

From: [Cusumano, Victor](#) - NRR
To: [Lubinski, John](#)
Subject: RE: Japan initiates emergency protocol after earthquake
Date: Friday, March 11, 2011 9:19:27 AM

OK - I was surprised you weren't on distro - makes sense now.
Vic

From: Lubinski, John - NRR
Sent: Friday, March 11, 2011 9:11 AM
To: Cusumano, Victor
Subject: RE: Japan initiates emergency protocol after earthquake

Vic,

Thanks. Currently, DIRS (Eric Thomas) has the lead for coordinating information for NRR. I was in a couple of briefings this morning. They are getting the Breskovic e-mails.

From: Cusumano, Victor - NRR
Sent: Friday, March 11, 2011 8:54 AM
To: Lubinski, John; Evans, Michele; Thomas, Brian; Hardies, Robert; Karwoski, Kenneth; Lupold, Timothy; McMurtray, Anthony; Mitchell, Matthew; Taylor, Robert
Subject: FW: Japan initiates emergency protocol after earthquake

From: Astwood, Heather - NRR
Sent: Friday, March 11, 2011 8:32 AM
To: Leeds, Eric; Boger, Bruce; McGinty, Tim; Valentine, Nicholee; Titus, Brett; Susco, Jeremy; Roquecruz, Carla; Nguyen, Quynh; Meighan, Sean; Heida, Bruce; Fields, Leslie; Cusumano, Victor; Cartwright, William; Azeem, Almas
Cc: Cullingford, Michael; Hopkins, Jon; Quinones, Lauren; Regan, Christopher; Rodriguez, Veronica
Subject: FW: Japan initiates emergency protocol after earthquake

FYI

From: Breskovic, Clarence - OIP
Sent: Friday, March 11, 2011 6:39 AM
To: Breskovic, Clarence
Subject: Japan initiates emergency protocol after earthquake

Japan initiates emergency protocol after earthquake

11 March 2011

Nuclear Engineering International

Onagawa, Fukushima Daiichi, Fukushima Daini and Tokai nuclear power stations have automatically shut down following a magnitude 8.8 earthquake off the northeast coast of the largest island of Japan, Honshu.

All four operating plants on that coast have automatically shut down, or SCRAMmed,

B/I

according to Japan Atomic Information Forum (JAIF). Higashidori 1, which is also located on Honshu's northeast coast, was shut down for a periodic inspection.

The earthquake struck at 2:45pm local time. A 6:45 pm local time report from the Japan Nuclear and Industrial Safety Agency contained more information of damage and other problems in a site-by-site report.

-A CO₂ fire has broken out at Onagawa nuclear power station.

-Utility TEPCO has requested the establishment of a nuclear emergency response programme for Fukushima Daiichi 1&3 and Fukushima Daini 1.

JAIF reported that Fukushima Daiichi 1, 2 and 3 automatically shut down; units 4, 5 and 6 were in maintenance outages. Fukushima Daini 1, 2, 3 and 4 automatically shut down.

JAIF has reported that TEPCO sent the emergency report because emergency diesel generators at the two sites are out of order. It said that there is no report that the radiation was detected out of the site. It said that an emergency headquarters has been set up and will issue information hourly.

JAIF also reported that the Rokkasho reprocessing facility was being powered by emergency diesel generators. No other unusual events or radiation leaks have been reported. Nuclear power stations at Hamaoka, Kashiwazaki-Kariwa and Tomari are continuing normal operation, according to JAIF.

After an accident occurs at a nuclear power plant, the licensee must notify the national Nuclear and Industrial Safety Agency by law.

A minister in its controlling organisation, the Ministry of Economy, Trade and Industry, notifies the prime minister's office. The central nuclear emergency response headquarters (NERHQ) of the national government issues a nuclear emergency declaration, which also includes instructions about preventative measures. It receives technical advice from the Nuclear Safety Commission. The NERHQ sends a specialist and the NSC sends a commissioner to the site.

After the emergency declaration is received, the local office of the national government's NERHQ arranges prevention measures based on factors including facility information, climate and monitoring.

Nuclear emergency response operations are coordinated in one of 20 so-called off-site centres spread across Japan, which are close to, but not inside, nuclear facilities. The off-site centre's role is to be the main centre of information, incident analysis, and emergency plan organisation and direction. Two or three senior specialists for nuclear emergency preparedness work in each OFC. In normal conditions, the specialists work as nuclear power safety inspectors, checking plant operation from the viewpoint of regulation. During an

emergency, the specialists organize prevention measures as a secretariat and report it to a joint council for nuclear emergency response. The joint council includes not only the local office of the national government's NERHQ and the senior specialists, but also representatives of the Nuclear Safety Commission and prefectural and municipal NERHQs.

The joint council devises instructions to residents for evacuation and/or sheltering. It also instructs the emergency services and coast guard, self-defence force, Japan Nuclear Energy Safety Organisation (JNES), the National Institute of Radiological Sciences, the Japan Atomic Energy Agency, and other bodies.

JNES has constructed a dedicated high-speed network system connecting the 20 off-site centres and other agencies called Emergency Preparedness Response Network (EPRNet). It includes video conferencing systems, e-mail, telephone, fax, and connections to a meteorological information service, a plant information collection, diagnosis, prognosis and analytical prediction tool (called ERSS), and an emergency environmental dose prediction tool (called SPEEDI).

Freeman, Eric

From: Freeman, Eric
Sent: Friday, March 11, 2011 7:38 AM
To: 'Amanda Brody'
Subject: Wow - huge earthquake in Japan

A very large Earthquake hit Japan last night our time. Apparently it was an 8.8 magnitude and they are reporting a lot of injuries

Maier, Bill

From: Maier, Bill
Sent: Friday, March 11, 2011 5:05 PM
To: 'Barbara Byron'
Subject: RE: FW: NRC Continues to Track Earthquake and Tsunami Issues

No, sorry. Our response organization here in Texas has stood down. We still have a small group following international liaison in order to follow the Japanese plant(s) of concern, but I am not on their distribution list. Everything I've heard in the last few hours has been from CNN.

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

From: Barbara Byron [<mailto:bbyron@energy.state.ca.us>]
Sent: Friday, March 11, 2011 4:43 PM
To: clyde.pearce@alaska.gov; doug.dasher@alaska.gov; bill.potter@calema.ca.gov; lee.shin@calema.ca.gov; lynne.olson@calema.ca.gov; michael.warren@calema.ca.gov; ralsop@co.slo.ca.us; bill.webb@dhs.gov; craig.fiore@dhs.gov; jeffrey.eckerd@doh.hawaii.gov; lynn.nakasone@doh.hawaii.gov; leo.wainhouse@doh.wa.gov; Maier, Bill; shelley.carlson@odoe.state.or.us
Subject: Re: FW: NRC Continues to Track Earthquake and Tsunami Issues

Do you have any more news on the Japanese reactor with the cooling problem? CNN is reporting that it is releasing radiation at levels 1,000 times background.

>>> "Maier, Bill" <Bill.Maier@nrc.gov> 03/11/11 2:03 PM >>>

From: opa administrators [<mailto:opa@nrc.gov>]
Sent: Friday, March 11, 2011 2:40 PM
To: Maier, Bill
Subject: NRC Continues to Track Earthquake and Tsunami Issues

B/3

Boland, Anne

From: Boland, Anne
Sent: Friday, March 11, 2011 8:12 AM
To: Loudon, Patrick
Subject: Earthquake

CNN is reporting that one of the Japanese reactors, although successfully shutdown after the earthquake, has lost core cooling. No rad releases reported.

B/4

Orlikowski, Robert

From: Shah, Nirodh
Sent: Friday, March 11, 2011 8:59 AM
To: Voss, Patricia; Thomas, Christopher; Haeg, Lucas; Murray, Robert; Ramirez, Frances; Ruiz, Robert; Scarbeary, April
Cc: Riemer, Kenneth
Subject: Earthquake Inquiries

Follow Up Flag: Follow up
Flag Status: Flagged

If any of you receive any public inquiries re: nuclear plants and earthquakes, please forward them to public affairs. Given what is going on in Japan, we are expecting a number of questions from the public.

According to news reports, the Fukushima Daiichi and Onagawa plants, in Japan, were affected by the earthquake. Fukushima is having trouble shutting down due to electrical power issues and an apparent loss of one of the cooling systems. However, specific details are not fully known. As a precaution, Japan has declared a state of emergency and is evacuating the immediate area around the plant. The Onagawa plant did experience a turbine building fire, but it was extinguished with no significant damage. Fukushima is a BWR.

Here is a link to one of the news stories I was able to find on the event:

<http://www.cnn.com/2011/WORLD/asiapcf/03/11/japan.nuclear/>

Also, Christine received a text from Matt Learned that they are ok and are moving to safe ground. We haven't heard anything from Bob.

N

B/S

34

Ross, Robin

From: Nguyen, Quynh *NRG*
Sent: Tuesday, March 15, 2011 7:54 AM
To: Stone, Rebecca *NRG*
Subject: RE: (Action) Tsunami Fact Sheet - NUREG issued in March 2009 Link *release*

Hang in there! Yeah, you wouldn't believe how hard it was to get our guys out to Japan... we got them there I guess that's what matters!

