Department.

To phone in a tip,&nbsp;call 806-741-1000&nbsp;

Click Here for more information on energy funds for low-income families.

2/16/11

Laura W. Bush Institute for Women's Health taking steps to fight breast cancer - more info

For information on Energy Assistance funds, call the Texas Department of Housing and Community Affairs toll free at (877) 399-8939

Texas Tech advising students to take bus this spring break - more info

Money Matters - Small Business Administration, TTU Small Business Development Center

2/15/11

Click here for a link to the 2011 Texas on Brink Report

2/14/11

Danny Gunn's burial set for 2pm at the Terrace Cemetery in Post. A service will be held at 4pm at the Post High School Auditorium.

Idalou school system will dismiss at noon on Wednesday.

A scholarship fund has been set up: Danny Gunn Memorial Scholarship

C/O Troy Stegemoeller

Vista Bank P O Box 858

Idalou TX 79329

02/13/11

Laugh for the Cure

Doors open 6:30 p.m.

Tickets \$30+&nbsp;; \*\*TICKETS PURCHASED 2/15/2011 @ [www.livingsocial.com](http://www.livingsocial.com) \$15\*\*

Comedy Show & Live Auction

call 806-698-1900 or [www.komenlubbock.org](http://www.komenlubbock.org)

02/11/11

Click here for more information on Organ and Tissue Donation

02/10/11

Applications for the Texas Department of Agriculture's Family Land Heritage Program are due May 1, 2011.

02/10/11

"The Weir" at the Garza Theatre

The Hotel Garza

302 East Main

Post, Tx

806-495-3962

Dinner and Ticket package:

Dinner for two and tickets to the show \$59

Reservations only

Call and reserve your tickets today Theatre packages:

Dinner for two, tickets to the show, and one nights stay

starting at \$139 for standard room

02/09/2011

Health info - "To Bones With Love", free seminar 6 p.m. February 10, American State Bank Operations Annex, 1501 Avenue Q.

Money Matters link - more information on assisting elderly citizens with mobile phones

02/08/2011

Southwest Farm and Ranch Classic at Lubbock Memorial Civic Center, Tuesday through Thursday 9:00 a.m. To 5:00 p.m.

For more details, visit <http://swclassic.com/>

To apply to Hobbs police department 02/04/2011

Small businesses looking for more information on "Live Longer, Live Stronger" call Carla McGee at (806) 725-0643

02/04/2011

Tips on what to do with frozen pipes

02/03/2011

Lubbock Land Company survey on Lubbock housing market

02/01/2011

2010 Dietary Guidelines for Americans

<http://www.cnpp.usda.gov/dietaryguidelines.htm>

01/28/11

Abbeville Dentistry 5255 79th Street, Lubbock

Free dental care

Saturday, January 29th, 8 am - 2 pm for those in serious need.

First 100 patients - on a first-come, first-serve basis

Click here for a link for more info

To provide info on 10 most wanted suspect Timothy Rosales:

Call the Crime Stoppers hotline at 1-800-252-TIPS (8477).

Or text the letters DPS—followed by your tip—to 274637 (CRIMES) from your cell phone.

Or go to find out more. go to

<http://www.txdps.state.tx.us/wanted/topTenFugitives.htm#;view=Details/fugitive=10>

01/26/11

Texas Department of Public Safety Amnesty Plan

Vigil and services for Elizabeth Ennen:

A fund has been established at American State bank for Elizabeth Ennen's family.

Students and friends plan a candlelight vigil at 6:30 p.m. Thursday at the Monterey High School flagpole.

Services are set for 10:30 a.m. Friday at Sanders Funeral Home, 1420 Main St.

To donate to Somer Thompson Foundation

1/21/11

Volunteers are still needed to help organize donations for victims of the Twin Oaks fire.

There is no need for further material donations, plenty have been received.

Monetary donations are always welcome. You can mail those to the Salvation Army at P.O. Box 2785 Lubbock, TX 79408 or to the American Red Cross at 2201 19th Street Lubbock, TX 79401

For information on volunteering, please contact the Salvation Army at (806) 765-

1/20/11 Training & for volunteers to help count area homeless:

Salvation Army - 10am, Wednesday, January 26th &

Call 806-765-9434 & 1/19/11

Info on free tax preparations 1/18/11 Volunteer at Boys and Girls Club

Volunteer at South Plains Food Bank

1/17/11 State of the City Registration

01/11/11

Lubbock Water Conservation Ordinance

When you're on the go, stay up to date with forecasts on your favorite radio station.

FOX Talk 950-100.7FM

Listen for weather updates twice an hour on FOX Talk 950-100.7FM. Our staff of meteorologists has the latest information through every day. You'll also hear up-to-the-minute reports four times an hour during FOX Talk In The Morning.

Catch an expanded agricultural forecast during Ag Talk at around 1:30 p.m. Also, an extended forecast is heard around 5:25 during The Drive Home with Jeff Klotzman.

You'll hear an updated regional forecast from Texas State Network meteorologists weekday mornings at 5:10 and 5:45 and afternoons around 12:20.

Tune here for expanded live coverage when warranted during severe weather.

Magic 93.7 and Stars 97-3

While listening to your favorite music, you'll get the latest weather for the South Plains on Magic 93.7FM and Stars 97-3FM.

Double T 104-3

During Game Day Live! you'll hear updated weather from Matt and Laura, letting you know what to expect for your game day experience and what weather the Red Raiders will face.

## **A New Crack In Progress Energy's Crystal River Nuclear Plant's Containment Building Has Forced The Utility Company To Scrap Its Plans To Fire Up The Facility In April | Ocala.com (OCB)**

By Fred Hiers

[Ocala Star Banner](#), March 17, 2011

A new crack in Progress Energy's Crystal River nuclear plant's containment building has forced the utility company to again scrap its plans to fire up the facility in April.

The delay marks the fifth time in 18 months the utility giant has pushed back its start-up date. The containment vessel wall is meant to keep any harmful radiation inside if there were ever a leak in the reactor container.

North Carolina-based Progress Energy has 65,000 customers in Marion County and more than 1.6 million throughout Florida. It reported Monday to the US Nuclear Regulatory Commission that testing equipment had detected irregularities in the wall and "upon further inspection there was a separation that wasn't previously there," said NRC spokesman Roger Hannah.

The crack is the second in the containment vessel wall, which has caused the utility company millions of dollars in repairs and lost fuel costs.

Progress Energy spokesperson Cherie Jacobs said the postponement in the utility's start-up date at Crystal River reflects the complexity and precision of the restarting process and the company's focus on safety.

Jacobs insisted that "we're not even sure there is a crack," but only that acoustic monitoring equipment detected an anomaly that might be a separation in the wall. The company's press release said only that there was an "indication" of a crack. Jacobs said investigators were still studying the evidence and don't yet know the extent of the problem or where it's located along the walls.

Crystal River's repair story began in September 2009 when Progress shut down the 838-megawatt nuclear power plant to replace aging generators. To do that, workers cut through the facility's containment vessel wall. The plan was to have the plant operational again by December 2009. But when they cut into the wall, workers found a 25-foot long crack in the concrete. The plant's focus was then to determine its cause and repair it.

The crack is now known to have been caused by a series of steel cables that were built like a web inside the containment walls. The tension of the cables — which are inside sleeves encased within the containment wall — can be adjusted to pressurize the wall and facility. That tension gives the wall its ability to flex should there be an explosion within the reactor.

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

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

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

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

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

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

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

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

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

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

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

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

Costs associated with the new crack are unknown.

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

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

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

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

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

Orlando Sentinel, March 17, 2011

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

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

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

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

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

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

Anderson Independent-Mail, March 17, 2011

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

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

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

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

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

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

#### Safety measures

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

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

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

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

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

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

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

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

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

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

By Steve Daniels

Crain's Chicago Business, March 17, 2011

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

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

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

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

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

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

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

### **LA Now**

By Molly Hennessy-Fiske

Los Angeles Times, March 17, 2011

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

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

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

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

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

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

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

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

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

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

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

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

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

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

By Rob Stein, Washington Post Staff Writer

Washington Post, March 17, 2011

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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By Julie Mason

Politico, March 17, 2011

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

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

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

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

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

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

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

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

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

By Michael Thurston

AFP, March 17, 2011

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

AFP, March 17, 2011

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Chicago Sun-Times, March 17, 2011

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

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

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

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

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

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

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

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

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

Walgreen and CVS drugstores do not sell the supplements.

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

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

By Alan K. Ota

CQ Today, March 17, 2011

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

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

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

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

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

**10-Mile Radius**

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

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

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

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

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

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

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

By Jia Lynn Yang And Steven Mufson

Washington Post, March 17, 2011

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

By Theo Emery And Donovan Slack

Boston Globe, March 17, 2011

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

By Colin McClelland

Bloomberg News, March 17, 2011

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

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

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

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

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

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

Some reactors close for maintenance and refueling during the spring and fall in the US, when demand for heating and cooling is lower. The outages can increase consumption of natural gas and coal to generate electricity.

The average US reactor refueling outage lasted 41 days in 2009, according to the Nuclear Energy Institute.

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

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

By John Russell

Indianapolis Star, March 17, 2011

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

By Steve Tracton

Washington Post, March 17, 2011

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Ron Regan

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

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

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

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

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

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

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

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

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

Meanwhile, the Veterans Administration issued this statement:

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

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

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

The Washington Times

Washington Times, March 17, 2011

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

By Alison Young, Usa Today

USA Today, March 17, 2011

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

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

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

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

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

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

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

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

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

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

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

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

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

By Joe Davidson

Washington Post, March 17, 2011

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

! Instead of cash, top performers would get “increased public recognition and greater opportunities to innovate.”

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

federaldiary@washpost.com

# **INTERNATIONAL NUCLEAR NEWS:**

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

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

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

Los Angeles Times, March 17, 2011

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

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

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

Photos: Earthquake and nuclear crisis in Japan

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Photos: Earthquake and nuclear crisis in Japan

[laura.king@latimes.com](mailto:laura.king@latimes.com)

[mark.magnier@latimes.com](mailto:mark.magnier@latimes.com)

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

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

USA Today, March 17, 2011

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Los Angeles Times, March 17, 2011

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

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

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

Photos: Earthquake and nuclear crisis in Japan

Radiation fears mingled with a sickening sense of abandonment Wednesday.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Photos: Earthquake and nuclear crisis in Japan

barbara.demick@latimes.com

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

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

By Elizabeth Weise, Usa Today

USA Today, March 17, 2011

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

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

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

As the valley opens up, an apocalyptic scene appears.

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

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

Several thousand people are listed as missing.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Kesen is virtually a ghost town.

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

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

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

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

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

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

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

By Tomoko A. Hosaka, Associated Press

Associated Press, March 17, 2011

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

CNN, March 17, 2011

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

## **Teams At Reactor Hold Back Crisis (USAT)**

By Dan Vergano

USA Today, March 17, 2011

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

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

The workers were hailed as heroes in Japan.

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

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

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

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

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

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

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

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

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

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

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

The reactors at the plant have numerous problems:

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

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

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

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

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

By Michael Winter

USA Today, March 17, 2011

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

New York Post, March 17, 2011

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

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

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

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

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

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

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

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

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

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

ABC News, March 16, 2011

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

By Kari Lundgren And Mehul Srivastava

Bloomberg News, March 17, 2011

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

By Stephanie Kirchgaessner And Richard McGregor

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

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

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

By Tennille Tracy

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

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

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

By Tom Doggett

[Reuters](#), March 17, 2011

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

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

By Eric Talmadge And Mari Yamaguchi

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Associated Press, March 17, 2011

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

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

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Japanese officials denied it.

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

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

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

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

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

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

US breaks with Japan over power plant warnings

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

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

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

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

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

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

By Tsuyoshi Inajima, Shigeru Sato

Bloomberg News, March 16, 2011

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

By David Crawford And Flemming Hansen

Wall Street Journal, March 17, 2011

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

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

By Matthew Saltmarsh

New York Times, March 17, 2011

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

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

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

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

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

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

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

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

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

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

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

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

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

Eric Dash contributed reporting from New York.

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

By Jonathan Tirone, Stuart Biggs And Simon Lomax

BusinessWeek, March 17, 2011

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

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

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

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

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

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

'Bad Movie'

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

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

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

Reconstruction Needs

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

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

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

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

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

Spent-Fuel Pools

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

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

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

Peak-Level Threat

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

# Compiled Seismic Questions for NRC Response to the March 11, 2011 Japanese Earthquake and Tsunami

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**This is current as of 3-17-11 at 2am.**

*The keeper of this file is Annie Kammerer. Please provide comments, additions and updates to Annie with CC to Clifford Munson and Jon Ake.*

*A SharePoint site has been set up so that anyone can download the latest Q&As. The site is found at NRC>NRR>NRR TA or at <http://portal.nrc.gov/edo/nrr/NRR%20TA/FAQ%20Related%20to%20Events%20Occuring%20in%20Japan/Forms/AllItems.aspx>*

*A list of topics is shown in the Table of Contents at the front of this document.*

*A list of all questions is provided at the end of the document.*

YHY/206

*We greatly appreciate the assistance of the many people who have contributed. The enclosed list of questions and answers has been compiled from multiple sources including, questions forwarded from NRC staff, GI-199 communications plan, Diablo Canyon communications plan, the NEI website, lists of questions that followed the 2007 earthquake that shut down the Kashiwazaki-Kariwa plant, and others. Please do not distribute beyond the NRC.*

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## Natural Hazards and Ground Shaking Design Levels

### 1) Did the Japanese underestimate the size of the maximum credible earthquake that could affect the plants?

**Public response:** The magnitude of the earthquake was somewhat greater than was expected for that part of the subduction zone by seismologists worldwide. The Japanese plants were recently reviewed to ground shaking similar to that observed. The review level ground motions were expected to result from a smaller earthquake closer to the sites.

**Additional, technical, non-public information:** None.

### 2) Can a very large earthquake and tsunami happen here?

**Public response:** This earthquake was caused by a “subduction zone” event, which is the type of mechanism that produces the largest magnitude earthquakes. A subduction zone is a tectonic plate boundary where one tectonic plate is pushed under another plate. In the continental US, the only subduction zone is the Cascadia subduction zone which lies off the coast of northern California, Oregon and Washington. So, an earthquake and tsunami this large could only happen in that region. The only plant in that area is Columbia, which is far from the coast and the subduction zone. Outside of the Cascadia subduction zone, earthquakes are not expected to exceed a magnitude of approximate 8, which is 10 times smaller than a magnitude 9.

**Additional, technical, non-public information:** Magnitude is on a log scale, so 9 is 10 times bigger than an 8.

### 3) Has this changed our perception of Earthquake risk?

**Public Answer:** This does not change the NRC’s perception of earthquake hazard (i.e. ground shaking) at US plants. It is too early to tell what the lessons from this earthquake are from an engineering perspective. The NRC will look closely at all aspects of response of the plants to the earthquake and tsunami to determine if any actions need to be taken in US plants and if any changes are necessary to NRC regulations.

**Additional, technical, non-public information:** We expect that there would be lessons learned and we may need to seriously relook at common cause failures, including dam failure and tsunami.

### 4) What magnitude earthquake are US plants designed to?

**Public Answer:** Each plant is designed to a ground-shaking level that is appropriate for its location, given the possible earthquake sources that may affect the site and its tectonic environment. Ground shaking is a function of both the magnitude of an earthquake and the distance from the fault to the site. The magnitude alone cannot be used to predict ground motions. The existing plants were designed on a “deterministic” or “scenario earthquake” basis that accounted for the largest earthquake expected in the area around the plant. Several tables that include plant design ground motions are provided as the first table in the “additional information” section of this document.

**Additional, technical non-public information:** In the past, “deterministic” or “scenario based” analyses were used to determine ground shaking (seismic hazard) levels. Now a probabilistic method is used that accounts for possible earthquakes of various magnitudes that come from potential sources (including background seismicity) and the likelihood that each particular hypothetical earthquake occurs.

**5) How many US reactors are located in active earthquake zones (and which reactors)?**

**Public Answer:** Although we often think of the U.S. as having “active” and “non-active” earthquake zones, earthquakes can actually happen almost anywhere. Seismologists typically separate the U.S. into low, moderate, and high seismicity zones. The NRC requires that every plant be designed for site-specific ground motions that are appropriate for their locations. In addition, the NRC has specified a minimum ground shaking level to which plants must be designed.

Seismic designs at U.S. nuclear power plants are developed in terms of seismic ground motion spectra, which are called the Safe Shutdown Earthquake ground motion response spectra (SSE). Each nuclear power plant is designed to a ground motion level that is appropriate for the geology and tectonics in the region surrounding the plant location. Currently operating nuclear power plants developed their SSEs based on a “deterministic” or “scenario earthquake” that accounts for the largest earthquake expected in the area around the plant.

Generally speaking, seismic activity in the regions surrounding U.S. plants is much lower than that for Japan since most U.S. plants are located in the interior of the stable continental U.S. However, the most widely felt earthquakes within the continental U.S. are the 1811-12 New Madrid sequence and the 1886 Charleston, SC, which were estimated to be between about magnitude 7.0 to 7.75. Nuclear power plants in the U.S. are sited far away from these two earthquake zones as well as other identified potential seismic sources.

On the west coast of the U.S., the two nuclear power plants are designed to specific ground motions from earthquakes of about magnitude 7+ on faults located just offshore of the plants. The earthquakes on these faults are mainly strike-slip (horizontal motion) type earthquakes, not subduction zone earthquakes. Therefore, the likelihood of a tsunami from these faults is remote.

**Additional, technical non-public information:** None.

**6) How many reactors are along coastal areas that could be affected by a tsunami (and which ones)?**

**Public Answer:** Many plants are located in coastal areas that could potentially be affected by tsunami. Two plants, Diablo Canyon and San Onofre, are on the Pacific Coast, which is known to have tsunami hazard. There are also two plants on the Gulf Coast, South Texas and Crystal River. There are many plants on the Atlantic Coast or on rivers that may be affected by a tidal bore resulting from a tsunami. These include St. Lucie, Turkey Point, Brunswick, Oyster Creek, Millstone, Pilgrim, Seabrook, Calvert Cliffs, Salem/Hope Creek, and Surry. Tsunami on the Gulf and Atlantic Coasts occur, but are very rare. Generally the flooding anticipated from hurricane storm surge exceeds the flooding expected from a tsunami for plants on the Atlantic and Gulf Coast.

**Additional, technical non-public information:** A table with information on tsunami design levels is provided in the “Additional Information” section of this document.

**7) If the earthquake in Japan was a larger magnitude than considered by plant design, why can't the same thing happen in the US?**

**Public response:** *Discuss in terms of, IPEEE, Seismic PRA to be provided by Nilesh*

**Additional, technical, non-public information:** ADD

**8) What if an earthquake like the Sendai earthquake occurred near a US plant?**

**Public response:** ADD

**Additional, technical, non-public information:** ADD

**9) What would be the results of a tsunami generated off the coast of a US plant? (Or why are we confident that large tsunamis will not occur relatively close to US shores?)**

**Public response:** *Request for answer by Henry Jones, Goutam Bagchi and/or Richard Raione (once the tsunami fact sheet is done and you have time).*

**Additional, technical, non-public information:** ADD

**10) Can this happen here i.e. an earthquake that significantly damages a nuclear power plant? Are the Japanese plants similar to U.S. plants?**

**Public Answer:** All U.S. nuclear power plants are built to withstand environmental hazards, including earthquakes and tsunamis. Even those plants that are located within areas with low and moderate 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 even rare and extreme seismic and tsunami events.

The Japanese facilities are similar in design to several US facilities.

**Additional technical, non-public information:** Currently operating reactors were designed using a “deterministic” or “maximum credible earthquake” approach. Seismic hazard for the new plants is determined using a probabilistic seismic hazard assessment approach that explicitly addresses uncertainty, as described in Regulatory Guide 1.208. The NRC requires that adequate margin beyond the design basis ground shaking levels is assured. The NRC further enhances seismic safety for beyond-design-basis events through the use of a defense-in-depth approach.