From: Stone, Rebecca *NRG*
Sent: Tuesday, March 15, 2011 7:27 AM
To: Nguyen, Quynh
Subject: RE: (Action) Tsunami Fact Sheet - NUREG issued in March 2009 Link

Quynh,

I am not sure. I was called in at 1am this morning. I will try to get a few more answers before I leave today.

Thanks,
Rebecca

Rebecca Stone
Response Program
Office of Nuclear Security and Incident Response
U.S. Nuclear Regulatory Commission
301-415-5634 (Office)
e-mail: Rebecca.Stone@nrc.gov

From: Nguyen, Quynh
Sent: Monday, March 14, 2011 5:34 PM *release*
To: Stone, Rebecca
Cc: McDermott, Brian; Brenner, Eliot; Leeds, Eric; Boger, Bruce; Grobe, Jack; Couret, Ivonne; Azeem, Almas; Cartwright, William; Cusumano, Victor; Heida, Bruce; Mahoney, Michael; Meighan, Sean; Nguyen, Quynh; Roquecruz, Carla; Susco, Jeremy; Titus, Brett; Valentine, Nicholee; Wertz, Trent
Subject: FW: (Action) Tsunami Fact Sheet - NUREG issued in March 2009 Link

Rebecca,

I understand Eliot's requirements. Ivonne can attest to how quickly we can modify the SharePoint site to fulfill needs.

Per Eric Leeds' direction, I have set up the SharePoint Portal (It resides in its current location so I can serve as Site Administrator. Later on, we can set up links to point to it at appropriate locations.)

It is a document library. I have given you Contributor rights (let me know who else in NSIR/OPA needs it).

I can change descriptions, columns (heading names, add/subtract), and will prepare how to "search" guidance.

"FAQ Related to Events Occurring in Japan"
<http://portal.nrc.gov/edo/nrr/NRR%20TA/FAQ%20Related%20to%20Events%20Occuring%20in%20Japan/Forms/AllItems.aspx>

Again, Eric wants to go "live" by the end-of-the-week so Regions and other internal stakeholders can access the information. Any idea when we will start populating?

B/K

Thanks,
Quynh

From: Stone, Rebecca *MSR*
Sent: Monday, March 14, 2011 4:25 PM
To: Nguyen, Quynh
Cc: Meighan, Sean
Subject: FW: (Action) Tsunami Fact Sheet - NUREG issued in March 2009 Link

Quynh,

I have been coordinating with Brian McDermott and Eliot Brenner and here is what we have come up with. You are to go ahead and begin building the site. It should be READ ONLY (this is very important because OPA doesn't want anybody to change what they have approved) and have search capabilities. When Eliot or his team approve a Q&A or Talking Points document, they will send it to an Ops Center email address. Only a few specified people will be able to access this address. These same people (and only these people) will have the capability to upload to the SharePoint site. That way, anyone can see our internal information as it becomes available without changing it.

It is important to note that Eliot has tentatively approved this plan. He is going to check with some people to make sure this is an acceptable course of action. I will get back to you with an update tomorrow.

Rebecca Stone
Response Program
Office of Nuclear Security and Incident Response
U.S. Nuclear Regulatory Commission
301-415-5634 (Office)
e-mail: Rebecca.Stone@nrc.gov

From: Nguyen, Quynh *NQR*
Sent: Monday, March 14, 2011 4:02 PM
To: Stone, Rebecca
Subject: FW: (Action) Tsunami Fact Sheet - NUREG issued in March 2009 Link

release

Rebecca,

OK, here's the official tasking... Sorry for putting you on the spot – Eric Leeds (NRR Office Director) was in my office. Jack Grobe is my direct supervisor.

Sean Meighan is my equivalent so keep him in the loop as you gather the requested documents.

I will set up the SharePoint and give you Contributor Rights.

I'll be out on Thursday as I'll be celebrating St. Patty's Day and March Madness (I'm gonna be at the opening rounds at Verizon – I hope there is a team I dislike so I can distract them at the foul line!).

Given recent events, I'll have to be good so I can come back to the office on Friday!

Quynh

From: Leeds, Eric
Sent: Monday, March 14, 2011 3:39 PM
To: Grobe, Jack; Virgilio, Martin; Weber, Michael

Cc: Nguyen, Quynh; Ruland, William; Skeen, David; Brown, Frederick; Brenner, Eliot; Collins, Elmo; Dean, Bill; Satorius, Mark; McCree, Victor; Schmidt, Rebecca; Boger, Bruce

Subject: FW: (Action) Tsunami Fact Sheet - NUREG issued in March 2009 Link

FYI – I've asked Quynh Nguyen to work with the Ops Center to create a share-point site to house our Q&As from the Japanese quake and tsunami. Attached is a list of Q&As we created during the last tsunami, which we should consider. The regions requested Q&As to support their EOC meetings next week with members of the public. I'd like to have something completed by the end of the week for the regions.

Eric J. Leeds, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
301-415-1270

release

From: Boger, Bruce
Sent: Monday, March 14, 2011 9:21 AM
To: Leeds, Eric
Subject: FW: (Action) Tsunami Fact Sheet - NUREG issued in March 2009 Link

release

FYI—this is a knowledge management challenge. We've collected information in the past, but we have to drag it out and it's not available in the Ops center.

From: King, Mark
Sent: Monday, March 14, 2011 7:23 AM
To: Boger, Bruce; Brown, Frederick; Thorp, John
Cc: Thomas, Eric
Subject: RE: (Action) Tsunami Fact Sheet - NUREG issued in March 2009 Link

release

I think the attached is what Bruce is referring to – a natural phenomena limitations document. See attached.

From: Boger, Bruce
Sent: Monday, March 14, 2011 7:20 AM
To: Brown, Frederick; King, Mark; Thorp, John
Cc: Thomas, Eric
Subject: RE: (Action) Tsunami Fact Sheet - NUREG issued in March 2009 Link

release

Great. Thanks. This is a start. I still remember something that was created to provide some plant-specific protection information. (e.g., Diablo Canyon has some tsunami protection). I believe we explored west coast plants for tsunamis and east coast plants for hurricane flooding protection. If you can't find it easily (or if Bruce's gray matter failed again), please reach out to the west coast plant PMs to see what tsunami protection they have. I suspect we'll receive some cards and letters. Thanks again.

From: Brown, Frederick, *NER*
Sent: Monday, March 14, 2011 7:10 AM
To: King, Mark; Thorp, John
Cc: Thomas, Eric; Boger, Bruce
Subject: RE: (Action) Tsunami Fact Sheet - NUREG issued in March 2009 Link

release

Thanks Mark

From: King, Mark, *NER*
Sent: Monday, March 14, 2011 7:08 AM
To: Thorp, John; Boger, Bruce

Cc: Brown, Frederick; Thomas, Eric
Subject: RE: (Action) Tsunami Fact Sheet - NUREG issued in March 2009 Link

We had a NUREG issued on this subject back in March 2009.

TSUNAMI HAZARD ASSESSMENT AT NUCLEAR POWER PLANT SITES IN THE UNITED STATES OF AMERICA

Click link to view: **[NUREG/CR-6966]**

<http://pbadupws.nrc.gov/docs/ML0915/ML091590193.pdf>

release

From: Thorp, John *MLC*
Sent: Monday, March 14, 2011 6:57 AM
To: Boger, Bruce
Cc: Brown, Frederick; King, Mark; Thomas, Eric
Subject: RE: (Action) Tsunami Fact Sheet

release

We'll look for it; If we don't find it quickly, we'll start producing one. (Mark King, please start looking)

I take it we would define & describe the tsunami phenomena, then address which nuclear stations in the U.S. are located in areas subject to tsunami waves, and describe what we can regarding the design of plants to withstand tsunami impacts?

Thanks,

John

From: Boger, Bruce *MLC*
Sent: Monday, March 14, 2011 6:48 AM
To: Thorp, John
Cc: Brown, Frederick
Subject: Tsunami Fact Sheet

release

I seem to recall that OpE developed a tsunami fact sheet? Should we dust it off?

Maier, Bill

From: Dasher, Douglas H (DEC) [doug.dasher@alaska.gov]
Sent: Friday, March 11, 2011 9:09 PM
To: Pearce, Clyde E (HSS); Maier, Bill
Cc: Sonafrank, Nancy B (DEC)
Subject: RE: FW: NRC Continues to Track Earthquake and Tsunami Issues

Clyde and Bill - FYI. I am in Montana right now and will be back in Fairbanks on the 14th. Today I also talked with Dan Asker with EPA about the Fairbanks station, which is running through Saturday, and will have the filter changed when we get back on the 14th. DEC is running the EPA monitoring station in Juneau.

I am out of cell phone contact till the 13th, but can check E-mails several times a day.

Regards,

Doug Dasher

From: Barbara Byron [mailto:bbyron@energy.state.ca.us]
Sent: Fri 3/11/2011 1:42 PM
To: Pearce, Clyde E (HSS); Dasher, Douglas H (DEC); bill.potter@calema.ca.gov; lee.shin@calema.ca.gov; lynn.olson@calema.ca.gov; michael.warren@calema.ca.gov; ralsop@co.slo.ca.us; bill.webb@dhs.gov; craig.fiore@dhs.gov; jeffrey.eckerd@doh.hawaii.gov; lynn.nakasone@doh.hawaii.gov; leo.wainhouse@doh.wa.gov; Bill.Maier@nrc.gov; shelley.carlson@odoe.state.or.us
Subject: Re: FW: NRC Continues to Track Earthquake and Tsunami Issues

Do you have any more news on the Japanese reactor with the cooling problem? CNN is reporting that it is releasing radiation at levels 1,000 times background.

>>> "Maier, Bill" <Bill.Maier@nrc.gov> 03/11/11 2:03 PM >>>

From: opa administrators [mailto:opa@nrc.gov]
Sent: Friday, March 11, 2011 2:40 PM
To: Maier, Bill
Subject: NRC Continues to Track Earthquake and Tsunami Issues

B/7

From: [NEWS Automated Mailer](#)
To: NEWS.Contact-Point@iaea.org
Subject: New Event on NEWS, Japan, Power Reactor
Date: Friday, March 11, 2011 7:08:14 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:

"Effect to the Nuclear Facilities from the earthquake on east area of Japan"

has as of today, Saturday, 12 March 2011, 00:41:25 UTC, been added to the NEWS Web site.
Additional information regarding the new Event is as follows:

Sender Country: Japan
Date of Event: 2011-03-11
Facility/Place: FUKUSHIMA-DAIICI-1,2 FUKUSHIMA-DAINI-1, Japan

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

B/8

From: [Operations Center Bulletin](#)
To: [Operations Center Bulletin](#)
Subject: ***NRC IS RESPONDING TO AN EMERGENCY OUTSIDE OF THE UNITED STATES**
Date: Friday, March 11, 2011 3:04:05 PM
Importance: High

THIS IS NOT A DRILL.

The NRC and other Federal agencies are closely following an emergency occurring outside of the United States. Press releases about NRC actions are posted on 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

B/9

From: [Hiland, Patrick](#) *NRK*
To: [Skeen, David](#)
Subject: Re: CNS News
Date: Friday, March 11, 2011 10:14:29 AM

In ops center

From: Skeen, David *NRK*
To: Hiland, Patrick; Manoly, Kamal; Khanna, Meena; Brown, Frederick; Thorp, John
Sent: Fri Mar 11 08:51:50 2011
Subject: Fw: CNS News

All,

Here is some good info on Japanese emergency preparedness that Veronica shared with the CNS review team.

Please share as you see fit.

From: Rodriguez, Veronica *NRK*
To: Skeen, David; Tappert, John; Grobe, Jack; Dehn, Jeff; Gibson, Lauren; Karwoski, Kenneth; McHale, John; Quinones, Lauren; Regan, Christopher; Tabatabai, Omid; Tate, Travis
Sent: Fri Mar 11 08:44:44 2011
Subject: CNS News

All ...

Please keep an eye on the news. The earthquake in Japan could be a topic of discussion at the CNS. Some articles are included below FYI.

Chris ... this is particularly important for you since you have the lead for this country's presentation.

--Veronica

Japan initiates emergency protocol after earthquake

11 March 2011

Nuclear Engineering International

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All four operating plants on that coast have automatically shut down, or SCRAMmed, according to Japan Atomic Information Forum (JAIF). Higashidori 1, which is also located on Honshu's northeast coast, was shut down for a periodic inspection.

The earthquake struck at 2:45pm local time. A 6:45 pm local time report from the Japan Nuclear

B/10

and Industrial Safety Agency contained more information of damage and other problems in a site-by-site report.

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JAIF also reported that the Rokkasho reprocessing facility was being powered by emergency diesel generators. No other unusual events or radiation leaks have been reported. Nuclear power stations at Hamaoka, Kashiwazaki-Kariwa and Tomari are continuing normal operation, according to JAIF.

After an accident occurs at a nuclear power plant, the licensee must notify the national Nuclear and Industrial Safety Agency by law.

A minister in its controlling organisation, the Ministry of Economy, Trade and Industry, notifies the prime minister's office. The central nuclear emergency response headquarters (NERHQ) of the national government issues a nuclear emergency declaration, which also includes instructions about preventative measures. It receives technical advice from the Nuclear Safety Commission. The NERHQ sends a specialist and the NSC sends a commissioner to the site.

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The joint council devises instructions to residents for evacuation and/or sheltering. It also instructs the emergency services and coast guard, self-defence force, Japan Nuclear Energy Safety Organisation (JNES), the National Institute of Radiological Sciences, the Japan Atomic Energy Agency, and other bodies.

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No Radiation Leaks Or Abnormalities in Quake-hit Japan: Prime Minister Kan

Tokyo, March 11 Kyodo -- (EDS: RECASTING) Japan has detected no abnormalities such as radiation leakage at nuclear power plants in the country, Prime Minister Naoto Kan said Friday, following a powerful earthquake and aftershocks that hit a wide area on the Pacific coast of the northeastern region.

A total of 11 nuclear reactors were automatically shut down at the Onagawa plant, Fukushima No. 1 and No. 2 plants and Tokai No. 2 plant, the industry ministry said, adding there were no immediate reports from monitoring posts of fires or other abnormalities near the nuclear plants after the 2:46 p.m. quake.

Kan told a press conference, "Parts of nuclear plants were automatically shut down but we haven't confirmed any effects induced by radioactive materials outside the facilities." Tokyo Electric Power Co., which operates the Fukushima plants, said it kept operating the Kashiwazaki-Kariwa nuclear plant on the Sea of Japan coast in Niigata Prefecture, while Hokkaido Electric Power Co. reported no problems at its Tomari No. 1, No. 2 and No. 3 plants on the northernmost main island.

There were no immediate signs of any problems at the Hamaoka nuclear plant on the Pacific coast in Shizuoka Prefecture, southwest of Tokyo, the prefectural government said.

From: [Hiland, Patrick](#) INRR
To: [Thomas, Eric](#)
Subject: Fw: CNS News
Date: Friday, March 11, 2011 10:21:02 AM
Attachments: [NPP Japan_map2011.pdf](#)

From: Skeen, David
To: Hiland, Patrick; Manoly, Kamal; Khanna, Meena; Brown, Frederick; Thorp, John
Sent: Fri Mar 11 08:51:50 2011
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B/11

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After the emergency declaration is received, the local office of the national government's NERHQ arranges prevention measures based on factors including facility information, climate and monitoring.

Nuclear emergency response operations are coordinated in one of 20 so-called off-site centres spread across Japan, which are close to, but not inside, nuclear facilities. The off-site centre's role is to be the main centre of information, incident analysis, and emergency plan organisation and direction. Two or three senior specialists for nuclear emergency preparedness work in each OFC. In normal conditions, the specialists work as nuclear power safety inspectors, checking plant operation from the viewpoint of regulation. During an emergency, the specialists organize prevention measures as a secretariat and report it to a joint council for nuclear emergency response. The joint council includes not only the local office of the national government's NERHQ and the senior specialists, but also representatives of the Nuclear Safety Commission and prefectural and municipal NERHQs.

The joint council devises instructions to residents for evacuation and/or sheltering. It also instructs the emergency services and coast guard, self-defence force, Japan Nuclear Energy Safety Organisation (JNES), the National Institute of Radiological Sciences, the Japan Atomic Energy Agency, and other bodies.

JNES has constructed a dedicated high-speed network system connecting the 20 off-site centres and other agencies called Emergency Preparedness Response Network (EPRNet). It includes video conferencing systems, e-mail, telephone, fax, and connections to a meteorological information service, a plant information collection, diagnosis, prognosis and analytical prediction tool (called ERSS), and an emergency environmental dose prediction tool (called SPEEDI).

No Radiation Leaks Or Abnormalities in Quake-hit Japan: Prime Minister Kan

Tokyo, March 11 Kyodo -- (EDS: RECASTING) Japan has detected no abnormalities such as radiation leakage at nuclear power plants in the country, Prime Minister Naoto Kan said Friday, following a powerful earthquake and aftershocks that hit a wide area on the Pacific coast of the northeastern region.

A total of 11 nuclear reactors were automatically shut down at the Onagawa plant, Fukushima No. 1 and No. 2 plants and Tokai No. 2 plant, the industry ministry said, adding there were no immediate reports from monitoring posts of fires or other abnormalities near the nuclear plants after the 2:46 p.m. quake.

Kan told a press conference, "Parts of nuclear plants were automatically shut down but we haven't confirmed any effects induced by radioactive materials outside the facilities." Tokyo Electric Power Co., which operates the Fukushima plants, said it kept operating the Kashiwazaki-Kariwa nuclear plant on the Sea of Japan coast in Niigata Prefecture, while Hokkaido Electric Power Co. reported no problems at its Tomari No. 1, No. 2 and No. 3 plants on the northernmost main island.

There were no immediate signs of any problems at the Hamaoka nuclear plant on the Pacific coast in Shizuoka Prefecture, southwest of Tokyo, the prefectural government said.