In addition, the NRC reviews the seismic risk at operating reactors as needed when information may have changed. Over the last few years the NRC has undertaken a program called Generic Issue 199, which is focused on assessing hazard for plants in the central and eastern US using the latest techniques and data and determining the possible risk implications of any increase in the anticipated ground shaking levels. This program will help us assure that the plants are safe under exceptionally rare and extreme ground motions that represent beyond-design-basis events.

**11) What level of earthquake hazard are the US reactors designed for?**

**Public Answer:** Each reactor is designed for a different ground motion that is determined on a site-specific basis. The existing plants were designed on a “deterministic” or “scenario earthquake” basis that accounted for the largest earthquake expected in the area around the plant. New reactors are designed using probabilistic techniques that characterize the hazard (i.e. ground shaking levels) and uncertainty at the proposed site. Ground motions from all potential seismic sources in the region are estimated and used to develop an appropriate site specific ground motion, which has a return period of 10,000 years on average over very long time periods.

**Additional technical, non-public information:** None

**12) Does the NRC consider earthquakes of magnitude 9?**

**Public Answer:** Earthquakes with very large magnitudes, such as the recent earthquake of the coast of Japan, occur only within subduction zones. Subduction zones are regions where one of the earth's

tectonic plates is subducting beneath another. In the continental US, the only subduction zone is the Cascadia subduction zone, which lies off of the coast of northern California, Oregon, and Washington. The only nuclear power plant in that area is Columbia, which is far from the coast and the subduction zone.

Seismic designs at U.S. nuclear power plants are developed in terms of seismic ground motion spectra, which are called the Safe Shutdown Earthquake ground motion response spectra (SSE). Each nuclear power plant is designed to a ground motion level that is appropriate for the geology and tectonics in the region surrounding the plant location. Currently operating nuclear power plants developed their SSEs based on a "deterministic" or "scenario earthquake" basis that account for the largest earthquake expected in the area around the plant. Seismic activity in the regions surrounding U.S. plants is much lower than that for Japan since most U.S. plants are located in the interior of the stable continental U.S. The largest earthquakes within the continental U.S. are the 1811-12 New Madrid sequence and the 1886 Charleston, SC, which were estimated to be between about magnitude 7 to 7.5. On the west coast of the U.S., the two nuclear power plants are designed to specific ground motions from earthquakes of about magnitude 7 on faults located just offshore of the plants. The earthquakes on these faults are mainly strike-slip (horizontal motion) type earthquakes, not subduction zone earthquakes. Therefore, the likelihood of a tsunami from these faults is very remote.

**Additional technical, non-public information:** None.

**13) What are the definitions of the SSE and OBE?**

**CLEAN UP BELOW information – late question**

From RG1.208 Safe Shutdown Earthquake Ground Motion (SSE). The vibratory ground motion for which certain structures, systems, and components are designed, pursuant to Appendix S to 10 CFR Part 50, to remain functional. The SSE for the site is characterized by both horizontal and vertical free-field ground motion response spectra at the free ground surface

Appendix S to 10 CFR Part 50 (3) has the following information: Required Plant Shutdown. If vibratory ground motion exceeding that of the Operating Basis Earthquake Ground Motion or if significant plant damage occurs, the licensee must shut down the nuclear power plant. If systems, structures, or components necessary for the safe shutdown of the nuclear power plant are not available after the occurrence of the Operating Basis Earthquake Ground Motion, the licensee must consult with the Commission and must propose a plan for the timely, safe shutdown of the nuclear power plant. Prior to resuming operations, the licensee must demonstrate to the Commission that no functional damage has occurred to those features necessary for continued operation without undue risk to the health and safety of the public and the licensing basis is maintained.

The the ratio is provided in guidance as the ratio that the licensees can chose without additional analysis. The OBE mostly used to be half for existing plants, but now it's a 1/3 unless you do analyses to show why it should be 1/2.

<b>Definition of Safe Shutdown Earthquake</b>	The safe-shutdown earthquake (SSE) for the site is the ground motion response spectra (GMRS), which also satisfies the minimum requirement of paragraph IV(a)(1)(i) of Appendix S, "Earthquake Engineering Criteria for Nuclear Power Plants," to Title 10, Part 50, "Domestic Licensing of Production and Utilization Facilities," of the Code of Federal Regulations (10 CFR Part 50).
<b>Definition of Operating Basis Earthquake:</b>	To satisfy the requirements of paragraph IV(a)(2)(A) of Appendix S to 10 CFR Part 50, the operating-basis earthquake (OBE) ground motion is defined as follows:  (i) For the certified design portion of the plant, the OBE ground motion is one-third

	(ii)	of the CSDRS. For the safety-related noncertified design portion of the plant, the OBE ground motion is one-third of the design motion response spectra, as stipulated in the design certification conditions specified in design control document (DCD).
	(iii)	The spectrum ordinate criterion to be used in conjunction with Regulatory Guide 1.166, "Pre-Earthquake Planning and Immediate Nuclear Power Plant Operator Post-earthquake Actions," issued March 1997, is the lowest of (i) and (ii).

**14) What is the likelihood of the design basis or "SSE" ground motions being exceeded over the life of the plant?**

To estimate the probability of exceeding a specified ground motion level, such as an SSE, during a given time interval, the Poisson model is generally used. Using seismic hazard curves from the 2008 US Geological Survey National Seismic Hazard Map and assuming a 60-year life for a typical nuclear power plant, we can estimate the probability of exceeding the SSE over the life of the plant. The NRC recently performed these estimates as part of its GI-199 program (see Questions 54-59). The mean probability value for the plants in the Central and Eastern United States is less than 2%, with values ranging from a low of 0.1% to a high of 6%.

It is important to remember that there is margin above the design basis. In the mid to late 1990s, the NRC staff reviewed the potential for ground motions beyond the design basis as part of the Individual Plant Examination of External Events (IPEEE). From this review, the staff determined that seismic designs of operating plants in the United States have adequate safety margins for withstanding earthquakes built into the designs.

**15) What is magnitude anyway? What is the Richter Scale? What is intensity?**

ADD

**16) We need to pull Q&As out of the Markey/Capp letter of March 15<sup>th</sup>...there's a lot there to answer...**

ADD

**17) How do magnitude and ground motion relate to each other?**

ADD

**18) How are combined seismic and tsunami events treated in risk space? Are they considered together?**

the PRA Standard (ASME/ANS-Ra-Sa2009) does address the technical requirements for both seismic events and tsunamis (tsunami hazard under the technical requirements for external flooding analysis). But together? The standard does note that uncertainties associated with probabilistic analysis of tsunami hazard frequency are large and that an engineering analysis can usually be used to screen out tsunamis.

**19) How are aftershocks treated in terms of risk assessment?**

Seismic PRAs do not consider the affect of aftershocks since there are not methods to predict equipment fragility after the first main shock.

## Design Against Natural Hazards & Plant Safety in the US

### 21) Are power plants designed for Tsunami's?

**Public Answer:** Yes. Plants are built to withstand a variety of environmental hazards and those plants that might face a threat from tsunami are required to withstand large waves and the maximum wave height at the intake structure (which varies by plant.)

**Additional, technical, non-public information:** Tsunami are considered in the design of US nuclear plants. Nuclear plants are designed to withstand flooding from not only tsunami, but also hurricane and storm surge; therefore there is often significant margin against tsunami flooding. However, it should be noted that Japanese experience has shown that drawdown can be a significant problem.

Currently the US NRC has a tsunami research program that is focused on developing modern hazard assessment techniques and additional guidance through cooperation with the National Oceanic and Atmospheric Administration and the United States Geological Survey. This has already lead to several technical reports and an update to NUREG 0-800. The NOAA and USGS contractors are also assisting with NRO reviews of tsunami hazard. A new regulatory guide on tsunami hazard assessment is currently planned in the office of research, although it is not expected to be available in draft form until 2012.

### 22) What level of Tsunami are we designed for?

**Public Answer:** Like seismic hazard, the level of tsunami that each plant is designed for is site-specific and is appropriate for what may occur at each location.

**Additional, technical, non-public information:** None.

### 23) Which plants are close to known active faults? What are the faults and how far away are they from the plants?

**Public Answer:** Jon to develop answer with Dogan's help. I created a placeholder table for your use "Table of Plants Near Known Active Faults" to be populated in the additional information section. The plots that Dogan made are in the additional information section under "Plot of Mapped Active Quaternary Faults and Nuclear Plants in the US". This is really high priority after the congressional hearings.

**Additional, technical, non-public information:** ADD

### 24) How was the seismic design basis for an existing nuclear power plant established?

**Public Answer:** The seismic ground motion used for the design basis was determined from the evaluation of the maximum historic earthquake within 200 miles of the site, without explicitly considering the time spans between such earthquakes; safety margin was then added beyond this maximum historic earthquake to form a hypothetical *design basis earthquake*. The relevant regulation for currently operating plants is 10 CFR Part 100, Appendix A, "Seismic and Geologic Siting Criteria for Nuclear Power Plants" (<http://www.nrc.gov/reading-rm/doc-collections/cfr/part100/part100-appa.html>).

**Additional, technical, non-public information:** See discussion at end of GI-199 section for discussion of safety margin and design basis.

**25) Is there margin above the design basis?**

**Public Answer:** Yes, there is margin beyond the design basis). In the mid to late 1990s, NRC staff reviewed the plants' assessments of potential consequences of severe earthquakes (earthquakes beyond the safety margin included in each plant's design basis), which licensees performed as part of the Individual Plant Examination of External Events (or IPEEE) program. From this review, the staff determined that seismic designs of operating plants in the United States have adequate safety margins, for withstanding earthquakes, built into the designs.

**Additional, technical, non-public information:** None.

**26) Are US plants safe?**

**Public Answer:** US plants are designed for appropriate earthquake shaking levels and are safe. Currently the NRC is also conducting a program called Generic Issue 199, which is reviewing the adequacy of earthquake design of US NPPs in the central and eastern North America based on the latest data and analysis techniques.

**Additional, technical, non-public information:** None.

**27) Was the Japanese plant designed for this type of accident? Are US plants?**

**Public Answer:** Plants in both the US and Japan area designed for earthquake shaking. In addition to the design of the plants, significant effort goes into emergency response planning and accident mitigation. This approach is called defense-in-depth.

**Additional, technical, non-public information:** None.

**28) Why do we have confidence that US nuclear power plants are adequately designed for earthquakes and tsunamis?**

**Public Answer:** Plants in both the US and Japan area designed for earthquake shaking. In addition to the design of the plants, significant effort goes into emergency response planning and accident mitigation. This approach is called defense-in-depth.

**Additional, technical, non-public information:** None.

**29) Can this happen here i.e. an earthquake that significantly damages a nuclear power plant? Are the Japanese plants similar to U.S. plants?**

**Public Answer:** All U.S. nuclear power plants are built to withstand environmental hazards, including earthquakes and tsunamis. Even those plants that are located within areas with low and moderate 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 even rare and extreme seismic and tsunami events Nuclear power plants are designed to be safe based on the most severe natural phenomena historically reported for the site and surrounding area. The Japanese facilities are similar in design to several US facilities.

**Additional technical, non-public information:** Currently operating reactors were designed using a "deterministic" or "maximum credible earthquake" approach. Seismic hazard for the new plants is determined using a probabilistic seismic hazard assessment approach that explicitly addresses uncertainty, as described in Regulatory Guide 1.208. The NRC requires that adequate margin beyond the design basis ground shaking levels is assured. The NRC further enhances seismic safety for beyond-design-basis events through the use of a defense-in-depth approach.

In addition, the NRC reviews the seismic risk at operating reactors as needed when information may have changed. Over the last few years the NRC has undertaken a program called Generic Issue 199, which is focused on assessing hazard for plants in the central and eastern US using the latest techniques and data and is determining the possible risk implications of any increase in the anticipated ground shaking levels. This program will help us assure that the plants are safe under exceptionally rare and extreme ground motions that represent beyond-design-basis events.

The reactor design is a Boiling Water Reactor that is similar to some U.S. designs, including Oyster Creek, Nine Mile Point and Dresden Units 2 and 3.

**30) Could an accident like the one at Japan's Fukushima Daiichi nuclear plant happen in the United States?**

**Public response:** It is difficult to answer this question until we have a better understanding of the precise problems and conditions that faced the operators at Fukushima Daiichi. We do know, however, that Fukushima Daiichi Units 1-3 lost all offsite power and emergency diesel generators. This situation is called "station blackout." U.S. nuclear power plants are designed to cope with a station blackout event that involves a loss of offsite power and onsite emergency power. The Nuclear Regulatory Commission's detailed regulations address this scenario. U.S. nuclear plants are required to conduct a "coping" assessment and develop a strategy to demonstrate to the NRC that they could maintain the plant in a safe condition during a station blackout scenario. These assessments, proposed modifications and operating procedures were reviewed and approved by the NRC. Several plants added additional AC power sources to comply with this regulation.

In addition, U.S. nuclear plant designs and operating practices since the terrorist events of September 11, 2001, are designed to mitigate severe accident scenarios such as aircraft impact, which include the complete loss of offsite power and all on-site emergency power sources.

U.S. nuclear plant designs include consideration of seismic events and tsunamis'. It is important not to extrapolate earthquake and tsunami data from one location of the world to another when evaluating these natural hazards. These catastrophic natural events are very region- and location-specific, based on tectonic and geological fault line locations.

**Additional technical, non-public information:** None

**31) Should U.S. nuclear facilities be required to withstand earthquakes and tsunamis of the kind just experienced in Japan? If not, why not?**

**Public response:** U.S. nuclear reactors are designed to withstand an earthquake equal to the most significant historical event or the maximum projected seismic event and associated tsunami without any breach of safety systems.

The lessons learned from this experience must be reviewed carefully to see whether they apply to U.S. nuclear power plants. It is important not to extrapolate earthquake and tsunami data from one location of the world to another when evaluating these natural hazards, however. These catastrophic natural events are very region- and location-specific, based on tectonic and geological fault line locations.

The U.S. Geological Survey (USGS) conducts continuous research of earthquake history and geology, and publishes updated seismic hazard curves for various regions in the continental US. These curves are updated approximately every six years. NRC identified a generic issue (GI-199) that is currently undergoing an evaluation to assess implications of this new information to nuclear plant sites located in the central and eastern United States. The industry is working with the NRC to address this issue.

**Additional technical, non-public information:** None

**32) Can you summarize the plant seismic design basis for the US plants? Are there any special issues associated with seismic design?**

**Public response:** Please see one of the several tables provided in the "Additional information" section of this document

**Additional, technical, non-public information:** None

**33) How do we know that the equipment in plants is safe in earthquakes?**

**Public response:** All equipment important to safety (required to safely shutdown a nuclear power plant) is qualified to withstand earthquakes in accordance with plants' licensing basis and NRC regulations.

**Additional, technical, non-public information:** 10 CFR 50, Appendix A, General Design Criterion 2 and 4, 10 Part 100, and Appendix S. Guidance: Regulatory Guides 1.100, IEEE 344 and ASME QME-1

**34) How do we know equipment will work if the magnitude is bigger than expected, like in Japan?**

**Public response:** Plant systems are designed to mitigate a design basis earthquake which includes margin above the postulated site specific earthquake. (reviewers comment: this needs to be expanded)

**Additional, technical, non-public information:** See part 100 Reactor Site Criteria

**35) Are US plants susceptible to the same kind of loss of power as happened in Japan?**

**Public response:** NRC recognized that there is the possibility of a total loss of AC power at a site, called a 'Station Blackout', or SBO. Existing Regulations require the sites to be prepared for the possibility of an SBO. In addition to battery powered back-up system to immediately provide power for emergency systems, NRC regulations require the sites to have a detailed plan of action to address the loss of AC power while maintaining control of the reactor.

There has also been an understanding that sites can lose offsite power as well. Of course, this can be caused by earthquake. However, hurricane- or tornado-related high winds may potentially damage the transmission network in the vicinity of a nuclear plant as well. Flood waters can also affect transformers used to power station auxiliary system. These types of weather related events have the potential to degrade the offsite power source to a plant.

The onsite Emergency Diesel Generators need fuel oil stored in tanks that are normally buried underground. These tanks and associated pumps/piping require protection from the elements. Above ground tanks have tornado/missile protection.

In case both offsite and onsite power supplies fail, NRC has required all licensee to evaluate for a loss of all AC power (station blackout) scenario and implement coping measures to safely shutdown the plant law 10 CFR 50.63.

**Additional, technical, non-public information:** Some plants have safeguards equipment below sea level and rely on watertight doors or Bilge pumps to remove water from equipment required to support safe shutdown. Overflowing rivers can result in insurmountable volume of water flooding the vulnerable areas. SBO definition in 10CFR50.2, SBO plan requirements in 10CFR50.63

**36) How do we know that the EDGs in Diablo Canyon and SONGS will not fail to operate like in Japan?**

**Public response:** EDGs are installed in a seismically qualified structure. Even if these EDGs fail, plants can safely shutdown using station blackout power source law 10 CFR 50.63.

**Additional, technical, non-public information:** None.

**37) Is all equipment at the plant vulnerable to tsunami?**

**Public response:** Plants are designed law GDC 2 to withstand protection against natural phenomena such as tsunami, earthquakes. (reviewers comment: this needs to be expanded. I need assistance with this)

**Additional, technical, non-public information:** ADD

**38) What protection measures do plants have against tsunami?**

**Public response:** Plants are designed law GDC 2 to withstand protection against natural phenomena such as tsunami, earthquakes. (note from reviewer: add information on breakwater from songs and Diablo example. I need assistance with this)

**Additional, technical, non-public information:** ADD

**39) Is there a risk of loss of water during tsunami drawdown? Is it considered in design?**

**Public response:** *Goutam, Henry and Rich, can you guys answer this?*

**Additional, technical, non-public information:** ADD

**40) Are nuclear buildings built to withstand earthquakes? What about tsunami?**

**Public response:** *There is language elsewhere in this document that answers that...copy here.*

**Additional, technical, non-public information:** ADD

**41) Are aftershocks considered in the design of equipment at the plants? Are aftershocks considered in design of the structure?**

**Public response:** ADD

**Additional, technical, non-public information:** ADD

**42) Are there any special issues associated with seismic design at the plants? For example, Diablo Canyon has special requirements. Are there any others?**

**Public response:** Both SONGS and Diablo canyon are licensed with an automatic trip for seismic events. (can this be expanded? any others?) *Mike Markley, can your group assist with this?*

**Additional, technical, non-public information:** ADD

**43) Is the NRC planning to require seismic isolators for the next generation of nuclear power plants? How does that differ from current requirements and/or precautions at existing U.S. nuclear power plants?**

**Public response:** The NRC would not require isolators for the next generation of plants. However, it is recognized that a properly designed isolation system can be very effective in mitigating the effect of

earthquake. Currently the NRC is preparing guidance for plant designers considering the use of seismic isolation devices.

**Additional, technical, non-public information:** A NUREG is in the works in the office of research. It is expected to be available for comment in 2011.

**44) Are there any U.S. nuclear power plants that incorporate seismic isolators? What precautions are taken in earthquake-prone areas?**

**Public response:** No currently constructed nuclear power plants in the US use seismic isolators. However seismic isolation is being considered for a number of reactor designs under development. Currently seismic design of plants is focused on assuring that design of structures, systems, and components are designed and qualified to assure that there is sufficient margin beyond the design basis ground motion.

**Additional, technical, non-public information:** None.

**45) Do you think that the recent Japan disaster will cause any rethinking of the planned seismic isolation guidelines, particularly as it regards earthquakes and secondary effects such as tsunamis?**

**Public response:** Whenever an event like this happens, the NRC thoroughly reviews the experience and tries to identify any lessons learned. The NRC further considers the need to change guidance or regulations. In this case, the event will be studied and any necessary changes will be made to the guidance under development. However, it should be noted that Japan does not have seismically isolated nuclear plants.

**Additional, technical, non-public information:** None.

## About Japanese Hazard, Design and Earthquake Impact

### 46) Was the damage done to the plants from the Earthquake or the Tsunami?

**Public response:** It is hard to tell at this point. In the nuclear plants there seems to have been some damage from the shaking. However, the tsunami lead to some of the biggest problems in terms of the loss of backup power. This is also true in the general population; the tsunami seems to have lead to most of the deaths.