 Nuclear Power Plant

 BWR (in operation)  BWR (under construction)

 PWR (in operation)  PWR (under construction)

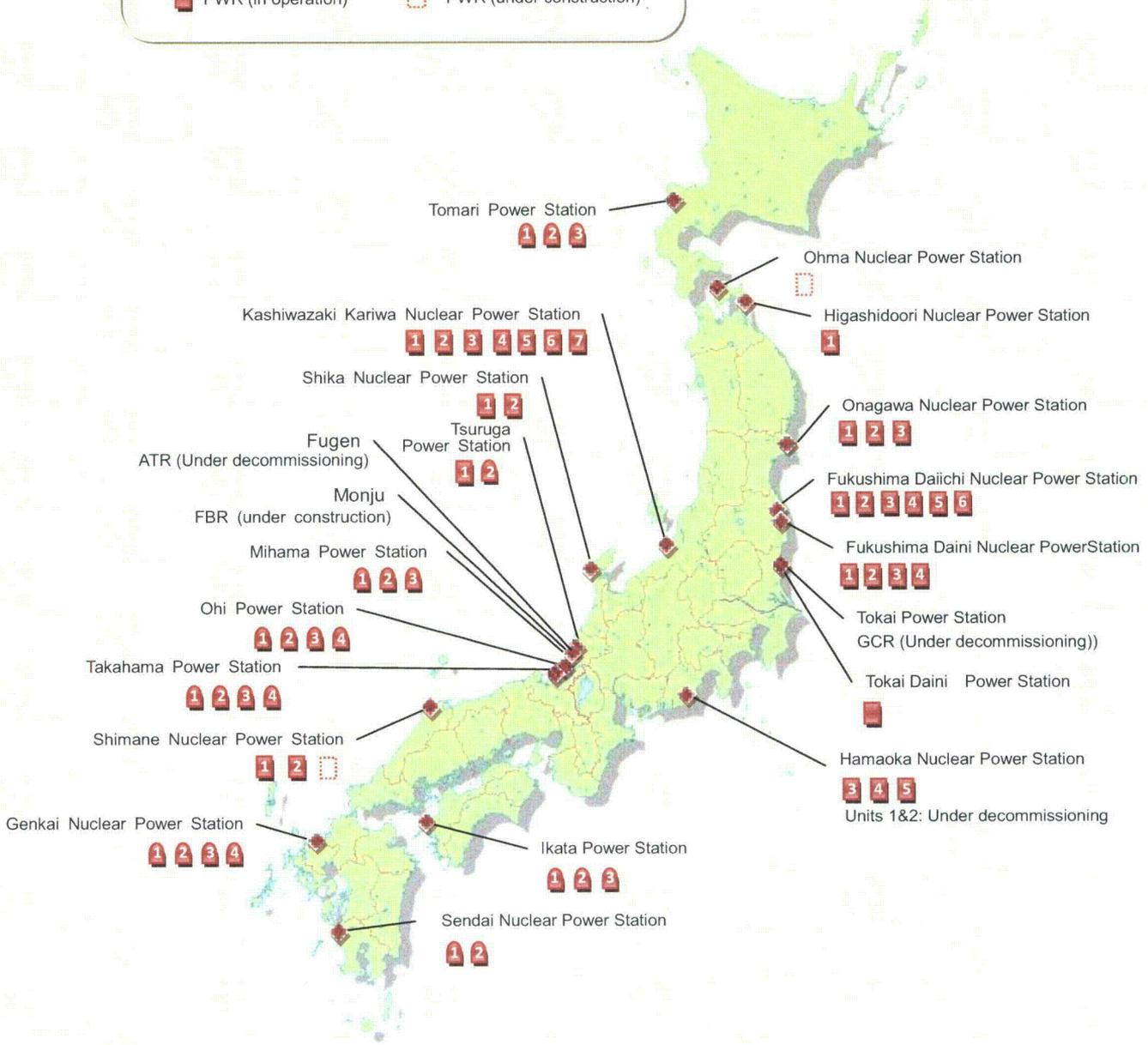


Fig. A-2 Locations of Nuclear Installations

From: [Hiland, Patrick](#) *NRK*
To: [Skeen, David](#)
Subject: Re: CNS News
Date: Friday, March 11, 2011 10:45:25 AM

Rcic ok; japan comish is in ops center with us

From: Skeen, David *NRK*
To: Hiland, Patrick; Manoly, Kamal; Khanna, Meena; Brown, Frederick; Thorp, John
Sent: Fri Mar 11 08:51:50 2011
Subject: Fw: CNS News

All,

Here is some good info on Japanese emergency preparedness that Veronica shared with the CNS review team.

Please share as you see fit.

From: Rodriguez, Veronica *NRK*
To: Skeen, David; Tappert, John; Grobe, Jack; Dehn, Jeff; Gibson, Lauren; Karwoski, Kenneth; McHale, John; Quinones, Lauren; Regan, Christopher; Tabatabai, Omid; Tate, Travis
Sent: Fri Mar 11 08:44:44 2011
Subject: CNS News

All ...

Please keep an eye on the news. The earthquake in Japan could be a topic of discussion at the CNS. Some articles are included below FYI.

Chris ... this is particularly important for you since you have the lead for this country's presentation.

--Veronica

Japan initiates emergency protocol after earthquake

11 March 2011

Nuclear Engineering International

Onagawa, Fukushima Daiichi, Fukushima Daini and Tokai nuclear power stations have automatically shut down following a magnitude 8.8 earthquake off the northeast coast of the largest island of Japan, Honshu.

All four operating plants on that coast have automatically shut down, or SCRAMmed, according to Japan Atomic Information Forum (JAIF). Higashidori 1, which is also located on Honshu's northeast coast, was shut down for a periodic inspection.

The earthquake struck at 2:45pm local time. A 6:45 pm local time report from the Japan Nuclear

B/12

and Industrial Safety Agency contained more information of damage and other problems in a site-by-site report.

-A CO₂ fire has broken out at Onagawa nuclear power station.

-Utility TEPCO has requested the establishment of a nuclear emergency response programme for Fukushima Daiichi 1&3 and Fukushima Daini 1.

JAIF reported that Fukushima Daiichi 1, 2 and 3 automatically shut down; units 4, 5 and 6 were in maintenance outages. Fukushima Daini 1, 2, 3 and 4 automatically shut down.

JAIF has reported that TEPCO sent the emergency report because emergency diesel generators at the two sites are out of order. It said that there is no report that the radiation was detected out of the site. It said that an emergency headquarters has been set up and will issue information hourly.

JAIF also reported that the Rokkasho reprocessing facility was being powered by emergency diesel generators. No other unusual events or radiation leaks have been reported. Nuclear power stations at Hamaoka, Kashiwazaki-Kariwa and Tomari are continuing normal operation, according to JAIF.

After an accident occurs at a nuclear power plant, the licensee must notify the national Nuclear and Industrial Safety Agency by law.

A minister in its controlling organisation, the Ministry of Economy, Trade and Industry, notifies the prime minister's office. The central nuclear emergency response headquarters (NERHQ) of the national government issues a nuclear emergency declaration, which also includes instructions about preventative measures. It receives technical advice from the Nuclear Safety Commission. The NERHQ sends a specialist and the NSC sends a commissioner to the site.

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The joint council devises instructions to residents for evacuation and/or sheltering. It also instructs the emergency services and coast guard, self-defence force, Japan Nuclear Energy Safety Organisation (JNES), the National Institute of Radiological Sciences, the Japan Atomic Energy Agency, and other bodies.

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Kan told a press conference, "Parts of nuclear plants were automatically shut down but we haven't confirmed any effects induced by radioactive materials outside the facilities." Tokyo Electric Power Co., which operates the Fukushima plants, said it kept operating the Kashiwazaki-Kariwa nuclear plant on the Sea of Japan coast in Niigata Prefecture, while Hokkaido Electric Power Co. reported no problems at its Tomari No. 1, No. 2 and No. 3 plants on the northernmost main island.

There were no immediate signs of any problems at the Hamaoka nuclear plant on the Pacific coast in Shizuoka Prefecture, southwest of Tokyo, the prefectural government said.

From: [Hiland, Patrick](#) *NRR*
To: [Courret, Ivonne](#)
Cc: [Manoly, Kamal](#); [McGinty, Tim](#); [Leeds, Eric](#)
Subject: RE: Reply Requested Media Inquiry - Seismic Issues
Date: Friday, March 11, 2011 12:15:00 PM

Kamal Manoly is our point of contact from NRR.

From: Courret, Ivonne *OPA*
Sent: Friday, March 11, 2011 8:40 AM
To: Hiland, Patrick
Subject: Reply Requested Media Inquiry - Seismic Issues
Importance: High

Pat,
Who is and will be available as staff to discuss seismic issues today for reporters writing stories on US implications from Japan's earthquake. Please advise. Ivonne

Ivonne L. Couret
Public Affairs Officer
Office of Public Affairs



(301) 415-8205
 ivonne.couret@nrc.gov

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2010-2011 Information Digest - Where you can find NRC Facts at a Glance
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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.

B/13

From: [Hiland, Patrick](#) *MRR*
To: [Grobe, Jack](#)
Cc: [Manoly, Kamal](#)
Subject: RE: Please Reply - Request for NRR Staff available for phone interviews
Date: Friday, March 11, 2011 12:16:00 PM

If you are reading your email, Kamal is interacting.