**Additional, technical, non-public information:** None

### 47) What is the design level of the Japanese plants? Was it exceeded?

**Public response:** As a result of a significant change in seismic regulations in 2006, the Japanese regulator initiated a program to reassess seismic hazard and seismic risk for all nuclear plants in Japan. This resulted in new assessments of higher ground shaking levels (i.e. seismic hazard) and a review of seismic safety for all Japanese plants. The program is still on-going, but has already resulted in retrofit in some plants. Therefore, it is useful to discuss both the design level and a review level ground motion for the plants, as shown below.

Currently we do not have official information. However, it appears that the ground motions (in terms of peak ground acceleration) are similar to the  $S_s$  shaking levels, although the causative earthquakes are different. Thus the design basis was exceeded, but the review level may not have been.

**Table: Original Design Basis Ground Motions ( $S_2$ ) and New Review Level Ground Motions ( $S_s$ ) Used for Review of Japanese Plants**

Plant sites	Contributing earthquakes used for determination of hazard	New DBGGM $S_s$	Original DBGGM $S_2$
Onagawa	Soutei Miyagiken-oki (M8.2)	580 gal (0.59g)	375 gal (0.38g)
Fukushima	Earthquake near the site (M7.1)	600 gal (0.62g)	370 gal (0.37g)
Tokai	Earthquakes specifically undefined	600 gal (0.62g)	380 gal (0.39g)
Hamaoka	Assumed Tokai (M8.0), etc.	800 gal (0.82g)	600 gal (0.62g)

**Additional, technical, non-public information:** None

### 48) What are the Japanese $S_1$ and $S_s$ ground motions and how are they determined?

**Public response:** Japanese nuclear power plants are designed to withstand specified earthquake ground motions, previously specified as  $S_1$  and  $S_2$ , but now simply  $S_s$ . The design basis earthquake ground motion  $S_1$  was defined as the largest earthquake that can reasonably be expected to occur at the site of a nuclear power plant, based on the known seismicity of the area and local faults that have shown activity during the past 10,000 years. A power reactor could continue to operate safely during an  $S_1$  level earthquake, though in practice they are set to trip at lower levels. The  $S_2$  level ground motion was based on a larger earthquake from faults that have shown activity during the past 50,000 years and assumed to be closer to the site. The revised seismic regulations in May 2007 replaced  $S_1$  and  $S_2$  with  $S_s$ .

The S<sub>5</sub> design basis earthquake is based on evaluating potential earthquakes from faults that have shown activity during the past 130,000 years. The ground motion from these potential earthquakes are simulated for each of the sites and used to determine the revised S<sub>5</sub> design basis ground motion level. Along with the change in definition, came a requirement to consider “residual risk”, which is a consideration of the beyond-design-basis event.

**Additional, technical, non-public information:** None

**49) Did this earthquake affect Kashiwazaki-Kariwa NPP?**

**Public response:** No, this earthquake did not affect Kashiwazaki-Kariwa NPP and all reactors remained in their pre-earthquake operating state. It also did not trip during an earthquake of magnitude ~~XX~~ that occurred on the western side subsequent to the 8.9 earthquake. This is very important for the stability of Japan’s energy supply due to the loss of production at TEPCO’s Fukushima NPPs.

**Additional, technical, non-public information:** None

**50) How high were the tsunami at the plants?**

**Public response:** The actual tsunami height at the plants is not currently known. However, NOAA has publically information on the recordings at sea for many areas.

**Additional, technical, non-public information:** A preliminary rough estimate of tsunami height at the plant locations was provided to NRC by NOAA shortly after the earthquake. This was developed using NOAA’s global ocean model and is shown in the “additional information” section. Most notably, there was a 6 meter wave at Fukushima and the wave at Onogawa may have been between 18 and 23 meters.

**51) Wikileaks has a story that quotes US embassy correspondence and some un-named IAEA expert stating that the Japanese were warned about this ... Does the NRC want to comment?**

<http://www.dailymail.co.uk/news/article-1366721/Japan-tsunami-Government-warned-nuclear-plants-withstand-earthquake.html>

**Public response:** TBD Annie to explain the history of their recent retrofit program.

**Additional, technical, non-public information:** The article talks about that the plants and that were checked for a M=7, but the earthquake was a 9. The reality is the 7 close in (that they assumed) had similar ground motions to a 9 farther away. They did check (and retrofit) the plant to the ground motions that they probably saw (or nearly). The problem was the tsunami. We probably need a small write up so that staff understands, even if we keep it internal.

## What happened in US Plants during the earthquake?

**52) Was there any damage to U.S. reactors from either the earthquake or the resulting tsunami?**

**Public Answer:** No

**Additional, technical non-public information:** Two US plants on the Pacific Ocean (Diablo Canyon and San Onofre) experienced higher than normal sea level due to tsunami. However, the wave heights were consistent with previously predicted levels and this had no negative impact to the plants. In response, Diablo Canyon Units 1 and 2 declared an "unusual event" based on tsunami warning following the Japanese earthquake. They have since exited the "unusual event" declaration, based on a downgrade to a tsunami advisory.

**53) Have any lessons for US plants been identified?**

**Public Answer:** The NRC is in the process of following and reviewing the event in real time. This, inevitably, leads to the indemnification of lessons that warrant further study. However, a complete understanding of lessons learned requires more information than is currently available to NRC staff.

**Additional, technical non-public information:** We need to take a closer look at common cause failures, such as earthquake and tsunami, and earthquake and dam failure.

## Future Actions, Reassessment of US Plants and GI-199

### 54) What is the NRC doing about the emergencies at the nuclear power plants in Japan? Are you sending staff over there?

**Public Answer:** We are closely following events in Japan, working with other agencies of the federal government, and have been in direct contact with our counterparts in that country. In addition, we are ready to provide assistance if there is a specific request. An NRC staffer is participating in the USAID team headed to Japan.

**Additional technical, non-public information:** We are taking the knowledge that the staff has about the design of the US nuclear plants and we are applying this knowledge to the Japan situation. For example, this includes calculations of severe accident mitigation that have been performed.

### 55) With NRC moving to design certification, at what point is seismic capability tested – during design or modified to be site-specific? If in design, what strength seismic event must these be built to withstand?

**Public Answer:** During design certification, vendors propose a seismic design in terms of a ground motion spectrum for their nuclear facility. This spectrum is called a standard design response spectrum and is developed so that the proposed nuclear facility can be sited at most locations in the central and eastern United States. The vendors show that this design ground motion is suitable for a variety of different subsurface conditions such as hard rock, deep soil, or shallow soil over rock. Combined License and Early Site Permits applicants are required to develop a site specific ground motion response spectrum that takes into account all of the earthquakes in the region surrounding their site as well as the local site geologic conditions. Applicants estimate the ground motion from these postulated earthquakes to develop seismic hazard curves. These seismic hazard curves are then used to determine a site specific ground motion response spectrum that has a maximum annual likelihood of  $1 \times 10^{-4}$  of being exceeded. This can be thought of as a ground motion with a 10,000 year return period. This site specific ground motion response spectrum is then compared to the standard design response spectrum for the proposed design. If the standard design ground motion spectrum envelopes the site specific ground motion spectrum then the site is considered to be suitable for the proposed design. If the standard design spectrum does not completely envelope the site specific ground motion spectrum, then the COL applicant must do further detailed structural analysis to show that the design capacity is adequate. Margin beyond the standard design and site specific ground motions must also be demonstrated before fuel loading can begin.

**Additional technical, non-public information:** None.

### 56) Can we get the rankings of the plants in terms of safety? (Actually this answer should be considered any time GI-199 data is used to “rank” plants)

The objective of the GI-199 Safety/Risk Assessment was to perform a conservative, screening-level assessment to evaluate if further investigations of seismic safety for operating reactors in the central and eastern U.S. (CEUS) are warranted consistent with NRC directives. The results of the GI-199 SRA should not be interpreted as definitive estimates of plant-specific seismic risk. The nature of the information used (both seismic hazard data and plant-level fragility information) make these estimates useful only as a screening tool. The NRC does not rank plants by seismic risk.

Currently operating nuclear plants in the United States 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 Generic Issue 199 Screening Panel. Existing plants were designed with considerable margin to be able to withstand the ground motions from the "deterministic" or "scenario earthquake" that accounted for the largest earthquake expected in the area around the plant. During the mid-to late-1990s, the NRC staff reassessed the margin beyond the design basis as part of the Individual Plant Examination of External Events (IPEEE) program. The results of the GI-199 assessment demonstrate that the probability of exceeding the design basis ground motion may have increased at some sites, but only by a relatively small amount. In addition, the Safety/Risk Assessment stage results indicate that the probabilities of seismic core damage are lower than the guidelines for taking immediate action.

**57) Is the earthquake safety of US plants reviewed once the plants are constructed?**

**Public response:** Yes, earthquake safety is reviewed during focused design inspections, under the Generic Issues Program (GI-199) and as part of the Individual Plant Evaluation of External Events program (IPEEE) that was conducted in response to Generic Letter 88-20 Supplement 4.

**Additional, technical, non-public information:** None.

**58) Does the NRC ever review tsunami risk for existing plants?**

**Public Answer:** The NRC has not conducted a generic issue program on tsunami risk to date. However, some plants have been reviewed as a result of the application for a license for a new reactor. In the ASME/ANS 2009 seismic probabilistic risk assessment standard, all external hazards are included.

**Additional, technical, non-public information:** None.

**59) Does GI-199 consider tsunami?**

**Public response:** GI-199 stems from the increased in perceived seismic hazard focused on understanding the impact of increased ground motion on the risk at a plant. GI-199 does not consider tsunami

**Additional, technical, non-public information:** In the past there has been discussion about a GI program on tsunami, but the NRC's research and guidance was not yet at the point it would be effective. We are just getting to this stage and the topic should be revisited.

**60) What is Generic Issue 199 about?**

**Public Answer:** Generic Issue 199 investigates the safety and risk implications of updated earthquake-related data and models. These data and models suggest that the probability for earthquake ground shaking above the seismic design basis for some nuclear power plants in the Central and Eastern United States is still low, but larger than previous estimates.

**Additional, technical, non-public information:** See additional summary/discussion of GI-199 and terms below.

**61) Where can I get current information about Generic Issue 199?**

**Public Answer:** The public NRC Generic Issues Program (GIP) website (<http://www.nrc.gov/about-nrc/regulatory/gen-issues.html>) contains program information and documents, background and historical information, generic issue status information, and links to related programs. The latest Generic Issue Management Control System quarterly report, which has regularly updated GI-199 information, is publicly available at <http://www.nrc.gov/reading-rm/doc-collections/generic->

[issues/quarterly/index.html](http://issues/quarterly/index.html). Additionally, the U.S. Geological Survey provides data and results that are publicly available at <http://earthquake.usgs.gov/hazards/products/conterminous/2008/>.

**Additional, technical, non-public information:** The GI-199 section of the NRC internal GIP website (<http://www.internal.nrc.gov/RES/projects/GIP/Individual%20GIs/GI-0199.html>) contains additional information about Generic Issue 199 (GI-199) and is available to NRC staff.

**62) How was the seismic design basis for an existing nuclear power plant established?**

**Public Answer:** The seismic ground motion used for the design basis was determined from the evaluation of the maximum historic earthquake within 200 miles of the site, without explicitly considering the time spans between such earthquakes; safety margin was then added beyond this maximum historic earthquake to form a hypothetical *design basis earthquake*. The relevant regulation for currently operating plants is 10 CFR Part 100, Appendix A, "Seismic and Geologic Siting Criteria for Nuclear Power Plants" (<http://www.nrc.gov/reading-rm/doc-collections/cfr/part100/part100-appa.html>).

**Additional, technical, non-public information:** See discussion at end of GI-199 section for discussion of safety margin and design basis.

**63) Is there margin above the design basis?**

**Public Answer:** Yes, there is margin beyond the design basis. In the mid to late 1990s, NRC staff reviewed the plants' assessments of potential ground motion beyond the safety margin included in each plant's design basis, which licensees performed as part of the Individual Plant Examination of External Events (or IPEEE) program. From this review, the staff determined that seismic designs of operating plants in the United States have adequate safety margins, for withstanding earthquakes, built into the designs.

**Additional, technical, non-public information:** The goal of seismic engineering is to design structures, systems and components that explicitly do not fail at the design level. The application of specific codes, standards, and analysis techniques results in margin beyond the design level. The assessments carried out as part of the IPEEE program demonstrated that margin exists in the operating reactors against seismic demand.

**64) Are all U.S. plants being evaluated as a part of Generic Issue 199?**

**Public Answer:** The scope of the Generic Issue 199 (GI-199) Safety/Risk Assessment is limited to all plants in the Central and Eastern United States. Although plants at the Columbia, Diablo Canyon, Palo Verde, and San Onofre sites are not included in the GI-199 Safety/Risk Assessment, the Information Notice on GI-199 is addressed to all operating power plants in the U.S. (as well as all independent spent fuel storage installation licensees). The staff will also consider inclusion of operating reactors in the Western U.S. in its future generic communication information requests.

**Additional, technical, non-public information:** The staff is currently developing specific information needs to be included in a Generic Letter to licensees in the CEUS.

**65) Are the plants safe? If you are not sure they are safe, why are they not being shut down? If you are sure they are safe, why are you continuing evaluations related to this generic issue?**

**Public Answer:** Yes, currently operating nuclear plants in the United States remain safe, with no need for immediate action. This determination is based on NRC staff reviews associated with Early Site

Permits and updated seismic hazard information, the conclusions of the Generic Issue 199 Screening Panel (comprised of technical experts), and the conclusions of the Safety/Risk Assessment Panel (also comprised of technical experts).

No immediate action is needed because: (1) existing plants were designed to withstand anticipated earthquakes with substantial design margins, as confirmed by the results of the Individual Plant Examination of External Events program; (2) the probability of exceeding the *safe shutdown earthquake* ground motion may have increased at some sites, but only by a relatively small amount; and (3) the Safety/Risk Assessment Stage results indicate that the probabilities of seismic core damage are lower than the guidelines for taking immediate action.

Even though the staff has determined that existing plants remain safe, the Generic Issues Program criteria (Management Directive 6.4) direct staff to continue their analysis to determine whether any cost-justified plant improvements can be identified to make plants enhance plant safety.

**Additional, technical, non-public information :** The Safety/Risk Assessment results confirm that plants are safe. The relevant risk criterion for GI-199 is total *core damage frequency* (CDF). The threshold for taking immediate regulatory action (found in NRR Office Instruction LIC-504, see below) is a total CDF greater than or on the order of  $10^{-3}$  (0.001) per year. For GI-199, the staff calculated seismic CDFs of  $10^{-4}$  (0.0001) per year and below for nuclear power plants operating in the Central and Eastern U.S. (CEUS) (based on the new U.S. Geological Survey seismic hazard curves). The CDF from internal events (estimated using the staff-developed Standardized Plant Analysis of Risk models) and fires (as reported by licensees during the IPEEE process and documented in NUREG-1742), when added to the seismic CDF estimates results in the total risk for each plant to be, at most,  $4 \times 10^{-4}$  (0.0004) per year or below. This is well below the threshold (a CDF of  $10^{-3}$  [0.001] per year) for taking immediate action. Based on the determination that there is no need for immediate action, and that this issue has not changed the licensing basis for any operating plant, the CEUS operating nuclear power plants are considered safe. In addition, as detailed in the GI-199 Safety/Risk Assessment there are additional, qualitative considerations that provide further support to the conclusion that plants are safe.

Note: The NRC has an integrated, risk-informed decision-making process for emergent reactor issues (NRR Office Instruction LIC-504, ADAMS Accession No. ML100541776 [not publically available]). In addition to deterministic criteria, LIC-504 contains risk criteria for determining when an emergent issue requires regulatory action to place or maintain a plant in a safe condition.

#### **66) What do you mean by “increased estimates of seismic hazards” at nuclear power plant sites?**

**Public Answer:** *Seismic hazard* (earthquake hazard) represents the chance (or probability) that a specific level of ground shaking could be observed or exceeded at a given location. Our estimates of seismic hazard at some Central and Eastern United States locations have changed based on results from recent research, indicating that earthquakes occurred more often in some locations than previously estimated. Our estimates of seismic hazard have also changed because the models used to predict the level of ground shaking, as caused by a specific magnitude earthquake at a certain distance from a site, changed. The increased estimates of seismic hazard at some locations in the Central and Eastern United States were discussed in a memorandum to the Commission, dated July 26, 2006. (The memorandum is available in the NRC Agencywide Documents Access and Management System [ADAMS] under Accession No. ML052360044).

**Additional, technical, non-public information:** See additional discussion of terms below.

67) What do the following terms mean?

- Annual exceedance frequency
- Core damage frequency
- Design basis earthquake or safe shutdown earthquake
- Ground acceleration
- High confidence of low probability of failure capacity
- Large early release frequency
- Seismic hazard
- Seismic margin
- Seismic risk

**Public Answer:** The terms are defined as follows:

**Annual exceedance frequency (AEF)** – Number of times per year that a site’s ground motion is expected to exceed a specified acceleration.

**Core damage frequency (CDF)** – Expected number of core damage events per unit of time. *Core damage* refers to the uncover and heat-up of the reactor core, to the point that prolonged oxidation and severe fuel damage are not only anticipated but also involve enough of the core to result in off-site public health effects if released. *Seismic core damage frequency* refers to the component of total CDF that is due to seismic events.

**Design basis earthquake or safe shutdown earthquake (SSE)** – A *design basis earthquake* is a commonly employed term for the *safe shutdown earthquake (SSE)*; the SSE is the earthquake ground shaking for which certain structures, systems, and components are designed to remain functional. In the past, the SSE has been commonly characterized by a standardized spectral shape associated with a peak *ground acceleration* value.

**Ground acceleration** – Acceleration produced at the ground surface by seismic waves, typically expressed in units of *g*, the acceleration of gravity at the earth’s surface.

**High confidence of low probability of failure (HCLPF) capacity** – A measure of *seismic margin*. In *seismic risk* assessment, *HCLPF capacity* is defined as the earthquake motion level, at which there is high confidence (95%) of a low probability (at most 5%) of failure of a structure, system, or component.

**Large early release frequency (LERF)** – The expected number of large early releases per unit of time. A *large early release* is the rapid, unmitigated release of airborne fission products from the containment building to the environment, occurring before the effective implementation of off-site emergency response and protective actions, such that there is a potential for early health effects. *Seismic large early release frequency* refers to the component of total LERF that is due to seismic events.

**Seismic hazard** – Any physical phenomenon, such as ground motion or ground failure, that is associated with an earthquake and may produce adverse effects on human activities (such as posing a risk to a nuclear facility).

**Seismic margin** – The difference between a plant’s capacity and its seismic design basis (*safe shutdown earthquake, or SSE*).

**Seismic risk** – The risk (frequency of occurrence multiplied by its consequence) of severe earthquake-initiated accidents at a nuclear power plant. A severe accident is an accident that causes core damage, and, possibly, a subsequent release of radioactive materials into the environment. Several risk metrics may be used to express *seismic risk*, such as *seismic core damage frequency* and *seismic large early release frequency*.

**68) Let's say there's an estimate expressed as "2.5E-06." (I'm looking at Table D-2 of the safety/risk assessment of August 2010.) I believe that this expression means the same as  $2.5 \times 10^{-06}$ , or 0.0000025, or 2.5 divided by one million. In layman's terms, that means an expectation, on average, of 2.5 events every million years, or once every 400,000 years. Similarly, "2.5E-05" would be 2.5 divided by 100,000, or 2.5 events every 100,000 years, on average, or once every 40,000 years. Is this correct?**

**Public Response:** Yes, at least partly. In the subject documents the frequencies for core damage or ground motion exceedance have been expressed in the form "2.5E-06". As you noted this is equivalent to  $2.5 \times 10^{-6}$ , or 0.000025 per year. If, for example, the core damage frequency was estimated as 2.5E-06, this would be equivalent to an expectation of 2.5 divided by a million per year. It is not really correct to think of these values as "once every 400,000 years," the two numbers are mathematically equivalent but do not convey the same statistical meaning within this context. Rather, you could characterize it as 1 in 400,000 per year of something occurring.

**Additional, technical, non-public information:** None

**69) The GI-199 documents give updated probabilistic seismic hazard estimates for existing nuclear power plants in the Central and Eastern U.S. What document has the latest seismic hazard estimates (probabilistic or not) for existing nuclear power plants in the Western U.S.?**

**Public Response:** At this time the staff has not formally developed updated probabilistic seismic hazard estimates for the existing nuclear power plants in the Western U.S. However, NRC staff during the mid- to late-1990's reviewed the plants' assessments of potential consequences of severe ground motion from earthquakes beyond the plant design basis as part of the Individual Plant Examination of External Events (IPEEE) program. From this review, the NRC staff determined that the seismic designs of operating plants in the U.S. have adequate safety margin. NRC staff has continued to stay abreast of the latest research on seismic hazards in the Western U.S. and interface with colleagues at the U.S. Geological Survey. The focus of Generic Issue 199 has been on the CEUS. However, the Information Notice that summarized the results of the Safety/Risk Assessment was sent to all existing power reactor licensees. The documents that summarize existing hazard estimates are contained in the Final Safety Analysis Reports (FSARS) and in the IPEEE submittals. It must be noted that following 9/11 the IPEEE documents are no longer publicly available.

**Additional, technical, non-public information:** None

**70) The GI-199 documents refer to newer data on the way. Have NRC, USGS et al. released those? I'm referring to this: "New consensus seismic-hazard estimates will become available in late 2010 or early 2011 (these are a product of a joint NRC, U.S. Department of Energy, U.S. Geological Survey (USGS) and Electric Power Research Institute (EPRI) project). These consensus seismic hazard estimates will supersede the existing EPRI, Lawrence Livermore National Laboratory, and USGS hazard estimates used in the GI-199 Safety/Risk Assessment."**

**Public Response:** The new consensus hazard curves are being developed in a cooperative project that has NRC, U.S. Department of Energy, U.S. Geological Survey (USGS) and Electric Power Research Institute (EPRI) participation. The title is: the Central and Eastern U.S. Seismic Source Characterization (CEUS-SSC) project. The project is being conducted following comprehensive standards to ensure quality and regulatory defensibility. It is in its final phase and is expected to be publicly released in the fall of 2011. The project manager is Larry Salamone (Lawrence.salamone@srs.gov, 803-645-9195) and the technical lead on the project is Dr. Kevin Coppersmith (925-974-3335, [kcoppersmith@earthlink.net](mailto:kcoppersmith@earthlink.net)). Additional information on this project can be found at: <http://mydocs.epri.com/docs/ANT/2008-04.pdf>, and [http://my.epri.com/portal/server.pt?open=512&objID=319&&PageID=218833&mode=2&in\\_hi\\_us\\_erid=2&cached=true](http://my.epri.com/portal/server.pt?open=512&objID=319&&PageID=218833&mode=2&in_hi_us_erid=2&cached=true).

**Additional, technical, non-public information:** None

**71) What is the timetable now for consideration of any regulatory changes from the GI-199 research?**

**Public Response:** The NRC is working on developing a Generic Letter (GL) to request information from affected licensees. The GL will likely be issued in a draft form within the next 2 months to stimulate discussions with industry in a public meeting. After that it has to be approved by the Committee to Review Generic Requirements, presented to the Advisory Committee on Reactor Safeguards and issued as a draft for formal public comments (60 days). After evaluation of the public comments it can then be finalized for issuance. We expect to issue the GL by the end of this calendar year, as the new consensus seismic hazard estimates become available. The information from licensees will likely require 3 to 6 months to complete. Staff's review will commence after receiving licensees' responses. Based on staff's review, a determination can be made regarding cost beneficial backfits where it can be justified.

**Additional, technical, non-public information:** None

## Seismic Probabilistic Risk Assessment (SPRA)

72) The NRC increasingly uses risk-information in regulatory decisions. Are risk-informed PRAs useful in assessing an event such as this?

**Public response:** Nilesh Chokshi to provide Q&As on SPRA

**Additional, technical, non-public information:** None

## Plant-Specific Questions

### SONGS questions

**73) SONGS received a white finding in 2008 for 125VDC battery issue related to the EDGs that went undetected for 4 years. NRC issued the white finding as there was increased risk that one EDG may not have started due to a low voltage condition on the battery on one Unit (Unit 2). Aren't all plants susceptible to the unknown? Is there any assurance the emergency cooling systems will function as desired in a Japan-like emergency?**

**Public response:** The low voltage condition was caused by a failure to properly tighten bolts on a electrical breaker that connected the battery to the electrical bus that would be relied on to start the EDG in case of a loss of off-site power. This was corrected immediately on identification and actions taken to prevent its reoccurrence. The 3 other EDGs at SONGS were not affected.

**Additional, technical, non-public information:** None

**74) Has the earthquake hazard at SONGS been reviewed like DCNPP is doing? Are they planning on doing an update before relicensing?**

**Public Answer:** Relicensing does not evaluate the potential change to seismic siting of a plant. If there is a seismic design concern, it would be addressed for the plant as it is currently operating.

The closest active fault is approximately five miles offshore from San Onofre, a system of folds and faults exist called the OZD. The Cristianitos fault is ½ mile southeast, but is an inactive fault. Other faults such as the San Andreas and San Jacinto, which can generate a larger magnitude earthquake, are far enough away that they would produce ground motions less severe than the OZD for San Onofre.

Past history relative to nearby major quakes have been of no consequences to San Onofre. In fact, three major earthquakes from 1992 to 1994 (Big Bear, Landers and Northridge), ranging in distance from 70-90 miles away and registering approximately 6.5 to 7.3 magnitude, did not disrupt power production at San Onofre. The plant is expected to safely shutdown if a major earthquake occurs nearby. Safety related structures, systems and components have been designed and qualified to remain functional and not fail during and after an earthquake.

**Additional, technical, non-public information:** None

**75) Is possible to have a tsunami at songs that is capable of damaging the plant?**

**Public Information:** The San Onofre Units 2 and 3 plant grade is elevation +30.0 feet MLLW. The controlling tsunami for San Onofre occurring during simultaneous high tide and storm surge produces a maximum runup to elevation +15.6 feet MLLW at the Unit 2 and 3 seawall. When storm waves are superimposed, the predicted maximum runup is to elevation +27 MLLW. Tsunami protection for the SONGS site is provided by a reinforced concrete seawall constructed to elevation +30.0 MLLW. A tsunami greater than this height is extremely unlikely.

**Additional, technical, non-public information:** None

**76) Does SONGS have an emergency plan for tsunami?**

**Public Response:** The SONGS emergency plan does initiate the emergency response organization and results in declaration of emergency conditions via their EALs. The facility would then make protective

action recommendations to the Governor, who would then decide on what protective actions would be ordered for the residents around SONGS.

**Additional, technical, non-public information:** None

**77) Has evacuation planning at SONGS considered tsunami?**

**Public Response:** These considerations would be contained in the State and local (City, County) emergency plans, which are reviewed by FEMA. FEMA then certifies to the NRC that they have "reasonable assurance" that the off-site facilities can support operation of SONGS in an emergency.

**Additional, technical, non-public information:** None

**78) Is SONGS designed against tsunami and earthquake?**

**Public Response:** Yes. SONGS is designed against both tsunami and earthquake.

**Additional, technical, non-public information:** None

**79) What is the height of water that SONGS is designed to withstand?**

**Public Response:** 30 feet. Information for all plants can be found in the "Additional Information" section of this document.

**Additional, technical, non-public information:** None

**80) What about drawdown and debris?**

**Public Response:** *Good question...can HQ answer? Goutam, Henry, or Rich...can you help with this one?*

**Additional, technical, non-public information:** None

**81) Will this be reviewed in light of the Japan quake.**

**Public Response:** The NRC will do a through assessment of the lessons learned from this event and will review all potential issues at US nuclear plants as a result.

**Additional, technical, non-public information:** None

**82) Could all onsite and offsite power be disrupted from SONGS in the event of a tsunami, and if that happened, could the plant be safely cooled down if power wasn't restored for days after?**

**Public Response:** Seismic Category I equipment is equipment that is essential to the safe shutdown and isolation of the reactor or whose failure or damage could result in significant release of radioactive material. All Seismic Category I equipment at SONGS is designed to function following a DBE with ground acceleration of 0.67g.

The operating basis earthquake (1/2 of the DBE) is characterized by maximum ground shaking of 0.33g. Historically, even this level of ground shaking has not been observed at the site. Based on expert analysis, the average recurrence interval for 0.33g ground shaking at the San Onofre site would be in excess of 1000 years and, thus, the probability of occurrence in the 40-year design life of the plant would be less than 1 in 25. The frequency of the DBE would be much more infrequent, and very unlikely to occur during the life of the plant. Even if an earthquake resulted in greater than the DBE movement/acceleration at SONGS, the containment structure would ultimately protect the public from harmful radiation release, in the event significant damage occurred to Seismic category 1 equipment.

**Additional, technical, non-public information:** None

**83) Are there any faults nearby SONGS that could generate a significant tsunami?**

**Public Response:** Current expert evaluations estimate a magnitude 7 earthquake about 4 miles from SONGS. This is significantly less than the Japan quake, and SONGS has been designed to withstand this size earthquake without incident. Should discuss the different tectonic nature (not a subduction zone like Japan)?

**Additional, technical, non-public information:** None

**84) What magnitude or shaking level is SONGS designed to withstand? How likely is an earthquake of that magnitude for the SONGS site?**

**Public Response:** The design basis earthquake (DBE) is defined as that earthquake producing the maximum vibratory ground motion that the nuclear power generating station is designed to withstand without functional impairment of those features necessary to shut down the reactor, maintain the station in a safe condition, and prevent undue risk to the health and safety of the public. The DBE for SONGS was assessed during the construction permit phase of the project. The DBE is postulated to occur near the site (5 miles), and the ground accelerations are postulated to be quite high (0.67g), when compared to other nuclear plant sites in the U.S (0.25g or less is typical for plants in the eastern U.S.). Based on the unique seismic characteristics of the SONGS site, the site tends to amplify long-period motions, and to attenuate short-period motions. These site-specific characteristics were accounted for in the SONGS site-specific seismic analyses.

**Additional, technical, non-public information:** None

**85) Could SONGS withstand an earthquake of the magnitude of the Japanese earthquake?**

**Public Response:** We do not have current information on the ground motion at the Japanese reactors. SONGS was designed for approximately a 7.0 magnitude earthquake 4 miles away. The Japanese earthquake was much larger (8.9), but was also almost 9 miles away. The local ground motion at a particular plant is significantly affected by the local soil and bedrock conditions. SONGS was designed (.67g) to withstand more than 2 times the design motion at average US plants.

**Additional, technical, non-public information:** None

**86) What about the evacuation routes at SONGS? How do we know they are reasonable?**

**Public Response:** FEMA reviews off-site evacuation plans formally every 2 years during a biennial emergency preparedness exercise. NRC evaluates on-site evacuation plans during the same exercise. Population studies are formally done every 10 years, and evacuation time estimates are re-evaluated at that time. FEMA reviews these evacuation plans, and will conclude their acceptability through a finding of "reasonable assurance" that the off-site facilities and infrastructure is capable of protecting public health and safety in the event of an emergency at SONGS. The next such exercise is planned for April 12, 2011.

**Additional, technical, non-public information:** None

**87) Regarding tsunami at Diablo and SONGS, is the tsunami considered separately from flooding in licensing? And from the design perspective, is the flood still the controlling event for those plants rather than the tsunami?**

Public response: See below

**88) What is the design level flooding for DNCPP and SONGS? Can a tsunami be larger?**

**Public response:** Both the Diablo Canyon (main plant) and SONGS are located above the flood level associated with tsunami. However, the intake structures and Auxiliary Sea Water System at Diablo canyon are designed for combination of tsunami-storm wave activity. SONGS has reinforced concrete cantilevered retaining seawall and screen well perimeter wall designed to withstand the design basis earthquake, followed by the maximum predicted tsunami with coincident storm wave action

**Additional, technical, non-public information:** None

**89) Is there potential linkage between the South Coast Offshore fault near San Onofre NPP and the Newport-Inglewood Fault system and/or the Rose Canyon fault? Does this potential linkage impact the maximum magnitude that would be assigned to the South Coast Offshore fault and ultimately to the design basis ground motions for this facility?**

**Public response:** Stephanie and Jon to answer (you may want to change the question) based on the discussions in the articles sent by Lara U.

**Additional, technical, non-public information:** Proposed action is to check the FSAR for San Onofre and read the discussion on characterization of the offshore fault. A quick look at discussion of the Newport Inglewood from other sources suggest this is part of the "system". It would be helpful to check the basis for segmenting the fault in the FSAR. Probably have to dig on this a bit, may need to look at the USGS/SCEC/ model for this area.

## Diablo Canyon Questions

**90) Now after the Japan tragedy, will the NRC finally hear us (A4NR) and postpone DC license renewal until seismic studies are complete? How can you be sure that what happened there is not going to happen at Diablo with a worse cast quake and tsunami?**

**Public response:** ADD

**Additional, technical, non-public information:** ADD

**91) The evacuation routes at DCNPP see are not realistic. Highway 101 is small...and can you imagine what it will be like with 40K people on it? Has the evacuation plan been updated w/ all the population growth?**

**Public Response:** FEMA reviews off-site evacuation plans formally every 2 years during a biennial emergency preparedness exercise. NRC evaluates on-site evacuation plans during the same exercise. Population studies are formally done every 10 years, and evacuation time estimates are re-evaluated at that time. FEMA reviews these evacuation plans, and will conclude their acceptability through a finding of "reasonable assurance" that the off-site facilities and infrastructure is capable of protecting public health and safety in the event of an emergency at DCNPP.

**Additional, technical, non-public information:** None

**92) Are there local offshore fault sources capable of producing a tsunami with very short warning times?**

**Public Response:** ADD- question forwarded to region

**Additional, technical, non-public information:** ADD

**93) Are there other seismically induced failure modes (other than tsunami) that would yield LTSBO? Flooding due to dam failure or widespread liquefaction are examples.**

**Public Response:** ADD question forwarded to region

**Additional, technical, non-public information:** ADD

**94) Ramifications of beyond design basis events (seismic and tsunami) and potential LTSBO on spent fuel storage facilities?**

**Public Response:** ADD question forwarded to region

**Additional, technical, non-public information:** ADD

**95) Why did a Emergency Warning go out for a 'tsunami' that was only 6 ft high? Do these guys really know what they're doing? Would they know it if a big one was really coming? Crying wolf all the time doesn't instill a lot of confidence.**

**Public Response:** The warning system performed well. The 6 foot wave was predicted many hours before and arrived at the time it was predicted. Federal officials to accurately predicted the tsunami arrival time and size; allowing local official to take appropriate measures as they saw necessary to warn and protect the public. It should be understood that even a 6 foot tsunami is very dangerous. Tsunami have far more energy and power than wind-driven waves.

**Additional, technical, non-public information:** ADD

96) How big did the Japanese think a quake/tsunami could be before 3/11? Why were they so wrong (assuming this quake/tsunami was bigger than what they had designed the plant for)?

Public Response: ADD can HQ answer?

Additional, technical, non-public information: ADD

The Japanese were supposed to have one of the best tsunami warning systems around. What went wrong last week (both with the reactors and getting the people out...see #1, evacuation plan above)?

Public Response: ADD can HQ answer?

Additional, technical, non-public information: ADD

97) Regarding tsunami at Diablo and SONGS, is the tsunami considered separately from flooding in licensing? And from the design perspective, is the flood still the controlling event for those plants rather than the tsunami?

Public Response: Both the Diablo Canyon (main plant) and SONGS are located above the flood level associated with tsunami. However, the intake structures and Auxiliary Sea Water System at Diablo canyon are designed for combination of tsunami-storm wave activity. SONGS has reinforced concrete cantilevered retaining seawall and screen well perimeter wall designed to withstand the design basis earthquake, followed by the maximum predicted tsunami with coincident storm wave action

Additional, technical, non-public information: ADD

NOTE: need to add to SONGS and DCNPP... Canyon and San Onofre IPEEEs - based on the Technical Evaluation Reports, Diablo did consider a locally induced tsunami in a limited way (the aux service water pumps were assumed to become flooded following a seismic event) while SONGS did not consider a coupled seismic/tsunami event.

98) Shouldn't the NRC make licensees consider a Tsunami coincident with a seismic event that triggers the Tsunami?

ADD

99) Given that SSCs get fatigued over time, shouldn't the NRC consider after-shocks in seismic hazard analyses?

ADD

100) Did the Japanese also consider an 8.9 magnitude earthquake and resulting tsunami "way too low a probability for consideration"?

ADD

101) GI-199 shows that the scientific community doesn't know everything about the seismicity of CEUS. And isn't there a prediction that the West coast is likely to get hit with some huge earthquake in the next 30 years or so? Why does the NRC continue to license plants on the west coast?

ADD

~~Work the following into Q&As as time permits.~~

After an earthquake, in order to restart, in practice a licensee needs to determine from engineering analysis that the stresses on the plant did not exceed their licensed limits. That would be a very tall order for a plant that experienced a beyond design basis quake, and probably is why it had taken Japan so long to restore the KK plants following the earlier quake.

Has industry done anything on tsunami hazards? Also, has anyone done work to look at the effect of numerous cycles of low amplitude acceleration following a larger event. I would expect we would have some information because how do we know a plant would be fit to start back up after an event? We cannot possibly do NDE on everything to determine if flaws have propagated to the point where they need to be replaced.

## Indian Point Questions

### 102) Why is Indian Point safe if there is a fault line so close to it?

**Public Response:** The Ramapo fault system, which passes through the Indian Point area, is a group of Mesozoic age faults, extending from southeastern New York to northern New Jersey, as well as further southwest. The fault system is composed of a series of southeast-dipping, northeast-striking faults. Various faults of the system contain evidence of repeated slip in various directions since Proterozoic time, including Mesozoic extensional reactivation. However, the USGS staff, who reviewed 31 geologic features in the Appalachian Mountains and Coastal Plain and compiled a National Database on Quaternary Faulting (Crone and Wheeler, 2000), listed the Ramapo fault system as low risk because the fault system lacks evidence for Quaternary slip. They further pointed out that the Ramapo fault system, and 17 other geologic features, "have little or no published geologic evidence of Quaternary tectonic faulting that could indicate the likely occurrence of earthquakes larger than those observed historically" (Wheeler and Crone, 2004). Among these faults, the Ramapo fault system is one of the three that underwent a paleoseismological study. In two trenches excavated across the Ramapo fault, no evidence of Quaternary tectonic faulting was found (Wheeler and Crone, 2000). Because the Ramapo fault system is relatively inactive, because the Indian Point plants are built on solid bedrock, and because the plants are designed to safely shutdown in the event of an earthquake of the highest intensity ever recorded in that area, the NRC has concluded that the risk of significant damage to the reactors due to a probable earthquake in the area is extremely small.

**Additional, technical, non-public information:** The Question asks: Why is Indian Point safe if there is a fault line beneath it? The response focuses on the Ramapo fault (within a couple of miles not directly beneath) specifically and also states that the plant is designed for the largest observable earthquake. The information is consistent with the literature and the UFSAR for IP related to the Ramapo fault.

The letter that was sent to the NRC from Rep Lowey refers to the Ramapo seismic zone (RSZ) and the Dobbs Ferry fault. The letter incorrectly states that the Dobbs Ferry fault is located within the Ramapo seismic zone. Based on the literature, it is not. It is close, but it is considered to be in the Manhattan Prong more to the east (more like 10-15 miles away) while the Ramapo fault system is considered to be in the Reading Prong (a couple of miles away from IP). Also for clarification, the seismicity is considered to be within the Precambrian/Paleozoic basement at depths greater than the Mesozoic Newark Basin where the RSZ is situated.