From: Couret, Ivonne *OPPA*
Sent: Friday, March 11, 2011 9:26 AM
To: Grobe, Jack; Hiland, Patrick
Cc: Manoly, Kamal
Subject: Please Reply - Request for NRR Staff available for phone interviews
Importance: High

Pat/Jack – Can you assist in providing a staffer to participate in media interviews on seismic issues and structural requirements for US plants. I left message for Kamal I was told by Diablo Canyon's PM that he is one of the structural engineer with knowledge. We are not directing any media to RES contact at this time since they are coordinating info with Japanese. Your assistance in this matter is greatly appreciated. Ivonne

Ivonne L. Couret
Public Affairs Officer
Office of Public Affairs



(301) 415-8205
 ivonne.couret@nrc.gov

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Please consider the environmental impact before printing this email.

B114

From: [Hiland, Patrick](#) *NRR*
To: [Grobe, Jack](#)
Subject: RE: Please Reply - Request for NRR Staff available for phone interviews
Date: Friday, March 11, 2011 12:23:00 PM

Kamal and I were in Ops center all morning w/Mike Weber. Turns out the Japanese bi-lateral was still on-going. Kamal can answer general questions with authority.

From: Grobe, Jack *NRR*
Sent: Friday, March 11, 2011 12:20 PM
To: Couret, Ivonne; Hiland, Patrick
Cc: Manoly, Kamal
Subject: Re: Please Reply - Request for NRR Staff available for phone interviews

Pick thoughtfully with emphasis on capability to communicate complex information to the public
Jack Grobe, Deputy Director, NRR

From: Couret, Ivonne *OPA*
To: Grobe, Jack; Hiland, Patrick
Cc: Manoly, Kamal
Sent: Fri Mar 11 09:26:16 2011
Subject: Please Reply - Request for NRR Staff available for phone interviews

Pat/Jack – Can you assist in providing a staffer to participate in media interviews on seismic issues and structural requirements for US plants. I left message for Kamal I was told by Diablo Canyon's PM that he is one of the structural engineer with knowledge. We are not directing any media to RES contact at this time since they are coordinating info with Japanese. Your assistance in this matter is greatly appreciated. Ivonne

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Please consider the environmental impact before printing this email.

B/S

From: [Hiland, Patrick](#)
To: [Khanna, Meena](#)
Cc: [Skeen, David](#)
Subject: CR SIT
Date: Friday, March 11, 2011 12:40:00 PM
Importance: High

Meena, George has my OK to observe the CR SIT. Both Regional Division Directors welcome his involvement. Please assure that it is controlled, i.e. not a "never ending story."

From: [Hiland, Patrick](#) MRR
To: [Manoly, Kamal](#)
Subject: RE: Coolant story
Date: Friday, March 11, 2011 12:35:00 PM
Attachments: [image001.png](#)

Engine coolant?

From: Manoly, Kamal MRR
Sent: Friday, March 11, 2011 12:32 PM
To: Hiland, Patrick
Subject: FW: Coolant story

Please read...It doesn't make any sense to me!! Where are they getting the information from?

From: Li, Yong
Sent: Friday, March 11, 2011 12:28 PM
To: Manoly, Kamal
Subject: Coolant story

From: Devlin, Stephanie
Sent: Friday, March 11, 2011 12:13 PM
To: Li, Yong
Subject: RE: FYI: JNES-NRC bi-lateral co-operation meeting is happening now...

thanks Yong!

i found this article earlier that it interesting:

<http://www.reuters.com/article/2011/03/11/us-japan-quake-nuclear-clinton-idUSTRE72A4LR20110311?feedType=RSS&feedName=domesticNews>

The United States has transported coolant to a Japanese nuclear plant affected by a massive earthquake and will continue to assist Japan, Secretary of State Hillary Clinton said on Friday.

"We just had our Air Force assets in Japan transport some really important coolant to one of the nuclear plants," Clinton said at a meeting of the President's Export Council.

"You know Japan is very reliant on nuclear power and they have very high engineering standards but one of their plants came under a lot of stress with the earthquake and didn't have enough coolant," Clinton said.

stephanie

From: Li, Yong NRO
Sent: Friday, March 11, 2011 12:08 PM
To: NRO_DSER_RGS1 Distribution; NRO_DSER_RGS2 Distribution
Subject: RE: FYI: JNES-NRC bi-lateral co-operation meeting is happening now...

B/16

Hi,

just a quick update on nuclear power plant impact.

They are based on the telephone call between the JNES staff and his office in Japan, and still they are considered preliminary information.

Onagawa Nuclear power plant had a fire in the basement. Ground motion recorded at the site is around 0.5 g.

Fukushima Unit 1 had a cooling system failure and residents within 2 or 5 (I forgot) km radius were asked to evacuate.

You can find the location of the plants in the attached map.

Besides, US Diablo Canyon power plant in CA was expecting a 1 meter tsunami at 10:30 AM.

Yong

Magnitude 8.9 - NEAR THE EAST COAST OF HONSHU, JAPAN

Version 4

Time: 2011-03-11 05:46:23 GMT

Created: 2011-03-11 09:37:54 GMT

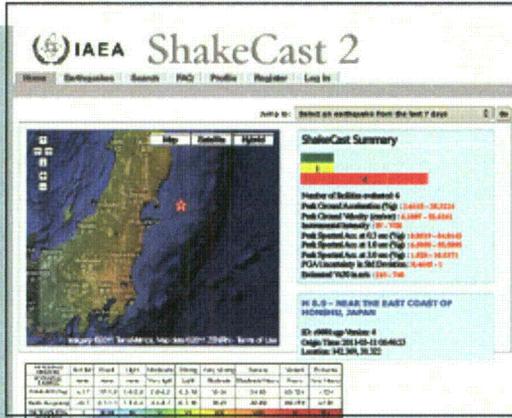
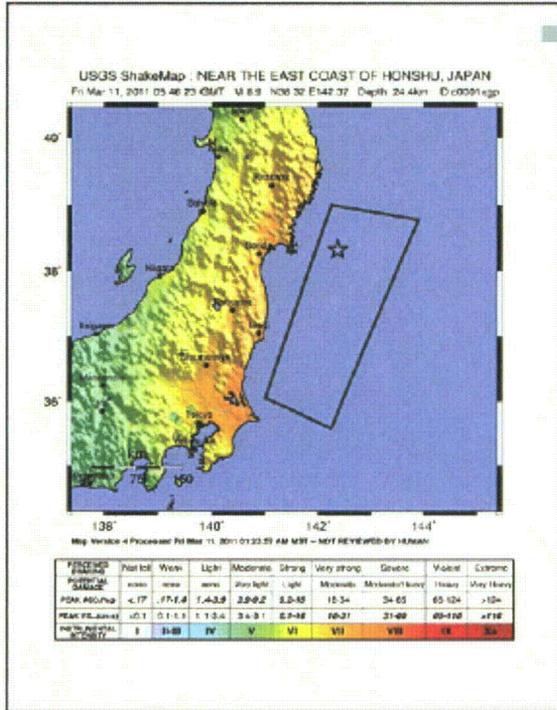
Location: 38.32 N/ 142.37 E

For more information and latest version see

Depth: 24.4 km

<http://earthquake.usgs.gov/shakemap>

These results are from an automated system and users should consider the preliminary nature of this information when making decisions relating to public safety. ShakeCast results are often updated as additional or more accurate earthquake information is reported or derived.



Recent significant earthquakes in the region

- M7.7 Miyagi-Oki, Japan at 6/12/1978 8:14
- M7.4 NEAR THE EAST COAST OF HONSHU, JAPAN at 11/1/1989 18:25
- M7.2 Miyagi-Oki, Japan at 8/16/2005 2:46
- M7 NEAR THE EAST COAST OF HONSHU, JAPAN at 1/18/1981 18:11
- M7 Miyagi-Oki, Japan at 5/26/2003 9:24

FACILITY TYPE	FACILITY ID	FACILITY NAME	LATITUDE	LONGITUDE	DAMAGE LEVEL	MMI	PGA	PGV	PSA03	PSA10	PSA30
NPP	IPN1	Fukushima Daiichi	37.4215	141.034	RED	7.72	25.8708	35.5119	57.8466	37.5128	7.4042
NPP	IPN2	Fukushima Daini	37.3163	141.025	RED	7.76	26.6768	36.4785	59.5783	38.2339	7.5874
NPP	IPN10	Onagawa	38.3998	141.501	RED	7.34	23.483	27.6412	52.4778	29.1987	5.7565
NPP	IPN4	Hamaoka	34.6242	138.14	GREEN	4.96	6.3016	10.322	15.3754	10.9036	2.4143
NPP	IPN7	Kashiwazaki - Kashiwa	37.4317	138.598	YELLOW	5.53	8.5166	13.0735	19.9327	13.8102	2.9935
NPP	IPN15	Tokai	36.4654	140.607	RED	7.72	25.8298	35.4623	57.7583	37.4606	7.3948

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Version 4

Time: 2011-03-11 05:46:23 GMT

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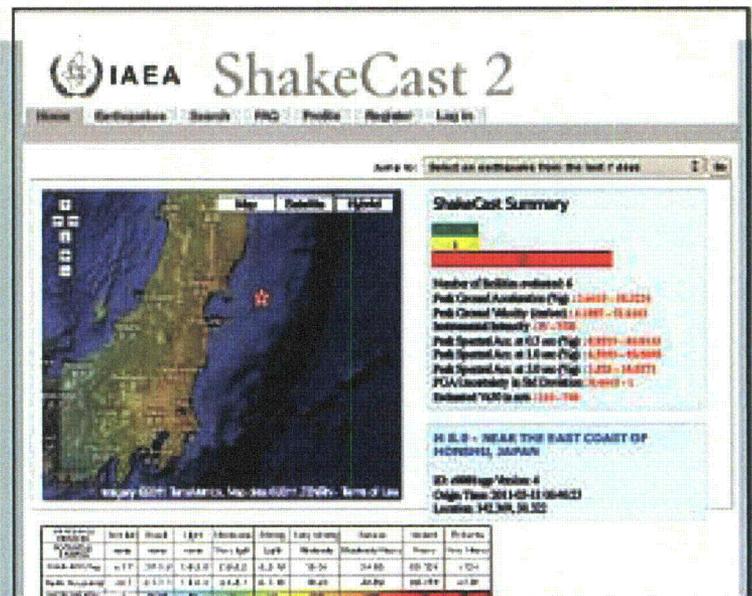
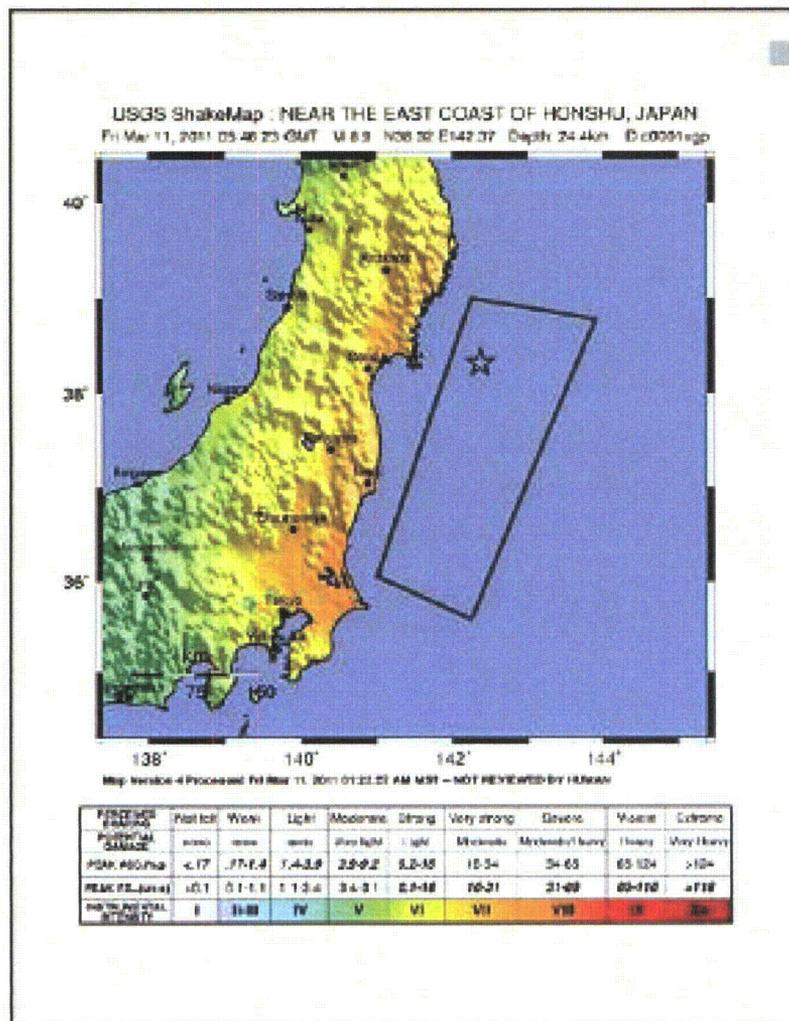
Location: 38.32 N/ 142.37 E

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FACILITY_TYPE	FACILITY_ID	FACILITY_NAME	LATITUDE	LONGITUDE	DAMAGE_LEVEL	MMI	PGA	PGV	PSA01	PSA10	PSA30
NPP	IPN1	Fukushima Daiichi	37.4215	141.034	RED	7.72	25.8708	35.5119	57.8466	37.5128	7.4042
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35

Ross, Robin

From: Nguyen, Quynh *NRR*
Sent: Tuesday, March 15, 2011 8:34 AM
To: Deegan, George; Rivera, Alison; Piccone, Josephine; Virgilio, Rosetta
Cc: Meighan, Sean
Subject: RE: ACTION: Do States Require Additional Information?

Thanks!

release

So as to not clog up our email, we are going to put our info on a SharePoint site (internal use only)...

There will be a section that has been blessed by Eliot Brenner but we will need to collect our draft information as well for document control. Stay tuned...

From: Deegan, George *NRR*
Sent: Tuesday, March 15, 2011 8:32 AM
To: Rivera, Alison; Piccone, Josephine; Virgilio, Rosetta
Cc: Nguyen, Quynh
Subject: FW: ACTION: Do States Require Additional Information?

I just got a call from Quynh Nguyen NRR. He is looking for a list of our RSLO's, in order to communicate responses and information to the States (see thread below). Thanks.

From: Nguyen, Quynh *NRR*
Sent: Tuesday, March 15, 2011 8:24 AM
To: Deegan, George
Cc: Meighan, Sean
Subject: FW: ACTION: Do States Require Additional Information?

release

George,

Per our conversation.

Quynh

From: LIA06 Hoc
Sent: Monday, March 14, 2011 8:04 PM
To: Nguyen, Quynh
Cc: Leeds, Eric; Brenner, Eliot; Virgilio, Rosetta; Miller, Charles; Boger, Bruce; Mroz (Sahm), Sara; McDermott, Brian; Miller, Chris; Thaggard, Mark; Noonan, Amanda; LIA04 Hoc; Turtill, Richard; Ruland, William; Hiland, Patrick; Skeen, David; Grobe, Jack; Burnell, Scott; Piccone, Josephine; Jackson, Deborah
Subject: FW: ACTION: Do States Require Additional Information?

Quynh – please see the email chain below and the attached set of questions. Per a discussion between Marty Virgilio and Eric Leeds, NRR is taking the lead on responding. Note that the primary stakeholder(s) that we are trying to be responsive to are the States. As such, coordination with FSME and the NSIR EP group is very important, and we should follow their advice on how to effectively interface with the RSLO's as well.

Thanks, Tim McGinty (Liaison Team Director, Swing Shift, Ops Center)

From: LIA04 Hoc
Sent: Monday, March 14, 2011 6:25 PM
To: Virgilio, Rosetta; LIA06 Hoc; Thaggard, Mark; McGinty, Tim

B117

Cc: Noonan, Amanda; Brenner, Eliot; Mroz (Sahm), Sara; Miller, Charles; Leeds, Eric; Virgilio, Martin
Subject: RE: ACTION: Do States Require Additional Information?

I think it is important to make sure that NSIR/EP is looped in on the development and distribution of any answers. This is for a few reasons: 1) to maintain consistency with existing EP messaging; 2) to ensure consistency with FEMA REPP communications; and 3) to allow for consistency with any future messaging.

-Sara (from the LT room)

Sara Mroz
Outreach and Communications
Office of Nuclear Security and Incident Response
Sara.Mroz@nrc.gov

From: Virgilio, Rosetta *RSME*
Sent: Monday, March 14, 2011 6:13 PM
To: LIA06 Hoc; Thaggard, Mark; McGinty, Tim
Cc: Noonan, Amanda; LIA04 Hoc; Brenner, Eliot; Mroz (Sahm), Sara; Miller, Charles; Leeds, Eric; Virgilio, Martin
Subject: RE: ACTION: Do States Require Additional Information?

Thank you, Tim. In my conversation with OEDO (just prior to receiving your email) I was informed that NRR/Eric Leeds has taken on the responsibility (Quynh Nguyen is the POC) for the collection of questions and development of answers for responding to our stakeholders on the events involving the earthquake in Japan and the implications for NRC licensees. That being the case, shouldn't we provide the State Qs to NRR to address?

From: LIA06 Hoc
Sent: Monday, March 14, 2011 5:56 PM
To: Thaggard, Mark; LIA04 Hoc; Miller, Charles; Virgilio, Rosetta; Brenner, Eliot; Mroz (Sahm), Sara; Noonan, Amanda
Subject: RE: ACTION: Do States Require Additional Information?

This email is primarily for Charlie and Rosetta, to close the loop. We discussed the need for providing consistent information to the States, via the RSLO's, with the Executive Team and the Chairman a few minutes ago. The Chairman directed us to coordinate with FEMA since they have an established relationship with the States. We settled on working with OPA to provide the information tailored to our best extent to the questions and concerns that would be expressed by the States, and provide to FEMA for awareness and commonality, and then the RSLO's for sharing.

A broad conference call with all States is not currently being contemplated, we'd like to see how providing a common set of information works first. Tim McGinty, LT Director

From: Tifft, Doug *DT*
Sent: Monday, March 14, 2011 3:44 PM
To: McNamara, Nancy; LIA04 Hoc; Woodruff, Gena; Barker, Allan; Logaras, Harral; Maier, Bill; LIA06 Hoc
Cc: Turtill, Richard; Virgilio, Rosetta; Rautzen, William; Lukes, Kim; Flannery, Cindy; Trojanowski, Robert
Subject: RE: ACTION: Do States Require Additional Information?