### 103) Comments From the letter received 3/16/11 from Congresswoman Lowey:

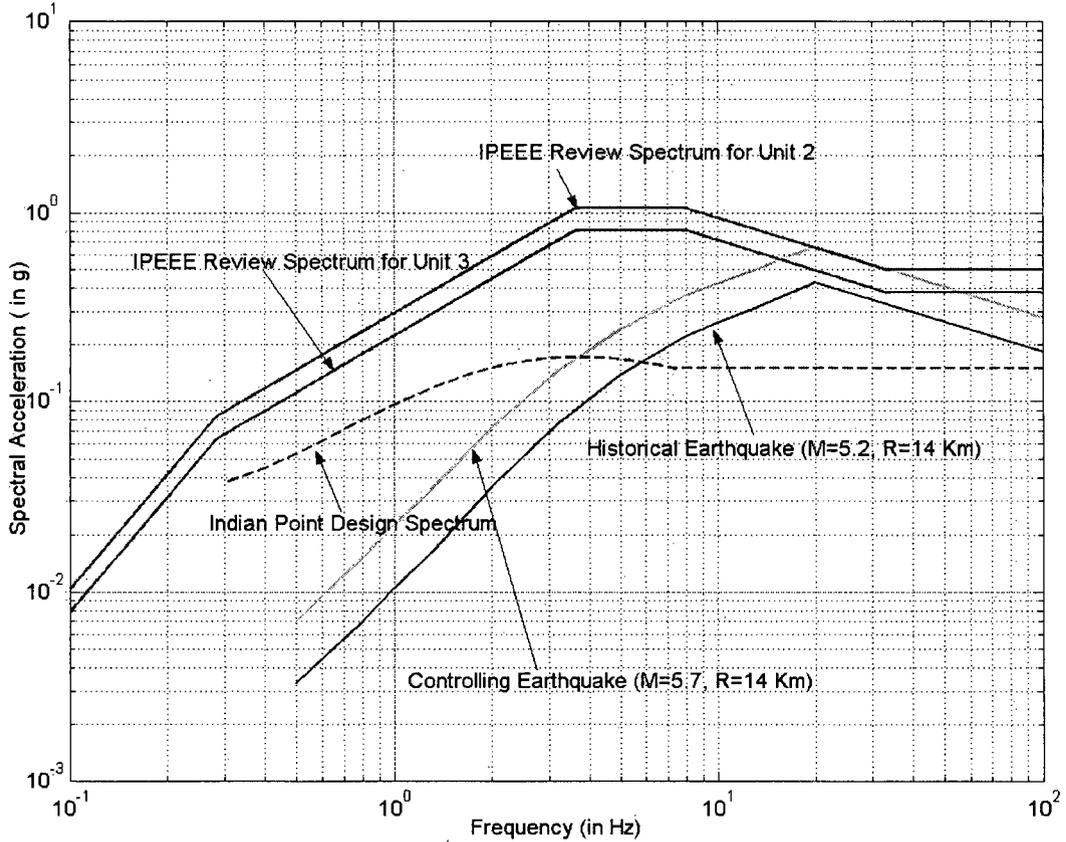
Text of the letter:

A 2008 study by seismologists at the Columbia University Lamont-Doherty Earth Observatory found that earthquakes in the New York metropolitan area are common and that risks are particularly high due to infrastructure and high population. A 3.9 magnitude earthquake occurred in the Atlantic Ocean approximately 80 miles off Long Island as recently as November 30, 2010. In fact, there have been five earthquakes in the same area in the past two decades, including a 4.7 magnitude earthquake in 1992.

The Ramapo Seismic Zone is a particular threat because the zone passes within two miles of Indian Point. The Ramapo Seismic zone includes the Dobbs Ferry fault in Westchester, which generated a 4.1 magnitude earthquake in 1955. The Columbia University study suggests that this pattern of subtle but active faults increases the risk to the New York City area and that an earthquake with a magnitude of 7.0 on the Richter scale is within reach. Disturbingly, Entergy measures the risk of an earthquake near Indian Point to be between 1.0 and 3.0 on the Richter scale, despite evidence to the contrary.

As our nation stands ready to assist the Japanese to calm this potential nuclear meltdown and disaster, we must not let the same mistakes happen on our shores. The NRC should study Indian Point's risk of, and ability to sustain a disaster, including the impact of earthquakes and hurricanes, as well as collateral impacts such as loss of power, inability to cool reactors and emergency evacuation routes. The NRC should evaluate how a similar incident in the New York metropolitan area could be further complicated due to a dramatically higher population and the effectiveness of the proposed evacuation routes.

NRR has the lead in response. We can assist NRR at their request. Either way, we need to turn this into appropriate questions and then provide answers consistent with the formal response.



## Questions for the Japanese

**NOTE: These were all collected from what we produced after the KKNPP earthquake. These need to be gone through and revised for this event. We should separate into high, medium and low priorities:**

**The below is pulled from an KKNPP summary...to be reviewed...**

- What seismic monitoring equipment exists at the plants? Can we get the recordings from the
- Are there recordings of the tsunami at the plant location?
- What is the geology and soil profile at the plants?
- NOAA has a prediction of very large tsunami waves at Onagawa. Are these accurate?

**The below is pulled from an KKNPP summary...to be reviewed...**

DESIGN BASES: Exactly what is the design basis ground motion for each of the plants? Did it change through time (i.e. from the first plant to the seventh)? Where was the design basis motion defined, at the top of rock, at the ground surface, at the floor level or somewhere else? Were the site-specific geotechnical properties used in the development of the design basis ground motions for each plant?

SEISMIC HAZARDS: What assumptions were used in the seismic hazard evaluation to arrive at the design basis ground motions? What faults were considered, what magnitudes and geometries were assumed? What activity rates were assumed for both fault sources and "background" earthquakes?

OBSERVATIONS-GROUND MOTIONS: What ground motions were recorded and where were they recorded? Specifically, what free-field, in-structure and down-hole recordings were obtained? What are the locations of the instruments that obtained records? Did all the instruments respond as planned, or are there lessons to be learned? Can the digital data be shared with the NRC? Is there any way of evaluating how well the existing analysis methods predicted the observed motions at different points within the plant?

OBSERVATIONS-DAMAGE: What damage was observed at the plants? How well did equipment such as cranes perform? Were there observations of displacements of equipment from anchorages, were cracks observed in any of the buildings? How well did non-nuclear safety type of buildings and equipment perform? What types of geotechnical phenomena were observed, was there ground deformation/slope failures, lateral spreading or liquefaction near the facility? Did the ABWRs perform better or similar to the older designs?

**And another set from the KKNPP earthquake...to be reviewed...**

Please provide the following information in the time frame indicated:

Highest Priority Questions – as soon as possible

- A timeline describing the order of events and the individual plant responses to the earthquake
- Confirmation that all operating and shut down units achieved or maintained safe-shutdown conditions without manual operator intervention or complications. Did all safety-related systems respond to the seismic scram as designed? Please note if there were any unexpected plant responses to the event, including any spurious signals.
- A more detailed description of the impacts of the earthquake on the plant (e.g., what systems were involved, which pipes were damaged, where did the leakage occur (pipe wall, joints, fittings,,etc).
- A description of seismic instrumentation at the site and at each of the 7 units, soil/rock shear wave properties through depth, instrument location and mounting condition, all the recorded

data on the basis of unified starting time, such that the coherency of motion through the surface or the foundations and at depth can be determined

- Full spectrum seismic design basis for the plant.
- What actually caused the Unit 3B house transformer fire?

Additional Questions – please provide answers as more information is developed

- Damage to buildings, slope failures, intake structure failure, if any
- Behavior of cranes, cables and conduits
- Failures of any large pumps and valves, pipe mounted control or valve failure
- Instances of any relay or vibration sensitive components malfunctioning
- Nature of damage to service water and fire-suppression piping - their diameter, material they are made of including their elastic properties, design standards used for the piping design, nature of failure (at support, anchor motion, failure of anchors, subsidence differential movement etc)
- Were there any systems that changed state?
- Impact on physical security, and any vulnerabilities identified
- Were there any impacts on the grid because of the event?
- Please describe the switchyard performance?
- What emergency preparedness concerns have been identified as a result of the event?

3B Transformer Specific Questions – please respond when there is time and other issues have been addressed

- What are the primary and secondary voltages of the transformer?
- What type of transformer - liquid or dry-type (air-cooled)?
- Who was the manufacturer of the transformer?
- What are the physical dimensions of the transformer?
- How are the transformer coils restrained within the cabinet?
- What is the clearance between transformer energized component and cabinet?
- What is the relative displacement for connection between the high voltage leads and the first anchor point (adequate slack?) in the transformer?
- What was the natural frequency of the burned transformer, if known?
- What was the acceleration level (or the response spectrum, if available) at the support location of the burned transformer?
- What seismic requirements exist for the burned transformer? Was the transformer tested or analyzed to a specific acceleration or response spectra, and if so, what are they?
- Are there any of the same type of transformer installed at other locations in the plant?

### Additional Information

Table of Design Basis Ground Motions for US Plants

Design Basis Earthquake Information					
Nuclear Plant By State/Location	Maximum Observed Or Inferred Intensity (MMI Scale)	Relative Distance Of Seismic Source	Design SSE Peak Acceleration, <i>g</i>	OBE Peak Acceleration, <i>g</i>	Soil Condition
<b>New York</b>					
Fitzpatrick	VI	Near	0.15	0.08	Soil
Ginna 1	VIII/IX	>60 miles	0.2	0.08	Rock
Indian Point 2, 3	VII	Near	0.15	0.1	Rock
Nine Mile Point 1	IX-X	>60 miles	0.11	0.06	Rock
Nine Mile Point 2	VI	Near	0.15	0.075	Rock
<b>New Jersey</b>					
Salem 1,2	VII-VIII	Near	0.2	0.1	Deep Soil
<b>Connecticut</b>					
Millstone 1, 2, 3	VII	Near	0.17	0.07	Rock
<b>Vermont</b>					
Vermont Yankee	VI	Near	0.14	0.07	Rock
<b>Ohio</b>					
Davis Besse 1	VII	Near	0.15	0.08	Rock
Perry 1	VII	Near	0.15	0.08	Rock
<b>Georgia</b>					
Hatch 1, 2	VII	Near	0.15	0.08	Deep Soil
Vogtle 1, 2	VII-VIII	Near	0.2	0.12	Deep Soil
<b>Tennessee</b>					
Seqouyah 1, 2	VIII	Near	0.18	0.09	Rock
Watts Bar 1	VIII	Near	0.18	0.09	Rock
<b>California</b>					
San Onofre 2, 3	IX-X	Near	0.67	0.34	Soil
Diablo Canyon 1, 2	X-XI	Near	0.75	0.20	Rock
<b>Florida</b>					

Crystal River 3	V	Near	0.10	0.05	Rock
St. Lucie 1, 2	VI	Near	0.10	0.05	Soil
Turkey Point 3, 4	VII	Near	0.15	0.05	Rock

**NOTES:**

MMI=Modified Mercalli Intensity, a measure of observed/reported damage and severity of shaking.

Relative distance measure used in FSAR to develop SSE acceleration, "Near" indicates distance less than 10 miles.

SSE=Safe Shutdown Earthquake ground motion, for horizontal acceleration, in units of earth's gravity, *g*.

OBE=Operating Basis Earthquake ground motion, level of horizontal acceleration, which if exceeded requires plant shutdown.

Table of SSE, OBE and Tsunami Water Levels

Nuclear Plant Name By State/ Location	Safe Shutdown Earthquake (SSE) Peak Acceleration (g)	Operating Basis Earthquake (OBE) Peak Acceleration, (g)	Probable Maximum Tsunami OR Maximum Tsunami Water Level
Alabama			
Browns Ferry	0.200	0.100	N/A (Non-Coastal)
Farley	0.100	0.050	N/A (Non-Coastal)
Arkansas			
Arkansas Nuclear	0.200		N/A (Non-Coastal)
Arizona			
Palo Verde	0.200	0.100	N/A (Non-Coastal)
California			
Diablo Canyon	0.400	0.200	The design basis maximum combined wave runup is the greater of that determined for near-shore or distantly-generated tsunamis, and results from near-shore tsunamis. For distantly-generated tsunamis, the combined runup is 30 feet. For near-shore tsunamis, the combined wave runup is 34.6 feet, as determined by hydraulic model testing. The safety-related equipment is installed in watertight compartments to protect it from adverse sea wave events to elevation +48 feet above MLLW.
San Onofre	0.670	0.340	The controlling tsunami occurs during simultaneous high tide and storm surge produces a maximum runup to elevation +15.6 feet mean lower low water line (mllw) at the Unit 2 and 3 seawall. When storm waves are superimposed, the predicted maximum runup is to elevation +27 mllw. Tsunami protection for the SONGS site is provided by a reinforced concrete seawall constructed to elevation +30.0 mllw.
Connecticut			
Millstone	0.170	0.090	18 ft SWL
Florida			
Crystal River	0.050	0.025	N/A (Non-Coastal)

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<b>Nuclear Plant Name By State/ Location</b>	<b>Safe Shutdown Earthquake (SSE) Peak Acceleration (g)</b>	<b>Operating Basis Earthquake (OBE) Peak Acceleration, (g)</b>	<b>Probable Maximum Tsunami OR Maximum Tsunami Water Level</b>
St. Lucie	0.100	0.050	No maximum tsunami level, bounded by PMH surge of +18 MLW wave runup, with plant openings at +19.5 MLW
Turkey Point	0.150	0.050	No maximum tsunami level, bounded by PMH surge of +18.3 MLW water level, site protected to +20 MLW with vital equipment protected to +22 MLW
Georgia			
Hatch	0.150	0.080	N/A (Non-Coastal)
Vogtle	0.200	0.120	N/A (Non-Coastal)
Illinois			
Braidwood	0.200	0.090	N/A (Non-Coastal)
Byron	0.200	0.090	N/A (Non-Coastal)
Clinton	0.250	0.100	N/A (Non-Coastal)
Dresden	0.200	0.100	N/A (Non-Coastal)
LaSalle	0.200	0.100	N/A (Non-Coastal)
Quad Cities	0.240	0.120	N/A (Non-Coastal)
Iowa			
Duane Arnold	0.120	0.060	N/A (Non-Coastal)
Kansas			
Wolf Creek	0.120	0.060	N/A (Non-Coastal)
Louisiana			
River Bend	0.100	0.050	
Waterford	0.100		Floods – 30 feet MSL
Maryland			
Calvert Cliffs	0.150	0.080	14 ft design wave
Massachusetts			
Pilgrim	0.150	0.080	*Storm flooding design basis - 18.3ft
Michigan			
D.C. Cook	0.200	0.100	N/A
Fermi	0.150	0.080	N/A
Palisades	0.200	0.100	N/A

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<b>Nuclear Plant Name By State/ Location</b>	<b>Safe Shutdown Earthquake (SSE) Peak Acceleration (g)</b>	<b>Operating Basis Earthquake (OBE) Peak Acceleration, (g)</b>	<b>Probable Maximum Tsunami OR Maximum Tsunami Water Level</b>
Missouri			
Callaway	0.200		N/A (Non-Coastal)
Mississippi			
Grand Gulf	0.150	0.075	N/A
Minnesota			
Monticello	0.120	0.060	N/A (Non-Coastal)
Prarie Island	0.120	0.060	N/A (Non-Coastal)
Nebraska			
Cooper	0.200	0.100	N/A (Non-Coastal)
Fort Calhoun	0.170	0.080	N/A (Non-Coastal)
New York			
Fitzpatrick	0.150	0.080	N/A (Non-Coastal)
Ginna	0.200	0.080	N/A
Indian Point	0.150	0.100	15 ft msl
Nine Mile Point, Unit 1	0.110	0.060	N/A
Nine Mile Point, Unit 2	0.150	0.075	N/A
New Hampshire			
Seabrook	0.250	0.125	(+) 15.6' MSL Still Water Level (Tsunami Flooding -Such activity is extremely rare on the U.S. Atlantic coast and would result in only minor wave action inside the harbor.)
New Jersey			
Hope Creek	0.200	0.100	35.4 MSL The maximum probable tsunami produces relatively minor water level changes at the site. The maximum runup height reaches an elevation of 18.1 feet MSL with coincident 10 percent exceedance high tide)
Oyster Creek	0.184	0.092	(+) 23.5' MSL Still Water Level (Probable Maximum Tsunami - Tsunami events are not typical of the eastern coast of the United States and have not, therefore, been addressed.)

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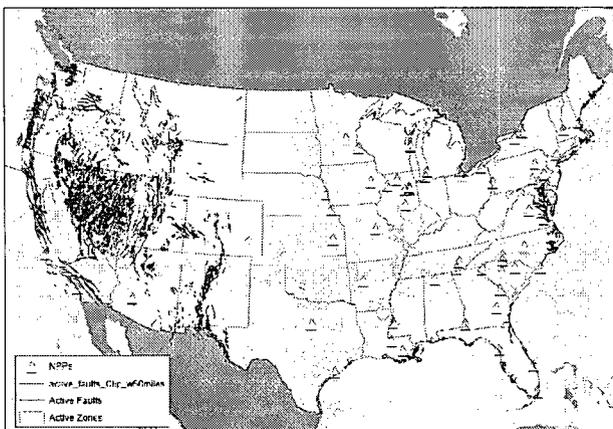
<b>Nuclear Plant Name By State/ Location</b>	<b>Safe Shutdown Earthquake (SSE) Peak Acceleration (g)</b>	<b>Operating Basis Earthquake (OBE) Peak Acceleration, (g)</b>	<b>Probable Maximum Tsunami OR Maximum Tsunami Water Level</b>
Salem	0.200	0.100	21.9 MSL (There is no evidence of surface rupture in East Coast earthquakes and no history of significant tsunami activity in the region)
North Carolina			
Brunswick	0.160	0.030	N/A
McGuire	0.150	0.080	N/A (Non-Coastal)
Shearon Harris	0.150		N/A (Non-Coastal)
Ohio			
Davis-Besse	0.150	0.080	N/A
Perry	0.150	0.080	N/A
Pennsylvania			
Beaver Valley	0.130	0.060	N/A (Non-Coastal)
Limerick	0.150	0.075	N/A (Non-Coastal)
Peach Bottom	0.120	0.050	N/A (Non-Coastal)
Three Mile Island	0.120	0.060	N/A (Non-Coastal)
Susquehanna	0.150	0.080	N/A (Non-Coastal)
South Carolina			
Catawba	0.150	0.080	N/A (Non-Coastal)
Oconee	0.150	0.050	N/A (Non-Coastal)
Robinson	0.200	0.100	N/A (Non-Coastal)
V.C. Summer	0.250	0.150	N/A (Non-Coastal)
Tennessee			
Sequoyah	0.180	0.090	N/A (Non-Coastal)
Watts Bar, Unit 1	0.180	0.090	N/A (Non-Coastal)
Texas			
Comanche Peak	0.120	0.060	N/A
South Texas Project	0.100	0.050	N/A
Vermont			

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Nuclear Plant Name By State/ Location	Safe Shutdown Earthquake (SSE) Peak Acceleration (g)	Operating Basis Earthquake (OBE) Peak Acceleration, (g)	Probable Maximum Tsunami OR Maximum Tsunami Water Level
Vermont Yankee	0.140	0.070	N/A
Virginia			
North Anna	0.180		N/A
Surry	0.150	0.080	N/A
Washington			
Columbia	0.250		N/A (Non-Coastal)
Wisconsin			
Kewaunee	0.120	0.060	N/A
Point Beach	0.120		N/A
<b>Definition of Safe Shutdown Earthquake</b>	The safe-shutdown earthquake (SSE) for the site is the ground motion response spectra (GMRS), which also satisfies the minimum requirement of paragraph IV(a)(1)(i) of Appendix S, "Earthquake Engineering Criteria for Nuclear Power Plants," to Title 10, Part 50, "Domestic Licensing of Production and Utilization Facilities," of the Code of Federal Regulations (10 CFR Part 50).		
<b>Definition of Operating Basis Earthquake:</b>	<p>To satisfy the requirements of paragraph IV(a)(2)(A) of Appendix S to 10 CFR Part 50, the operating-basis earthquake (OBE) ground motion is defined as follows:</p> <ul style="list-style-type: none"> <li>(iv) For the certified design portion of the plant, the OBE ground motion is one-third of the CSDRS.</li> <li>(v) For the safety-related noncertified design portion of the plant, the OBE ground motion is one-third of the design motion response spectra, as stipulated in the design certification conditions specified in design control document (DCD).</li> <li>(vi) The spectrum ordinate criterion to be used in conjunction with Regulatory Guide 1.166, "Pre-Earthquake Planning and Immediate Nuclear Power Plant Operator Post-earthquake Actions," issued March 1997, is the lowest of (i) and (ii).</li> </ul>		

### Plot of Mapped Active Quaternary Faults and Nuclear Plants in the US

It is important to note that this plot somewhat misleading as faults in the central and eastern US are not well characterized. For example, the faults responsible for very large historic events, such as the 1811 and 1812 New Madrid Earthquakes, and the 1886 Charleston Earthquakes have not been conclusively located.