Amanda,

We just got off a conference call with all the Region 1 state liaison officers and emergency directors. Bill Dean opened the meeting. A strong message the states sent Bill was that they need to be informed before information hits the public.

Here are some of the questions we heard. I broke them into the two categories you requested. I think we need answers to the hypothetical questions ASAP as well. (I know we'll be looking for this for our upcoming annual assessment meetings, that start for Region 1 next week.)

Questions related to event in Japan:

Could this happen at [X plant]?

What is the sequence of events at the Japanese reactors?

What is the magnitude of the release at the Japanese facility? (There are conflicting reports in the press.) (ie, offsite dose rates)

Who are the Federal Contacts (for the state) to get information on what DOE & EPA are doing?

When will the plume hit the US?

What are the environmental consequences to the US?

What dose rates do we expect to see in the US?

How do the Japanese reactor designs compare to the US reactor designs of similar vintage?

When the states receive questions from the public / media that the NRC would be better to answer, where should they direct these calls?

What is the NRC doing to correct misinformation in the public / media?

Hypothetical questions related to US plants:

What would the effect be on [plant X] if a 9.0 earthquake hit?

What would the effect be on [plant X] if a subsequent tsunami hit?

Why is Indian Point safe if there is a fault line underneath it?

-Doug

From: McNamara, Nancy, (2)

Sent: Monday, March 14, 2011 1:27 PM

To: LIA04 Hoc; Tift, Doug; Woodruff, Gena; Barker, Allan; Logaras, Harral; Maier, Bill; LIA06 Hoc

Cc: Turtill, Richard; Virgilio, Rosetta; Rautzen, William; Lukes, Kim; Flannery, Cindy

Subject: RE: ACTION: Do States Require Additional Information?

Absolutely. We are having a conf. call at 1:30 w/all our states to hear their opinions. But the more we can give, the better. We've been getting questions all morning and Bill Dean has a call with a NY congressional arranged through OCA.

From: LIA04 Hoc

Sent: Monday, March 14, 2011 1:24 PM

To: McNamara, Nancy; Tift, Doug; Woodruff, Gena; Barker, Allan; Logaras, Harral; Maier, Bill; LIA06 Hoc

Cc: Turtill, Richard; Virgilio, Rosetta; Rautzen, William; Lukes, Kim; Flannery, Cindy

Subject: ACTION: Do States Require Additional Information?

Nancy, Doug, Bob, Gena, Alan, Harral, and Bill:

It is our understanding that a few additional questions from SLOs have come in from states following distribution/communication of recent Q&As and Press Releases.

In view of this, we are assessing whether additional information may be needed/if there are additional pressing questions about **the radiological fallout from Japan**.

Currently the Operation Center is responding to an International Emergency and any possible implications from this event that may affect the United States. If States have specific questions about Reactors in the United States they should be answered by the RSLO's if it reasonable. If the questions

are regarding hypothetical events at U.S. Reactors these questions can be collected and answered, if possible, at a later date.

BOTTOM LINE: do we sense a need to provide additional Q&As and other information pieces that respond to State needs? We respectfully request that you make this assessment using practical judgment and beg your indulgence in communicating real State needs for additional information.

Amanda Noonan
State Liaison – Liaison Team
Incident Response Center

A

Freeman, Eric

From: Freeman, Eric
Sent: Friday, March 11, 2011 7:38 AM
To: 'Amanda Brody'
Subject: Wow - huge earthquake in Japan

A very large Earthquake hit Japan last night our time. Apparently it was an 8.8 magnitude and they are reporting a lot of injuries

B/118

Balarabe, Sarah

From: Shea, James *JNS*
Sent: Friday, March 11, 2011 11:40 AM
To: Coffin, Stephanie
Cc: Reckley, William; Ruland, William
Subject: RE: quick Summary of the Hongshu earthquake in Japan

I saw that they seemed to have lost their emergency eclectic DGs, off-site power, and therefore by definition all active ECCS system. If they had Iso-Cond they would have about an hour or two Cooling which would get them to about 1% thermal power 45mwth after shutdown, they would only need about 50 gpm to keep the core covered(feed and bleed). If they got diesel fire pumps that would be easy but it would not be high quality water. I read where they have battery pumps for cooling but that does not make sense.

I saw on Fox that they were showing an explosion of an oil refinery and calling it a nuclear plant. Should not the Agency get ahead of this or at least catch up to what is really going on?
Did we get the OPS Center manned?

I would be happy to lend my BWR expertise if needed on this event.

Jim

Unit Type First Criticality Electric Power Fukushima I - 1 BWR March 26, 1971 460 MW Fukushima I - 2 BWR July 18, 1974 784 MW Fukushima I - 3 BWR March 27, 1976 784 MW Fukushima I - 4 BWR October 12, 1978 784 MW Fukushima I - 5 BWR April 18, 1978 784 MW Fukushima I - 6 BWR October 24, 1979 1100 MW Fukushima I - 7 (planned) ABWR October, 2013 1380 MW Fukushima I - 8 (planned) ABWR October, 2014 1380 MW

From: Coffin, Stephanie *JNS*
Sent: Friday, March 11, 2011 8:52 AM
To: Araguas, Christian; Boyle, Thomas; Briggs, Christine; Carlson, Donald; Costa, Arlon; Cranston, Gregory; DeGange, Jonathan; Goodwin, Cameron; Held, Wesley; Humberstone, Matthew; James, Deonna; Jones (NRO), Mike; Kenyon, Thomas; Kevern, Thomas; Magruder, Stewart; Malave, Yanelly; Mazza, Jan; Moore, Ross; Powell, Tamara; Reckley, William; RobinsonII, Richard; Shaikh, Samina; Shea, James; Smith, John; Starefos, Joelle; StPeters, Courtney; Stutzcage, Edward; Tello, Linda; Williams, Joseph
Cc: Mayfield, Michael
Subject: FW: quick Summary of the Hongshu earthquake in Japan

From: Johnson, Michael *JNS*
Sent: Friday, March 11, 2011 8:50 AM
To: NRO_SES Distribution
Subject: FW: quick Summary of the Hongshu earthquake in Japan

FYI.

From: Chokshi, Niles *JNS*
Sent: Friday, March 11, 2011 8:41 AM
To: Flanders, Scott; Johnson, Michael; Holahan, Gary
Subject: FW: quick Summary of the Hongshu earthquake in Japan

B/19

Will you keep informed.

From: Li, Yong

Sent: Friday, March 11, 2011 8:22 AM

To: Chokshi, Niles; Munson, Clifford

Cc: Cook, Christopher; Karas, Rebecca

Subject: quick Summary of the Hongshu earthquake in Japan

Balarabe, Sarah

From: Lu, Shanlai *NYC*
Sent: Friday, March 11, 2011 9:20 AM
To: Donoghue, Joseph; Ulses, Anthony; Mendiola, Anthony; Akstulewicz, Frank; Ader, Charles; Lombard, Mark; Ruland, William; Bahadur, Sher; Landry, Ralph; Clifford, Paul
Subject: Japan nuclear site declares state of emergency after quake - plant experienced a mechanical failure in the system needed to cool the reactor

<http://www.chicagotribune.com/news/nationworld/la-fgw-quake-nuclear-20110312,0,6862975.story>

We are safe and lucky this time.

B/20

Balarabe, Sarah

From: Lehning, John *MLK*
Sent: Friday, March 11, 2011 3:27 PM
To: Klein, Paul
Subject: FW: ***NRC IS RESPONDING TO AN EMERGENCY OUTSIDE OF THE UNITED STATES**
Importance: High

You finally got the message you were waiting for. Should help explain what is going on at that facility outside of the United States. Anyway, here is an SBO discussion from an NRC training manual:

BWRs can establish decay heat removal by discharging steam to the suppression pool through relief valves and by making up lost coolant to the reactor vessel with RCIC and HPCI or HPCS. In these BWR designs, decay heat is not discharged to the environment, but is stored in the suppression pool. Long term heat removal is by the suppression pool cooling mode of the residual heat removal system. The duration of time that the core can be adequately cooled and covered is determined, in part, by the maximum suppression pool temperature for which successful operation of decay heat removal systems can be ensured during a station blackout event and when ac power is recovered.

At high suppression pool temperatures (around 200 degrees °F) unstable condensation loads may cause loss of suppression pool integrity. Another suppression pool limitation to be considered is the qualification temperature of the RCIC and HPCI pumps which are used during recirculation. Suppression pool temperatures may also be limited by net positive suction head (NPSH) requirements of the pumps in the systems required to effect recovery once ac power is restored.

release

From: Operations Center Bulletin *NSA/R*
Sent: Friday, March 11, 2011 3:04 PM
To: Operations Center Bulletin

B/21

Subject: *NRC IS RESPONDING TO AN EMERGENCY OUTSIDE OF THE UNITED STATES****

Importance: High

THIS IS NOT A DRILL.

The NRC and other Federal agencies are closely following an emergency occurring outside of the United States. Press releases about NRC actions are posted on 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

Balarabe, Sarah

From: Ruland, William
Sent: Friday, March 11, 2011 7:39 AM
To: Boger, Bruce
Subject: RE: HOO HIGHLIGHT - DIABLO CANYON UNUSUAL EVENT

See you at 7:45. I'm acting for Jack.