# Nuclear Plants in the US Compared to the USGS National Seismic Hazard Maps

Dogan to create the map

## USGS US National Seismic Hazard Maps

Many version of this map are available at the USGS website at <http://earthquake.usgs.gov/hazards/>



### Plot of Nuclear Plants in the US Compared to Recent Earthquakes

Not sure of the date on this...It's an awesome plot. can we get this updated with a date? Who made this originally (NRO?RES?)



### Table of Plants Near Known Active Faults

It should be noted that in much of the Central and Eastern US, the seismicity comes from "background" seismicity. Background seismicity is earthquake activity, where the earthquakes cannot be tied to known faults.

Jon Ake and Dogan Seber to complete. High priority to support chairman in response to questions asked by congress.

PLACEHOLDER ONLY....TO BE COMPLETED ON 3/17/11 PLEASE DON'T USE!!!

Plant (state)	Nearest Active Fault or Fault Zone	Distance to Fault or Range of Distances to Zones	Type of Faulting Mechanism	Range of Maximum Magnitude (M <sub>w</sub> )	OBE (g)	SSE (g)
Columbia						
Diablo Canyon (CA)	Hosgri Fault	5 miles	Predominantly Strike Slip	7.5		
	Shoreline Fault	0.5 miles	Strike Slip	6.25 to 6.75 best estimate by NRC staff in RIL 09-001. Final report on the fault in review by NRC staff		
San Onofre (CA)						
Comanche Peak	Meers					

**Table From GI-199 Program Containing SSE, SSE Exceedance Frequencies, Review Level Earthquakes, and Seismic Core Damage Frequencies**

Plant	Docket	SSE (g's)	Frequency of Exceeding the SSE (per year)	RLE (HCLPF) (g's)	Seismic Core Damage Frequency (per year)	IPEEE Method	Source
Arkansas 1	05000313	0.2	2.8E-04	0.3	4.1E-06	0.3g full-scope EPRI SMA	GI-199
Arkansas 2	05000368	0.2	9.7E-05	0.3	4.1E-06	0.3g focused-scope EPRI SMA	GI-199
Beaver Valley 1	05000334	0.12	3.3E-04	n/a	4.8E-05	seismic PRA	GI-199
Beaver Valley 2	05000412	0.12	2.7E-04	n/a	2.2E-05	seismic PRA	GI-199
Braidwood 1	05000456	0.2	6.7E-05	0.3	7.3E-06	0.3g focused-scope EPRI SMA	GI-199
Braidwood 2	05000457	0.2	6.7E-05	0.3	7.3E-06	0.3g focused-scope EPRI SMA	GI-199
Browns Ferry 1	05000259	0.2	2.5E-04	0.3	3.7E-06	0.3g focused-scope EPRI SMA	GI-199
Browns Ferry 2	05000260	0.2	2.5E-04	0.26	5.4E-06	0.3g focused-scope EPRI SMA	GI-199
Browns Ferry 3	05000296	0.2	2.5E-04	0.26	5.4E-06	0.3g focused-scope EPRI SMA	GI-199
Brunswick 1	05000325	0.16	7.3E-04	0.3	1.5E-05	0.3g focused-scope EPRI SMA	GI-199
Brunswick 2	05000324	0.16	7.3E-04	0.3	1.5E-05	0.3g focused-scope EPRI SMA	GI-199
Byron 1	05000454	0.2	5.2E-05	0.3	5.8E-06	0.3g focused-scope EPRI SMA	GI-199
Byron 2	05000455	0.2	5.2E-05	0.3	5.8E-06	0.3g focused-scope EPRI SMA	GI-199
Callaway	05000483	0.2	3.8E-05	0.3	2.0E-06	0.3g focused-scope EPRI SMA	GI-199
Calvert Cliffs 1	05000317	0.15	1.9E-04	n/a	1.0E-05	seismic PRA	GI-199
Calvert Cliffs 2	05000318	0.15	1.9E-04	n/a	1.2E-05	seismic PRA	GI-199
Catawba 1	05000413	0.15	1.4E-04	n/a	3.7E-05	seismic PRA	GI-199
Catawba 2	05000414	0.15	1.4E-04	n/a	3.7E-05	seismic PRA	GI-199
Clinton	05000461	0.25	5.8E-05	0.3	2.5E-06	0.3g focused-scope EPRI SMA	GI-199
Columbia	05000397	0.25	1.7E-04	n/a	2.1E-05	seismic PRA	IPEEE
Comanche Peak 1	05000445	0.12	1.6E-05	0.12	4.0E-06	reduced-scope EPRI SMA; SSE = 0.12g	GI-199
Comanche	05000446	0.12	1.6E-05	0.12	4.0E-06	reduced-scope EPRI SMA; SSE =	GI-199

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Plant	Docket	SSE (g's)	Frequency of Exceeding the SSE (per year)	RLE (HCLPF) (g's)	Seismic Core Damage Frequency (per year)	IPEEE Method	Source
Peak 2						0.12g	
Cooper	05000298	0.2	1.5E-04	0.3	7.0E-06	0.3g focused-scope EPRI SMA	GI-199
Crystal River 3	05000302	0.1	8.9E-05	0.1	2.2E-05	reduced-scope EPRI SMA; SSE = 0.1g	GI-199
D.C. Cook 1	05000315	0.2	2.1E-04	n/a	2.2E-05	seismic PRA	GI-199
D.C. Cook 2	05000316	0.2	2.1E-04	n/a	2.2E-05	seismic PRA	GI-199
Davis Besse	05000346	0.15	6.3E-05	0.26	6.7E-06	reduced-scope EPRI SMA	GI-199
Diablo Canyon 1	05000275	0.75	2.0E-04	n/a	4.1E-05	seismic PRA	IPEEE
Diablo Canyon 2	05000323	0.75	2.0E-04	n/a	4.1E-05	seismic PRA	IPEEE
Dresden 2	05000237	0.2	9.7E-05	0.26	1.9E-05	0.3g focused-scope EPRI SMA	GI-199
Dresden 3	05000249	0.2	9.7E-05	0.26	1.9E-05	0.3g focused-scope EPRI SMA	GI-199
Duane Arnold	05000331	0.12	2.3E-04	0.12	3.2E-05	reduced-scope EPRI SMA; SSE = 0.12g	GI-199
Farley 1	05000348	0.1	1.0E-04	0.1	2.8E-05	reduced-scope EPRI SMA; SSE = 0.1g	GI-199
Farley 2	05000364	0.1	1.0E-04	0.1	2.8E-05	reduced-scope EPRI SMA; SSE = 0.1g	GI-199
Fermi 2	05000341	0.15	1.0E-04	0.3	4.2E-06	0.3g focused-scope EPRI SMA	GI-199
Fitzpatrick	05000333	0.15	3.2E-04	0.22	6.1E-06	0.3g focused-scope NRC SMA	GI-199
Fort Calhoun 1	05000285	0.17	3.7E-04	0.25	5.4E-06	0.3g focused-scope NRC SMA	GI-199
Ginna	05000244	0.2	1.0E-04	0.2	1.3E-05	0.3g focused-scope EPRI SMA	GI-199
Grand Gulf	05000416	0.15	1.0E-04	0.15	1.2E-05	reduced-scope EPRI SMA; SSE = 0.15g	GI-199
Hatch 1	05000400	0.148	3.9E-04	0.29	2.3E-06	0.3g focused-scope EPRI SMA	GI-199
Hatch 2	05000321	0.15	2.7E-04	0.3	2.5E-06	0.3g focused-scope EPRI SMA	GI-199

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Plant	Docket	SSE (g's)	Frequency of Exceeding the SSE (per year)	RLE (HCLPF) (g's)	Seismic Core Damage Frequency (per year)	IPEEE Method	Source
Hope Creek	05000366	0.2	9.7E-05	0.3	2.5E-06	0.3g focused-scope EPRI SMA	GI-199
Indian Point 2	05000354	0.15	4.9E-04	n/a	2.8E-06	seismic PRA	GI-199
Indian Point 3	05000247	0.15	4.9E-04	n/a	3.3E-05	seismic PRA	GI-199
Kewaunee	05000286	0.12	2.8E-04	n/a	1.0E-04	seismic PRA	GI-199
LaSalle 1	05000305	0.2	1.7E-04	n/a	5.1E-06	seismic PRA	GI-199
LaSalle 2	05000373	0.2	1.7E-04	n/a	2.8E-06	seismic PRA	GI-199
Limerick 1	05000374	0.15	1.8E-04	n/a	2.8E-06	seismic PRA	GI-199
Limerick 2	05000352	0.15	1.8E-04	0.15	5.3E-05	reduced-scope EPRI SMA	GI-199
McGuire 1	05000353	0.15	9.5E-05	0.15	5.3E-05	reduced-scope EPRI SMA	GI-199
McGuire 2	05000369	0.15	9.5E-05	n/a	3.1E-05	seismic PRA	GI-199
Millstone 1	05000370	0.254	9.3E-05	n/a	3.1E-05	seismic PRA	GI-199
Millstone 2	05000336	0.17	8.3E-05	0.25	1.1E-05	0.3g focused-scope EPRI SMA	GI-199
Millstone 3	05000423	0.17	8.3E-05	n/a	1.5E-05	seismic PRA	GI-199
Monticello	05000263	0.12	9.3E-05	0.12	1.9E-05	modified focused/expended reduced-scope EPRI SMA	GI-199
Nine Mile Point 1	05000220	0.11	1.5E-04	0.27	4.2E-06	0.3g focused-scope EPRI SMA	GI-199
Nine Mile Point 2	05000410	0.15	4.8E-05	0.23	5.6E-06	SPRA and focused-scope EPRI SMA	GI-199
North Anna 1	05000338	0.12	2.1E-04	0.16	4.4E-05	0.3g focused-scope EPRI SMA	GI-199
North Anna 2	05000339	0.12	2.1E-04	0.16	4.4E-05	0.3g focused-scope EPRI SMA	GI-199
Oconee 1	05000269	0.1	9.7E-04	n/a	4.3E-05	seismic PRA	GI-199
Oconee 2	05000270	0.1	9.7E-04	n/a	4.3E-05	seismic PRA	GI-199
Oconee 3	05000287	0.1	9.7E-04	n/a	4.3E-05	seismic PRA	GI-199
Oyster Creek	05000219	0.17	1.5E-04	n/a	1.4E-05	seismic PRA	GI-199
Palisades	05000255	0.2	1.4E-04	n/a	6.4E-06	seismic PRA	GI-199
Palo Verde 1	05000528	0.258	3.5E-05	0.3	3.8E-05	0.3g full-scope EPRI SMA	IPEEE
Palo Verde 2	05000529	0.258	3.5E-05	0.3	3.8E-05	0.3g full-scope EPRI SMA	IPEEE

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Plant	Docket	SSE (g's)	Frequency of Exceeding the SSE (per year)	RLE (HCLPF) (g's)	Seismic Core Damage Frequency (per year)	IPEEE Method	Source
Palo Verde 3	05000530	0.258	3.5E-05	0.3	3.8E-05	0.3g full-scope EPRI SMA	IPEEE
Peach Bottom 2	05000277	0.12	2.0E-04	0.2	2.4E-05	modified focused-scope EPRI SMA	GI-199
Peach Bottom 3	05000278	0.12	2.0E-04	0.2	2.4E-05	modified focused-scope EPRI SMA	GI-199
Perry	05000440	0.15	2.2E-04	0.3	2.1E-05	0.3g focused-scope EPRI SMA	GI-199
Pilgrim 1	05000293	0.15	8.1E-04	n/a	6.9E-05	seismic PRA	GI-199
Point Beach 1	05000266	0.12	2.0E-04	n/a	1.1E-05	seismic PRA	GI-199
Point Beach 2	05000301	0.12	2.0E-04	n/a	1.1E-05	seismic PRA	GI-199
Prairie Island 1	05000282	0.12	2.0E-04	0.28	3.0E-06	0.3g focused-scope EPRI SMA	GI-199
Prairie Island 2	05000306	0.12	2.0E-04	0.28	3.0E-06	0.3g focused-scope EPRI SMA	GI-199
Quad Cities 1	05000254	0.24	8.2E-04	0.09	2.7E-05	0.3g focused-scope EPRI SMA	GI-199
Quad Cities 2	05000265	0.24	8.2E-04	0.09	2.7E-05	0.3g focused-scope EPRI SMA	GI-199
River Bend	05000458	0.1	2.4E-04	0.1	2.5E-05	reduced-scope EPRI SMA; SSE = 0.1g	GI-199
Robinson (HR)	05000261	0.2	1.1E-03	0.28	1.5E-05	0.3g full-scope EPRI SMA	GI-199
Saint Lucie	05000335	0.1	1.4E-04	0.1	4.6E-05	reduced-scope EPRI SMA; SSE = 0.1g	GI-199
Salem 1	05000389	0.2	2.6E-04	0.1	4.6E-05	reduced-scope EPRI SMA; SSE = 0.1g	GI-199
Salem 2	05000272	0.2	2.6E-04	n/a	9.3E-06	seismic PRA	GI-199
San Onofre 2	05000361	0.67	1.2E-04	n/a	1.7E-05	seismic PRA	IPEEE
San Onofre 3	05000362	0.67	1.2E-04	n/a	1.7E-05	seismic PRA	IPEEE
Seabrook	05000311	0.25	1.3E-04	n/a	9.3E-06	seismic PRA	GI-199
Sequoyah 1	05000443	0.18	7.1E-04	n/a	2.2E-05	seismic PRA	GI-199
Sequoyah 2	05000327	0.18	7.1E-04	0.27	5.1E-05	0.3g full-scope EPRI SMA	GI-199
Shearon Harris 1	05000328	0.15	4.6E-05	0.27	5.1E-05	0.3g full-scope EPRI SMA	GI-199
South Texas 1	05000498	0.1	3.0E-05	n/a	6.2E-06	seismic PRA	GI-199

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Plant	Docket	SSE (g's)	Frequency of Exceeding the SSE (per year)	RLE (HCLPF) (g's)	Seismic Core Damage Frequency (per year)	IPEEE Method	Source
South Texas 2	05000499	0.1	3.0E-05	n/a	6.2E-06	seismic PRA	GI-199
Summer	05000395	0.15	3.9E-04	0.22	3.8E-05	0.3g focused-scope EPRI SMA	GI-199
Surry 1	05000280	0.15	2.2E-04	n/a	5.7E-06	seismic PRA	GI-199
Surry 2	05000281	0.15	2.2E-04	n/a	5.7E-06	seismic PRA	GI-199
Susquehanna 1	05000387	0.1	1.9E-04	0.21	1.3E-05	0.3g focused-scope EPRI SMA	GI-199
Susquehanna 2	05000388	0.1	1.9E-04	0.21	1.3E-05	0.3g focused-scope EPRI SMA	GI-199
Three Mile Island 1	05000289	0.12	1.0E-04	n/a	4.0E-05	seismic PRA	GI-199
Turkey Point 3	05000250	0.15	3.8E-05	0.15	1.0E-05	site-specific approach; SSE=0.15g	GI-199
Turkey Point 4	05000251	0.15	3.8E-05	0.15	1.0E-05	site-specific approach; SSE=0.15g	GI-199
Vermont Yankee	05000271	0.14	1.2E-04	0.25	8.1E-06	0.3g focused-scope EPRI SMA	GI-199
Vogtle 1	05000424	0.2	1.5E-04	0.3	1.8E-05	0.3g focused-scope EPRI SMA	GI-199
Vogtle 2	05000425	0.2	1.5E-04	0.3	1.8E-05	0.3g focused-scope EPRI SMA	GI-199
Waterford 3	05000382	0.1	1.1E-04	0.1	2.0E-05	reduced-scope EPRI SMA; SSE = 0.1g	GI-199
Watts Bar	05000390	0.18	2.9E-04	0.3	3.6E-05	0.3g focused-scope EPRI SMA	GI-199
Wolf Creek	05000482	0.12	3.7E-05	0.2	1.8E-05	reduced-scope EPRI SMA	GI-199
25th percentile			9.6E-05		6.0E-06		
min			1.6E-05		2.0E-06		
median			1.7E-04		1.5E-05		
mean			3.1E-04		2.1E-05		
max			3.9E-03		1.0E-04		
75th percentile			2.6E-04		3.2E-05		

Summary of seismological information from regional instrumentation

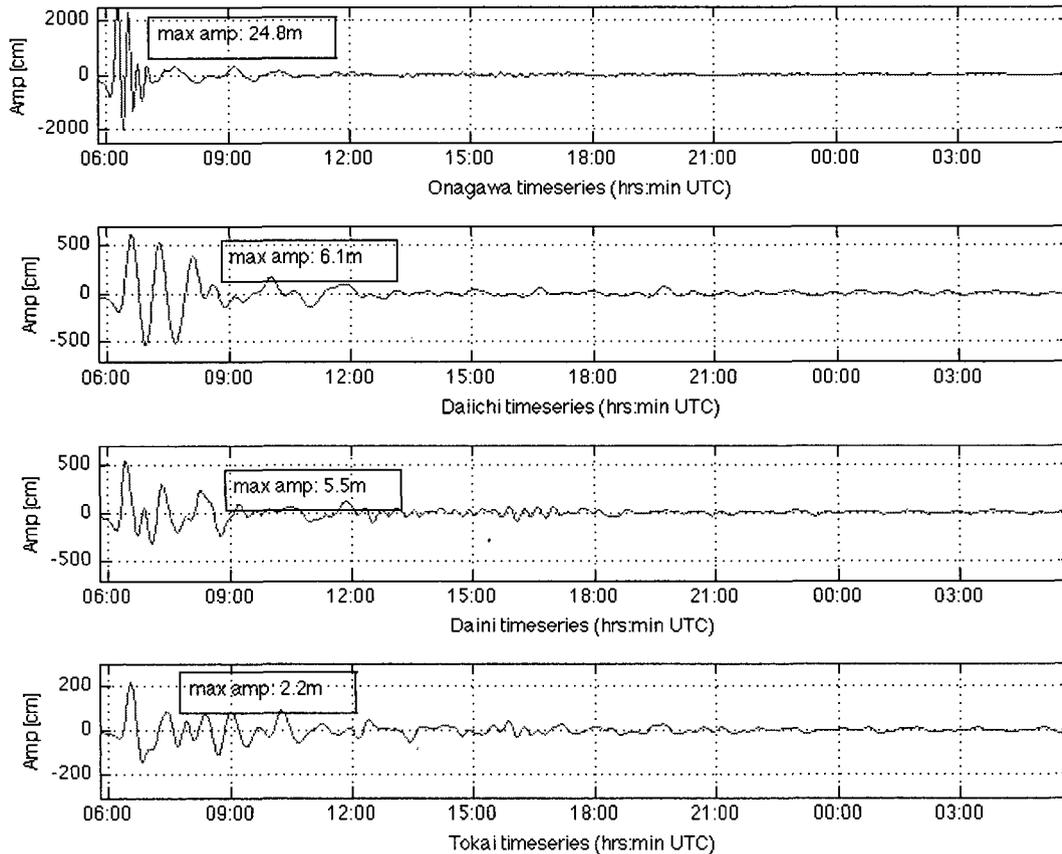
Placeholder: Rasool Anooshehpoor is developing.

### Tsunami Wave Heights at the Japanese Plants (unofficial from NOAA)

The below plots were developed for NRC seismic staff a few hours after the earthquake and tsunami by the PMEL group of NOAA. This group is responsible for scientific development of the models and tools used by the US tsunami warning system, as well as notification elements of system itself.

On 3/16/11, the PMEL NOAA team informed NRC staff that additional analyses have generally confirmed the below estimates and so they don't expect the final official numbers at the plant locations to change much.

**Offshore wave amplitudes, scaled to the coastline**



## Fact Sheet on Protection of Nuclear Power Plants against Tsunami Flooding

Nuclear power plants are designed to withstand the effects of natural phenomena such as earthquakes, tornadoes, hurricanes, floods, tsunamis, and seiches without loss of capability to perform their safety functions. The word tsunami literally means harbor wave. Tsunamis can be generated by large offshore earthquakes (usually greater than magnitude 6.5), submarine or on shore land slides or volcanoes. Some large onshore earthquakes close to the shoreline can generate tsunami. The Nuclear Regulatory Commission (NRC) requires all nuclear power plants to be protected against earthquakes, tsunamis and other natural hazards.

### Background

Protection against tsunami effects was required for all operating plants and is required for all new reactors. Following the Indian Ocean tsunami on December 26, 2004, the President moved to protect lives and property by launching an initiative to improve domestic tsunami warning capabilities. This plan was placed under the auspices of the National Science and Technology Council through the President's initiative in July 2005 in the context of a broad national effort of tsunami risk reduction, and United States participated in international efforts to reduce tsunami risk worldwide. In response to the president's initiative, the NRC reviewed its licensing criteria and conducted independent studies and participated in international forums under the auspices of the International Atomic Energy Agency with many participating countries including India and Japan. The final report of the study was published in April 2009 as NUREG/CR 6966, "Tsunami Hazard Assessment at Nuclear Power Plant Sites in the United States of America," ADAMS Accession # ML0915901933. NRC revised its Standard Review Plan for conducting safety reviews of nuclear power plants in 2007. Section 2.4.6 specifically addresses tsunamis. The Office of Nuclear Regulatory Research is conducting tsunami studies in collaboration with the United States Geological Survey and has published a report on tsunami hazard in the Atlantic, Gulf and Pacific coastal areas. Selected nuclear power plants now get tsunami warning notification. The agency requires plant designs to withstand the effects of natural phenomena including effects of tsunamis. The agency's requirements, including General Design Criteria for licensing a plant, are described in Title 10 of the *Code of Federal Regulations* (10 CFR). These license requirements consist of incorporating margins in the initiating hazard and additional margins are due to traditional engineering practices such as "safety factors." Practices such as these add an extra element of safety into design, construction, and operations.

The NRC has always required licensees to design, operate, and maintain safety-significant structures, systems, and components to withstand the effects of natural hazards and to maintain the capability to perform their intended safety functions. The agency ensures these requirements are satisfied through the licensing, reactor oversight, and enforcement processes.

### Tsunami Hazard Evaluation

Tsunami hazard evaluation is one component of the complete hydrological review requirements provided in the Standard Review Plan under Chapter 2.4. The safety determination of reactor sites require consideration of major flood causing events, including consideration of combined flood causing conditions. These conditions include Probable Maximum Flood (PMF) on Streams and Rivers, Potential Dam Failures, Probable Maximum Surge and Seiche Flooding and Probable Maximum Tsunami Hazards, among others. The most significant flooding event is called the design basis flood and flooding protection requirements are correlated to this flood level in 2.4.10.

The Probable Maximum Tsunami (PMT) is defined as that tsunami for which the impact at the site is derived from the use of best available scientific information to arrive at a set of scenarios reasonably expected to affect the nuclear power plant site taking into account (a) appropriate consideration of the most severe of the natural phenomena that have been historically reported or determine from geological and physical data for the site and surrounding area, with sufficient margin for the limited accuracy, quantity, and period of time in which the historical data have been accumulated, (b) appropriate combinations of the effects of normal and accident conditions with the effects of the natural phenomena, and (c) the importance of the safety functions to be performed.

Site-specific tsunami data are collected from historical tsunami records, paleotsunami evidence, regional tsunami assessments, site-specific tsunami mechanisms, site-specific data, such as submarine survey of

sea bed and approach channel geometry. Effects of tsunami on a nuclear power plant can be flooding due to water run up, hydro-dynamic pressure on exterior walls of structures, impact of floating debris, and foundation scouring. In addition, tsunami can draw down water from the intake source of plant cooling water.

The tsunami database is available for interactive search and downloads on the internet at <http://www.ngdc.noaa.gov/hazard/tsu.shtml>.

### **Tsunami Safety Assessment**

The licensing bases for existing nuclear power plants are based on historical data at each site. This data is used to determine probable maximum tsunami and the tsunami effects are evaluated for each site with potential for tsunami flooding. The potential for tsunami hazard is determined on a hierarchical analysis process that can identify tsunami potential based primarily on distance from tsunami source and site elevation. The NRC also required existing plants to assess their potential vulnerability to external events, as part of the Individual Plant Examination of External Events Program. This process ensured that existing plants are not vulnerable to tsunami hazard, and they continue to provide adequate public health and safety.

Today, the NRC utilizes a risk-informed regulatory approach, including insights from probabilistic assessments and traditional deterministic engineering methods to make regulatory decisions about existing plants (e.g., licensing amendment decisions). Any new nuclear plant the NRC licenses will use a probabilistic, performance-based approach to establish the plant's seismic hazard and the seismic loads for the plant's design basis.

### **Operating Plants**

The NRC is fully engaged in national international tsunami hazard mitigation programs, and is conducting active research to refine the tsunami sources in the Atlantic, Gulf Coast and Pacific Coast areas. Diablo Canyon (DC) and San Onofre (SONGS) are two nuclear plant sites that have potential for tsunami hazard. Both the DC (main plant) and SONGS are located above the flood level associated with tsunami. However, the intake structures and Auxiliary Sea Water System at DC are designed for combination of tsunami-storm wave activity to 45 ft msl. SONGS has a reinforced concrete cantilevered retaining seawall and screen well perimeter wall designed to withstand the design basis earthquake, followed by the maximum predicted tsunami with coincident storm wave action, designed to protect at approximately 27 ft msl. These reactors are adequately protected against tsunami effects. Distant tsunami sources for DC include the Aleutian area, Kuril-Kamchatka region, and the South American coast (for Songs the Aleutian area). Distant sources for SONGS is limited by the presence of a broad continental shelf. Local or near sources for DC include the Santa Lucia Bank and Santa Maria Basin Faults (for Songs the Santa Ana wind).

### **Additional Information**

To read more about risk-related NRC policy, see the fact sheets on Probabilistic Risk Assessment (<http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/probabilistic-risk-asses.html>) and Nuclear Reactor Risk (<http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/reactor-risk.html>). Each provides more information on the use of probability in evaluating hazards (including earthquakes) and their potential impact on plant safety margins. Other regulatory framework includes General Design Criterion 2, 10 CFR Part 100.23, Regulatory Guide 1.102 "Flood Protection for Nuclear Power Plants", Rev. 1 1976, Regulatory Guide 1.59 "Design Basis for Nuclear Power Plants" Rev. 2 1977 (update in progress), and USNRC Standard Review Plan "Probable Maximum Tsunami Flooding" Section 2.4.6, Rev. 2.

March 2011

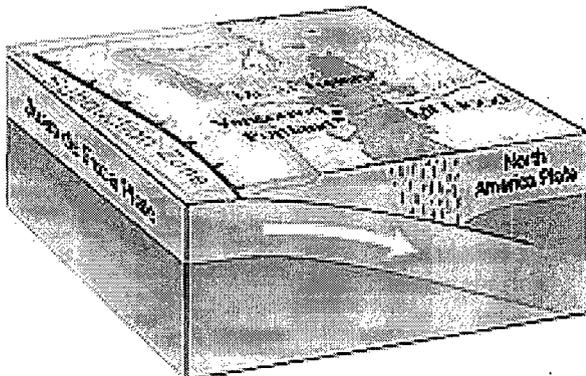
## Seismicity of the Central and Eastern US Fact Sheet

### Key Points:

- To date, very large earthquakes (Magnitudes greater than 8.25) have only occurred in specific geological settings, in particular the interfaces between tectonic plates in major **subduction zones**. The only subduction zone that potentially impacts the continental U.S. is the Cascadia zone off the coast of northern California, Oregon and Washington.
- Recent analyses of the magnitudes of the largest earthquakes **not associated** with subduction zones indicates magnitudes are less than ~8.25.
- The size (magnitude) of earthquakes is proportional to the fault area that slips in a given earthquake. The prediction of earthquake magnitudes for a specific fault considers the dimensions of the fault. Extremely large earthquakes do not occur on small faults.
- Nuclear power plants are licensed based on vibratory ground shaking, not earthquake magnitude. The ground shaking (accelerations) are used to estimate forces which are used in the seismic design process. In many cases smaller magnitude earthquakes closer to a site produce more severe ground shaking than larger, more distant earthquakes. Hence it is important to consider all potential earthquake sources regardless of magnitude.

**Discussion:** Earthquakes with very large magnitudes such as the March 2011 earthquake off the northeast coast of the Japanese island of Honshu occur within subduction zones, which are locations where one of the earth's tectonic plates is subducting beneath (being thrust under) another. The fault that defines the Japan Trench plate boundary dips to the west, i.e., becomes deeper towards the coast of Honshu. Large offshore earthquakes have historically occurred in the same subduction zone (in 1611, 1896, and 1933) all of which produced significant tsunami waves. The magnitudes of these previous large earthquakes have been estimated to be between 7.6 and 8.6. Prior to March 2011, the Japan Trench subduction zone has produced nine earthquakes with magnitudes greater than 7 just since 1973.

The only subduction zone that is capable of directly impacting the continental US is the Cascadia subduction zone, which lies off of the coast of northern California, Oregon, and Washington. The fault surface defined by this interface dips to the east (becomes deeper) beneath the coast. The Cascadia subduction zone is capable of producing very large earthquakes if all or a large portion of the fault area ruptures in a single event. However, the rate of earthquake occurrence along the Cascadia subduction zone is much less than has been observed along the Japan Trench subduction zone. The only operating nuclear power plant in that area is Columbia, which is far from the coast and the Cascadia subduction zone. *The occurrence of earthquakes on the Cascadia subduction zone has been considered in the evaluation of the Columbia NPP.*



Schematic Illustration of the Cascadia Subduction Zone

The size (magnitude) of earthquakes is proportional to the surface area of a fault that slips in a given earthquake. Large earthquakes are associated with large (long) faults. Hence, the prediction of earthquake magnitudes for a specific fault considers the dimensions of the fault. Identification of fault size is usually based on geologic mapping or the evaluation of spatial patterns of small earthquakes. To provide **a point of comparison**, the length of the fault that slipped during the March 11, 2011 magnitude 9 Japanese earthquake was >620 km, the length of the fault(s) that slipped during the magnitude 7.3 1992 Landers, CA earthquake was ~90 km and the estimated length of the Hosgi fault near Diablo Canyon NPP is 140 km and a magnitude of 7.5 is assigned to that fault. A number of major crustal faults or fault zones (not associated with the Cascadia subduction zone) have been identified that have produced earthquakes of magnitude 7.5 to 8 in the continental US (including California). ***These fault sources have been identified and characterized in seismic hazard assessments.***

Seismic designs at U.S. nuclear power plants are developed in terms of seismic ground motion spectra, which are called the Safe Shutdown Earthquake ground motion response spectra (SSE). Each nuclear power plant is designed to a ground motion level that is appropriate for the geology and tectonics in the region surrounding the plant location. Currently operating nuclear power plants developed their SSEs based on a "deterministic" or "scenario earthquake" basis that account for the largest earthquake expected in the area around the plant. Seismic activity in the regions surrounding U.S. plants is much lower than that for Japan since **most U.S. plants are located in the interior of the stable continental U.S.** The largest earthquakes within the continental U.S. are the 1811-12 New Madrid sequence and the 1886 Charleston, SC, which were estimated to be between about magnitude 6.8 to 7.5. On the west coast of the U.S., the two nuclear power plants are designed to specific ground motions from earthquakes of about magnitude 7+ on faults located just offshore of the plants. The earthquakes on these faults are mainly strike-slip (horizontal motion on near vertical planes) type earthquakes, not subduction zone earthquakes. This fault geometry does not produce large tsunamigenic waves. Therefore, the likelihood of a significant tsunami from these faults is very remote.

Design Basis Ground Motions and New Review Level Ground Motions Used for Review of Japanese Plants

Plant sites	Contributing earthquakes	New DBGM $S_1$	Original DBGM $S_2$
Tomari	Earthquakes undefined specifically	550 Gal	370 Gal
Onagawa	Soutei Miyagiken-oki (M8.2)	580	375
Higashidoori	Earthquakes undefined specifically	450	375
Fukushima	Earthquake near the site (M7.1)	600	370
Tokai	Earthquakes undefined specifically	600	380
Hamaoka	Assumed Tokai (M8.0), etc.	800	600
Shika	Sasanami-oki Fault (M7.6)	600	490
Tsuruga	Urazoko-Uchiikemi Fault (M6.9), etc. →Mera-Kareizaki - Kaburagi(M7.8), Shelf edge+B+Nosaka (M7.7)	800	532
Mihama	C, Fo-A Fault (M6.9)→ Shelf edge+B+Nosaka(M7.7)	750	405
Ohi	C, Fo-A Fault (M6.9)→Fo-A+Fo-B (M7.4)	700	405
Takahama	Fo-A Fault (M6.9) →Fo-A+Fo-B(M7.4)	550	370
Shimane	Shinji Fault (M7.1)	600	456
Ikata	Central Tectonic Structure (M7.6)	570	473
Genkai	Takekoba F. (M6.9) → Enhanced uncertainty consideration	540	370
Sendai	Gotandagawa F.(M6.9), F-A(M6.9)	540	372
Kashiwazaki-Kariwa	F-B Fault (M7.0), Nagaoka-plain-west Fault (M8.1)	2300 (R1 side) 1209 (R5 side)	450
Monjyu (Proto Type FBR)	Shiraki-Niu F.(M6.9) , C F.(M6.9)→Shelf edge+B+Nosaka(M7.7), Small Damping	760	408
Shimokita Reprocessing F.	Deto-Seiho F.(M6.8), Yokohama F.(M6.8)	450	320

Status of Review of Japanese NPPs to New Earthquake Levels Based on 2006 Guidance

Utility	Site (Unit)	Type	Dec.2010
Hokkaido	Tomari	PWR	△
Tohoku	Onagawa (Unit1)	BWR	◎
	Higashi-dori	BWR	△
Tokyo	Kashiwazaki-Kariwa	BWR	Unit 1,5,6,7 ◎
	Fukushima-No1	BWR	Unit 3 ◇, 5 ◎
	Fukushima-No2	BWR	Unit 4,5 ◎
Chubu	Hamaoka	BWR	△
Hokuriku	Shika (Unit 2)	BWR	◎
Kansai	Mihama(Unit 1)	PWR	◎
	Ohi(Unit 3,4)	PWR	◎
	Takahama (Unit 3,4)	PWR	◎
Chugoku	Shimane (Unit 1, 2)	BWR	◎
Shikoku	Ikata (Unit 3)	PWR	◎
Kyushu	Genkai (Unit 3 )	PWR	◎
	Sendai (Unit 1)	PWR	◎
Japan Atomic Power	Tokai-Daini	BWR	○
	Tsuruga	BWR/PWR	△
JAEA	Monjyu	Proto Type FBR	◎
Japan Nuc. Fuel	Rokkasyo	Reprocessing	◎

◎: NSC review finished, ○: NISA review finished and in NSC review, △: Under review by NISA

## US Portable Array briefing sheet for brief congressional staffers

NOTE: This is provided because IRIS participants let us know that here was a discussion about the NRC's involvement in this program. We have been involved in this for the last couple years.



The Incorporated Research Institutions for Seismology is the Consortium of Unites States Universities with Major Research Programs in Seismology and Related Fields.

### The Transportable Array: A Science Investment that Can Be Leveraged

IRIS is installing the Transportable Array – a set of 400 broadband seismic instruments – in each of more than 1600 sites across the contiguous United States. The instruments operate at each site for two years and then are removed and redeployed further east. Roughly 1100 stations have been installed since 2003, and instruments have been removed from more than 600 of those sites in the western United States.

The National Science Foundation is funding the full cost to “roll” the Transportable Array across the US, more than \$90,000,000 over ten years. Comparatively small incremental investments could add significant data that are relevant to the safety of nuclear power plants. These efforts would be uniquely cost effective, since NSF is already funding installation, and they would feed data into an existing, standardized and widely used data management system that already incorporates the vast majority of seismic data from US networks. But these opportunities are time constrained: the array will be fully installed in the contiguous 48 states by late 2013.

### More Value from Longer Term Regional Observations

A dense, uniform seismic network is necessary for long-term, broad-area seismic monitoring of the central and eastern United States due to low event recurrence rates and the risk of significant earthquakes ( $M > 5$ ) anywhere in the region. Monitoring seismicity in the central and eastern US can be improved by turning selected sites into permanent seismic stations. A total of more than 35 Transportable Array stations have already been “adopted” by several organizations, creating a permanent legacy, but only in the western United States.

A strategic “1-in-4” plan would involve “adoption” of systematically selected stations in the central and eastern United States – every other station in both the east-west and north-south directions, creating a uniform grid of some 250 stations. Long-term regional operation could be combined with two optional enhancements to create a unique observatory for the study of seismicity, source characteristics, attenuation, and local ground acceleration.

#### Enhancement 1: Acquire Higher Frequency Data

Crustal rigidity in the central and eastern US makes it desirable to record high frequency characteristics of local and regional earthquakes. The existing instruments could be reconfigured to record high frequencies but doing so would nearly triple the data flow, necessitating improvements to the communications infrastructure.

#### Enhancement 2: Add Strong Motion Sensors

Acquiring strong motion sensors and reconfiguring field computers that record and telemeter the data would help to measure unique effects of severe shaking. The design anticipated this augmentation, and several stations in California and Washington were operated that way. Upgrade would be more efficient at sites that have not yet been installed.

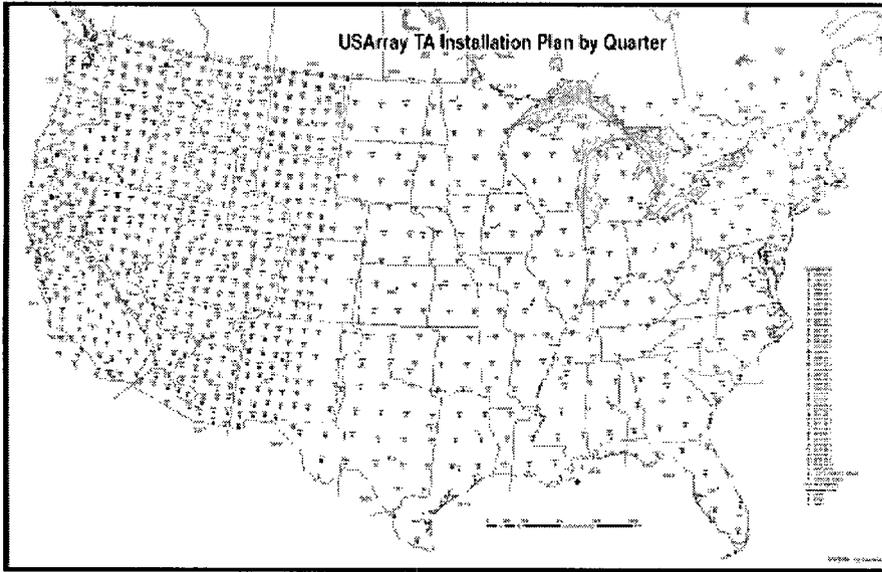
*Estimate of annual acquisition and O&M costs for the 1-in-4, 250-station network in central and eastern US.*

Year	Stations	Acquisition <sup>1</sup>	O&M <sup>2</sup>	Total
2011	50	\$1,800,000	\$ 400,000	\$2,200,000
2012	50	\$1,800,000	\$ 800,000	\$2,600,000
2013	50	\$1,800,000	\$1,200,000	\$3,000,000
2014	50	\$1,800,000	\$1,600,000	\$3,400,000
2015	50	\$1,800,000	\$2,000,000	\$3,800,000
2016	–	–	\$2,000,000	\$2,000,000

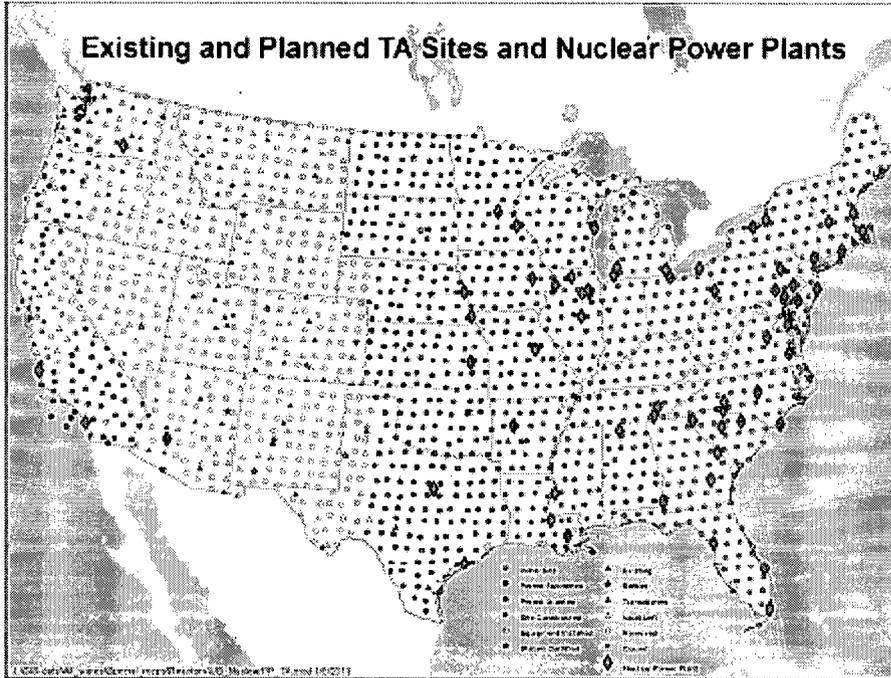
<sup>1</sup> Assumes upgrades to six channel data loggers with strong motion sensors.

<sup>2</sup> Assumes a conservative estimate of \$8,000/station/year.

The 1-in-4, 250-station network that could be created in the central and eastern US by "leaving behind" one out of every four Transportable Array stations during the years 2011 through 2015.



A large majority of nuclear power plants are located in the central and eastern parts of the US, where it is still possible to "leave behind" 1-in-4 Transportable Array stations for long-term regional observations.



## List of Questions

<b>Natural Hazards and Ground Shaking Design Levels .....</b>	<b>1</b>
1) Did the Japanese underestimate the size of the maximum credible earthquake that could affect the plants? .....	1
2) Can a very large earthquake and tsunami happen here? .....	1
3) Has this changed our perception of Earthquake risk? .....	1
4) What magnitude earthquake are US plants designed to? .....	1
5) How many US reactors are located in active earthquake zones (and which reactors)? .....	2
6) How many reactors are along coastal areas that could be affected by a tsunami (and which ones)? .....	2
7) If the earthquake in Japan was a larger magnitude than considered by plant design, why can't the same thing happen in the US? .....	2
8) What if an earthquake like the Sendai earthquake occurred near a US plant? .....	3
9) What would be the results of a tsunami generated off the coast of a US plant? (Or why are we confident that large tsunamis will not occur relatively close to US shores?) .....	3
10) Can this happen here i.e. an earthquake that significantly damages a nuclear power plant? Are the Japanese plants similar to U.S. plants? .....	3
11) What level of earthquake hazard are the US reactors designed for? .....	3
12) Does the NRC consider earthquakes of magnitude 9? .....	3
13) What are the definitions of the SSE and OBE? .....	4
14) What is the likelihood of the design basis or "SSE" ground motions being exceeded over the life of the plant? .....	5
15) What is magnitude anyway? What is the Richter Scale? What is intensity? .....	5
16) We need to pull Q&As out of the Markey/Capp letter of March 15 <sup>th</sup> ...there's a lot there to answer .....	5
17) How do magnitude and ground motion relate to each other? .....	5
18) How are combined seismic and tsunami events treated in risk space? Are they considered together? .....	5
19) How are aftershocks treated in terms of risk assessment? .....	5
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22) What level of Tsunami are we designed for? .....	6

23) Which plants are close to known active faults? What are the faults and how far away are they from the plants? ..... 6

24) How was the seismic design basis for an existing nuclear power plant established? ..... 6

25) Is there margin above the design basis? ..... 7

26) Are US plants safe? ..... 7

27) Was the Japanese plant designed for this type of accident? Are US plants? ..... 7

28) Why do we have confidence that US nuclear power plants are adequately designed for earthquakes and tsunamis? ..... 7

29) Can this happen here i.e. an earthquake that significantly damages a nuclear power plant? Are the Japanese plants similar to U.S. plants? ..... 7

30) Could an accident like the one at Japan’s Fukushima Daiichi nuclear plant happen in the United States? ..... 8

31) Should U.S. nuclear facilities be required to withstand earthquakes and tsunamis of the kind just experienced in Japan? If not, why not? ..... 8

32) Can you summarize the plant seismic design basis for the US plants? Are there any special issues associated with seismic design? ..... 9

33) How do we know that the equipment in plants is safe in earthquakes? ..... 9

34) How do we know equipment will work if the magnitude is bigger than expected, like in Japan? 9

35) Are US plants susceptible to the same kind of loss of power as happened in Japan? ..... 9

36) How do we know that the EDGs in Diablo Canyon and SONGS will not fail to operate like in Japan? 10

37) Is all equipment at the plant vulnerable to tsunami? ..... 10

38) What protection measures do plants have against tsunami? ..... 10

39) Is there a risk of loss of water during tsunami drawdown? Is it considered in design? ..... 10

40) Are nuclear buildings built to withstand earthquakes? What about tsunami? ..... 10

41) Are aftershocks considered in the design of equipment at the plants? Are aftershocks considered in design of the structure? ..... 10

42) Are there any special issues associated with seismic design at the plants? For example, Diablo Canyon has special requirements. Are there any others? ..... 10

43) Is the NRC planning to require seismic isolators for the next generation of nuclear power plants? How does that differ from current requirements and/or precautions at existing U.S. nuclear power plants? ..... 10

44) Are there any U.S. nuclear power plants that incorporate seismic isolators? What precautions are taken in earthquake-prone areas? ..... 11

- 45) Do you think that the recent Japan disaster will cause any rethinking of the planned seismic isolation guidelines, particularly as it regards earthquakes and secondary effects such as tsunamis?  
11

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- 46) Was the damage done to the plants from the Earthquake or the Tsunami?..... 12
- 47) What is the design level of the Japanese plants? Was it exceeded?..... 12
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- 49) Did this earthquake affect Kashiwazaki-Kariwa NPP? ..... 13
- 50) How high were the tsunami at the plants?..... 13
- 51) Wikileaks has a story that quotes US embassy correspondence and some un-named IAEA expert stating that the Japanese were warned about this ... Does the NRC want to comment? ..... 13

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- 52) Was there any damage to U.S. reactors from either the earthquake or the resulting tsunami?..... 14
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- 54) What is the NRC doing about the emergencies at the nuclear power plants in Japan? Are you sending staff over there? ..... 15
- 55) With NRC moving to design certification, at what point is seismic capability tested – during design or modified to be site-specific? If in design, what strength seismic event must these be built to withstand? ..... 15
- 56) Can we get the rankings of the plants in terms of safety? (Actually this answer should be considered any time GI-199 data is used to “rank” plants)..... 15
- 57) Is the earthquake safety of US plants reviewed once the plants are constructed? ..... 16
- 58) Does the NRC ever review tsunami risk for existing plants? ..... 16
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- 60) What is Generic Issue 199 about? ..... 16
- 61) Where can I get current information about Generic Issue 199? ..... 16
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- 65) Are the plants safe? If you are not sure they are safe, why are they not being shut down? If you are sure they are safe, why are you continuing evaluations related to this generic issue?..... 17

66) What do you mean by “increased estimates of seismic hazards” at nuclear power plant sites? 18

67) What do the following terms mean? ..... 19

68) Let's say there's an estimate expressed as "2.5E-06." (I'm looking at Table D-2 of the safety/risk assessment of August 2010.) I believe that this expression means the same as  $2.5 \times 10^{-06}$ , or 0.0000025, or 2.5 divided by one million. In layman's terms, that means an expectation, on average, of 2.5 events every million years, or once every 400,000 years. Similarly, "2.5E-05" would be 2.5 divided by 100,000, or 2.5 events every 100,000 years, on average, or once every 40,000 years. Is this correct? ..... 20

69) The GI-199 documents give updated probabilistic seismic hazard estimates for existing nuclear power plants in the Central and Eastern U.S. What document has the latest seismic hazard estimates (probabilistic or not) for existing nuclear power plants in the Western U.S.? ..... 20

70) The GI-199 documents refer to newer data on the way. Have NRC, USGS et al. released those? I'm referring to this: "New consensus seismic-hazard estimates will become available in late 2010 or early 2011 (these are a product of a joint NRC, U.S. Department of Energy, U.S. Geological Survey (USGS) and Electric Power Research Institute (EPRI) project). These consensus seismic hazard estimates will supersede the existing EPRI, Lawrence Livermore National Laboratory, and USGS hazard estimates used in the GI-199 Safety/Risk Assessment." ..... 21

71) What is the timetable now for consideration of any regulatory changes from the GI-199 research?..... 21

**Seismic Probabilistic Risk Assessment (SPRA) ..... 22**

72) The NRC increasingly uses risk-information in regulatory decisions. Are risk-informed PRAs useful in assessing an event such as this? ..... 22

**Plant-Specific Questions ..... 23**

SONGS questions ..... 23

73) SONGS received a white finding in 2008 for 125VDC battery issue related to the EDGs that went undetected for 4 years. NRC issued the white finding as there was increased risk that one EDG may not have started due to a low voltage condition on the battery on one Unit (Unit 2). Aren't all plants susceptible to the unknown? Is there any assurance the emergency cooling systems will function as desired in a Japan-like emergency? ..... 23

74) Has the earthquake hazard at SONGS been reviewed like DCNPP is doing? Are they planning on doing an update before relicensing? ..... 23

75) Is possible to have a tsunami at songs that is capable of damaging the plant? ..... 23

76) Does SONGS have an emergency plan for tsunami? ..... 23

77) Has evacuation planning at SONGS considered tsunami? ..... 24

78) Is SONGS designed against tsunami and earthquake? ..... 24

79) What is the height of water that SONGS is designed to withstand? ..... 24

80) What about drawdown and debris? ..... 24

81) Will this be reviewed in light of the Japan quake. .... 24

82) Could all onsite and offsite power be disrupted from SONGS in the event of a tsunami, and if that happened, could the plant be safely cooled down if power wasn't restored for days after? .... 24

83) Are there any faults nearby SONGS that could generate a significant tsunami? ..... 25

84) What magnitude or shaking level is SONGS designed to withstand? How likely is an earthquake of that magnitude for the SONGS site? ..... 25

85) Could SONGS withstand an earthquake of the magnitude of the Japanese earthquake? ..... 25

86) What about the evacuation routes at SONGS? How do we know they are reasonable? ..... 25

87) Regarding tsunami at Diablo and SONGS, is the tsunami considered separately from flooding in licensing? And from the design perspective, is the flood still the controlling event for those plants rather than the tsunami? ..... 25

88) What is the design level flooding for DNCPP and SONGS? Can a tsunami be larger? ..... 26

89) Is there potential linkage between the South Coast Offshore fault near San Onofre NPP and the Newport-Inglewood Fault system and/or the Rose Canyon fault? Does this potential linkage impact the maximum magnitude that would be assigned to the South Coast Offshore fault and ultimately to the design basis ground motions for this facility? ..... 26

Diablo Canyon Questions ..... 27

90) Now after the Japan tragedy, will the NRC finally hear us (A4NR) and postpone DC license renewal until seismic studies are complete? How can you be sure that what happened there is not going to happen at Diablo with a worse cast quake and tsunami? ..... 27

91) The evacuation routes at DCNPP see are not realistic. Highway 101 is small...and can you imagine what it will be like with 40K people on it? Has the evacuation plan been updated w/ all the population growth? ..... 27

92) Are there local offshore fault sources capable of producing a tsunami with very short warning times? ..... 27

93) Are there other seismically induced failure modes (other than tsunami) that would yield LTSBO? Flooding due to dam failure or widespread liquefaction are examples. .... 27

94) Ramifications of beyond design basis events (seismic and tsunami) and potential LTSBO on spent fuel storage facilities? ..... 27

95) Why did a Emergency Warning go out for a 'tsunami' that was only 6 ft high? Do these guys really know what they're doing? Would they know it if a big one was really coming? Crying wolf all the time doesn't instill a lot of confidence. .... 27

96) How big did the Japanese think a quake/tsunami could be before 3/11? Why were they so wrong (assuming this quake/tsunami was bigger than what they had designed the plant for)? ..... 28

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The Japanese were supposed to have one of the best tsunami warning systems around. What went wrong last week (both with the reactors and getting the people out...see #1, evacuation plan above)?..... 28

97) Regarding tsunami at Diablo and SONGS, is the tsunami considered separately from flooding in licensing? And from the design perspective, is the flood still the controlling event for those plants rather than the tsunami? ..... 28

98) Shouldn't the NRC make licensees consider a Tsunami coincident with a seismic event that triggers the Tsunami? ..... 28

99) Given that SSCs get fatigued over time, shouldn't the NRC consider after-shocks in seismic hazard analyses? ..... 28

100) Did the Japanese also consider an 8.9 magnitude earthquake and resulting tsunami "way too low a probability for consideration"? ..... 28

101) GI-199 shows that the scientific community doesn't know everything about the seismicity of CEUS. And isn't there a prediction that the West coast is likely to get hit with some huge earthquake in the next 30 years or so? Why does the NRC continue to license plants on the west coast? 29

Indian Point Questions..... 30

102) Why is Indian Point safe if there is a fault line so close to it?..... 30

103) Comments From the letter received 3/16/11 from Congresswoman Lowey:..... 30

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**From:** Google Alerts  
**To:** Hayden, Elizabeth  
**Subject:** Google Alert - Nuclear Regulatory Commission  
**Date:** Thursday, March 17, 2011 1:31:28 AM

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## News

6 new results for **Nuclear Regulatory Commission**

### Senate Dems call for broad review of nation's **nuclear** reactors

The Hill (blog)

By Andrew Restuccia - 03/16/11 05:42 PM ET Senate Democrats on Wednesday called for a broad review of the nation's nuclear reactors after the head of the **Nuclear Regulatory Commission (NRC)** offered an assessment of the evolving nuclear crisis in Japan. ...

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### **NRC**: No water in spent fuel pool of Japan plant

Sarasota Herald-Tribune

AP WASHINGTON - The chief of the US **Nuclear Regulatory Commission** said all the water is gone from one of the spent fuel pools at Japan's most troubled nuclear plant, raising the possibility of widespread nuclear fallout. But Japanese officials denied ...

[See all stories on this topic »](#)

### A much louder nuclear warning

San Antonio Express

Page 8A China: It puts permits for new nuclear plants on hold. Page 8A Shutdowns: Japanese car companies decide to extend closings. Business, 2C WASHINGTON "The chairman of the United States **Nuclear Regulatory Commission** gave a far bleaker appraisal ...

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### Area **nuclear** plants not immune from problems

Kansas City Star

Both the **Nuclear Regulatory Commission**, which identified the problem, and officials of the Wolf Creek plant near Burlington, Kan., downplayed the failure as being "of very low safety significance." The momentary power loss resulted from a series of ...

[See all stories on this topic »](#)

### US remains safe from radioactivity, officials say, but levels are being ...

Los Angeles Times

The **Nuclear Regulatory Commission** reiterated that the nuclear fallout from Japan poses no danger to US territory. A network of 100 radiation sensors across the US is operating in high gear to make sure it stays that way. A Radnet monitor on the roof of ...

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Los Angeles  
Times

YHY/207

### Cuomo: NY will review safety at **nuclear** plant

Wall Street Journal

Andrew Cuomo said Wednesday that he wants to review information from the **Nuclear Regulatory Commission** about safety of a nuclear plant that lies near a seismic fault line 35 miles north of Manhattan. "Frankly, that was surprising to me," Cuomo told ...

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**From:** LIA08 Hoc  
**Sent:** Thursday, March 17, 2011 7:44 PM  
**To:** LIA06 Hoc  
**Subject:** FW: 1700 EDT (March 17, 2011) USNRC Earthquake/Tsunami SitRep  
**Attachments:** USNRC Earthquake-Tsunami Update.031711.1700EDT.pdf

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**From:** LIA07 Hoc  
**Sent:** Thursday, March 17, 2011 5:47 PM  
**Subject:** 1700 EDT (March 17, 2011) USNRC Earthquake/Tsunami SitRep

Attached, please find a 1700 EDT situation report from the US Nuclear Regulatory Commission's Emergency Operations Center regarding the impacts of the earthquake/tsunami on March 17, 2011.

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.

-Sara

Sara K. Mroz  
Communications and Outreach  
Office of Nuclear Security and Incident Response  
US Nuclear Regulatory Commission  
[sara.mroz@nrc.gov](mailto:sara.mroz@nrc.gov)  
[LIA07.HOC@nrc.gov](mailto:LIA07.HOC@nrc.gov) (Operations Center)

Y77/208

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**From:** OST01 HOC  
**Sent:** Wednesday, April 13, 2011 5:34 AM  
**To:** Dudek, Michael  
**Subject:** RST Night Input: Thoughts on the Transition

RST Night Input

R

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**From:** RST08 Hoc  
**Sent:** Wednesday, April 13, 2011 5:10 AM  
**To:** OST01 HOC  
**Subject:** RE: Thoughts on the Transition

My comments,

One big advantage is that it is a lot quieter and I am able to concentrate better on what I am working on. Also, less people are thinking of things to do so I can work on the important things. It seems that we are working on things that directly support the Japan team on a real-time basis.

As far as negatives, I think since there are less people in the RST then we have fewer people to bounce things off of and that may eventually lead to more rework. We need to have one person dedicated for a short time to filter through all the paperwork on the desks that is piled up. We just don't have the time to do it.

At this time I have no further comments.  
Tim Kolb

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**From:** OST01 HOC  
**Sent:** Tuesday, April 12, 2011 11:32 PM  
**To:** LIA08 Hoc; RST09 Hoc; RST08 Hoc; Hoc, PMT12  
**Cc:** FOIA Response.hoc Resource  
**Subject:** Thoughts on the Transition

Good Evening All,

NSIR is trying to figure out how everything is working in the new 6-person configuration. Now that we are a couple days into it, could you please think about the following questions:

1. What is going well?
2. What needs to be improved about the transition?

When you have time tonight, if you could send me your thoughts, I would greatly appreciate it.

Thanks,  
Rebecca Stone  
EST Coordinator

YYY/209

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**From:** OST01 HOC  
**Sent:** Wednesday, April 13, 2011 1:19 AM  
**To:** Dudek, Michael  
**Subject:** PMT Night Input: Thoughts on the Transition

Here is the PMT Night Input.

R

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**From:** Hoc, PMT12  
**Sent:** Wednesday, April 13, 2011 1:10 AM  
**To:** OST01 HOC  
**Subject:** RE: Thoughts on the Transition

- 1) So far, there doesn't seem to be any issue where we need other members of the PMT staff (RAAD, RASCAL) on very short notice. There seems to be enough to keep me kind of busy but not an overwhelming amount of work. For the nights this week, there hasn't been anything that could not wait for a single day shift to address.
- 2) For the PMT, if we are going to continue 24/7, then we should have a rotating schedule using the trained/qualified Directors (4), Dep. Directors (4), PAADs (4), and RAADs(4). This group of 16 should be able to handle the questions that arise with the right level of expertise. Outside of this group, Lou Brandon and Mike Norris could also be included, but I would not include the several new/inexperienced (specifically plant EP/HP experienced) people that we have occasionally had to fill positions. The schedule (maybe 4 on, 3 off) should be in place now through the end of the month, and some consideration for a next transition down to less than 24/7. This next transition should also include who specifically is responsible for contact and answering questions, including a 24/7 contact if necessary. I could see where we could come up with a plan to run a PMT with a responsible person to call 24/7, and support a normal work week response (with additional off-shift work as necessary) starting the end of April and continuing indefinitely.

Tx greg

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**From:** OST01 HOC  
**Sent:** Tuesday, April 12, 2011 11:32 PM  
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**Cc:** FOIA Response.hoc Resource  
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Thanks,  
Rebecca Stone  
EST Coordinator

YYY/210  
1