From: Boger, Bruce
Sent: Friday, March 11, 2011 5:32 AM
To: Leeds, Eric; Grobe, Jack; Brown, Frederick; McGinty, Tim; Hiland, Patrick; Skeen, David; Ruland, William; Glitter, Joseph; Thorp, John; Virgilio, Martin; Wittick, Brian
Subject: Fw: HOO HIGHLIGHT - DIABLO CANYON UNUSUAL EVENT

West coast landfall estimated to be around 11:00 am EST. An update call will take place at 8:00 am EST. NRR should call into the Ops Center at that time, perhaps as group from O-13D20?

From: HOO Hoc
To: HOO Hoc
Sent: Fri Mar 11 05:09:33 2011
Subject: HOO HIGHLIGHT - DIABLO CANYON UNUSUAL EVENT

Diablo Canyon declared a Notice of Unusual Event at 0123 PST due to a Tsunami Warning for the coastal areas of California as a result of a 8.9 magnitude earthquake off the coast of Japan. The Agency remains in the NORMAL response mode as of 0452 EST.

Joe O'Hara
Headquarters Operations Officer
U.S. Nuclear Regulatory Commission
Phone: 301-816-5100
Fax: 301-816-5151
email: hoo.hoc@nrc.gov
secure e-mail: hoo1@nrc.sgov.gov



B/22

Cohen, Shari

From: Leeds, Eric *MLR*
Sent: Friday, March 11, 2011 7:44 AM
To: Sheron, Brian; Weber, Michael; Virgilio, Martin
Cc: Grobe, Jack
Subject: RE: Japanese Earthquake

Thanks, Brian. We'll be calling into the conference call today at 8 am

Eric J. Leeds, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
301-415-1270

release

-----Original Message-----
From: Sheron, Brian *RES*
Sent: Friday, March 11, 2011 7:13 AM
To: Weber, Michael; Virgilio, Martin
Cc: Leeds, Eric; Grobe, Jack
Subject: FW: Japanese Earthquake
Importance: High

FYI.

-----Original Message-----
From: Richards, Stuart *RES*
Sent: Friday, March 11, 2011 6:36 AM
To: Hogan, Rosemary; Kammerer, Annie; Murphy, Andrew
Cc: Sheron, Brian; Case, Michael; Uhle, Jennifer
Subject: Japanese Earthquake
Importance: High

Rosemary/Annie/Andy

I'm sure you have heard about the 8.9 earthquake off the coast of Japan.

It resulted in a large tsunami on the Japanese coast. There is a report of problems at a Japanese nuclear plant.

We should be prepared to brief on our tsunami research. Maybe also seismic.

Additionally the tsunami wave is predicted to hit the coast of California in a few hours. Although the news reports that no damage is expected, we may be called on to comment on the impact on San Onofre and Diablo Canyon.

Thanks
Stu

B/23

Cartwright, William

4

From: Thorp, John *MR*
Sent: Friday, March 11, 2011 10:28 AM
To: Frye, Timothy
Subject: RE: INFO: Japan Earthquake

Yes, saw this. I understand they're working on portable diesel generating capacity.

Thanks,

John

please

From: Frye, Timothy *MRO*
Sent: Friday, March 11, 2011 10:00 AM
To: Tabatabai, Omid; Thorp, John; Tappert, John; Dudes, Laura; Shuaibi, Mohammed
Subject: RE: INFO: Japan Earthquake

John

Sure you saw this. Below implies possible SBO scenario at some of the NPPs. Slightly more significant than official reports out

From: Tabatabai, Omid *MRO*
Sent: Friday, March 11, 2011 7:36 AM
To: Thorp, John; Tappert, John; Wegner, Mary; Brown, Frederick; Dudes, Laura; Frye, Timothy; Bergman, Thomas; Hawkins, Kimberly; Munson, Clifford; Sigmon, Rebecca; Karas, Rebecca; Copeland, Douglas; Craffey, Ryan; Harmon, David; Issa, Alfred; Patel, Jay
Subject: INFO: Japan Earthquake

Some info from our Japanese friends amid the massive earthquake...

Dear all,

Prime minister declared the state of emergency.

11 NPPs automatically shut down.

3 NPPs (Fukushima) have problems of DG and can't receive electric powers now.

(Very serious situation...)

- Many people died
- All the trains service disruption in Tokyo
- Tsunami destroyed many cars, houses...
- Fires occurred at Oil station
- Wide areas - blackout

B/24

5

Cartwright, William

From: Wegner, Mary *RES*
Sent: Friday, March 11, 2011 11:19 AM
To: Thomas, Eric *RE*
Subject: Info on Tohoku Plants

Onagawa nuclear power plant

- Unit 1: Online, reactor automatically scrammed
- Unit 2: Reactor starting up from periodic inspection, reactor automatically scrammed
- Unit 3: Online, reactor automatically scrammed

Higashi Dori nuclear power plant

- Unit 1 : Shut down in the midst of periodic inspection

B/25

Handwritten mark

Manoly, Kamal

From: Li, Yong *NYCO*
Sent: Friday, March 11, 2011 12:16 PM
To: Manoly, Kamal; Hawkins, Kimberly
Subject: FW: quick Summary of the Hongshu earthquake in Japan
Attachments: Summary of earthquake in eastern Japan.doc

Some updates

The following is based on the telephone call between the JNES staff and his office in Japan, and still they are considered preliminary information.

Onagawa Nuclear power plant had a fire in the basement. Ground motion recorded at the site is around 0.5 g. Fukushima Unit 1 had a cooling system failure and residents within 2 or 5 (I forgot) km radius were asked to evacuate.

You can find the location of the plants in the attached map.

Besides, US Diablo Canyon power plant in CA was expecting a 1 meter tsunami at 10:30 AM.

From: Li, Yong *NYCO*
Sent: Friday, March 11, 2011 8:22 AM
To: Chokshi, Niles; Munson, Clifford
Cc: Cook, Christopher; Karas, Rebecca
Subject: quick Summary of the Hongshu earthquake in Japan.

13/26

03/28/2011

Summary of 3/11/2011 Honshu earthquake in Japan

An earthquake with a magnitude 8.8 (M_w, USGS) struck the east coast of Japan on 3/11/2011, at 2:46PM local time, 3/11/2011 12:46 AM Eastern Standard Time. The epicenter of the main shock (38.322°N, 142.369°E) is located about 373 km North-East of Tokyo, Japan. The earthquake occurred at the depth of 24 km, according to the USGS.

The earthquake occurred as a result of thrust faulting near the subduction zone between the Pacific and North American Plates. The main shock was preceded by a series of large foreshocks over the previous two days beginning on March 9th with a 7.2 event approximately 40 km from the March 11 earthquake. The main shock was also followed by a series of strong aftershocks. The earthquake triggered tsunami swept across coastal area in Japan. US National Weather Service issued a tsunami warning for at least 50 countries and territories.

Four nuclear power plants closest to the quake were safely shut down, according to the U.N. nuclear watchdog agency. But The Japanese government declared a state of emergency at the Fukushima No. 1 power plant after its cooling system failed during the earthquake. About 2000 residents near the nuclear power plant were being told to evacuate, based on Kyodo News. MMI intensity value is about 7 for the three nuclear power plants closest to the epicenter (see attached figure).

There were at least 50 deaths related to the earthquake and more casualties will be expected. Several fires were also reported.

7

Heida, Bruce

From: Rodriguez, Veronica *NRK*
Sent: Friday, March 11, 2011 12:48 PM *NRK*
To: Chung, Donald; Circle, Jeff; Ferrante, Fernando; Mitman, Jeffrey; Stambaugh, Margaret; Vail, James; Wong, See-Meng; Zoulis, Antonios
Subject: Japan
Attachments: NPP_Japan_map2011.pdf

Folks here are some news articles from the earthquake from this morning. Recent info can be found in the IAEA web page.
<http://www.iaea.org/newscenter/news/2011/tsunamiupdate.html>

--Veronica

Japan initiates emergency protocol after earthquake

11 March 2011

Nuclear Engineering International

Onagawa, Fukushima Daiichi, Fukushima Daini and Tokai nuclear power stations have automatically shut down following a magnitude 8.8 earthquake off the northeast coast of the largest island of Japan, Honshu.

All four operating plants on that coast have automatically shut down, or SCRAMmed, according to Japan Atomic Information Forum (JAIF). Higashidori 1, which is also located on Honshu's northeast coast, was shut down for a periodic inspection.

The earthquake struck at 2:45pm local time. A 6:45 pm local time report from the Japan Nuclear and Industrial Safety Agency contained more information of damage and other problems in a site-by-site report.

-A CO2 fire has broken out at Onagawa nuclear power station.

-Utility TEPCO has requested the establishment of a nuclear emergency response programme for Fukushima Daiichi 1&3 and Fukushima Daini 1.

JAIF reported that Fukushima Daiichi 1, 2 and 3 automatically shut down; units 4, 5 and 6 were in maintenance outages. Fukushima Daini 1, 2, 3 and 4 automatically shut down.

JAIF has reported that TEPCO sent the emergency report because emergency diesel generators at the two sites are out of order. It said that there is no report that the radiation was detected out of the site. It said that an emergency headquarters has been set up and will issue information hourly.

JAIF also reported that the Rokkasho reprocessing facility was being powered by emergency diesel generators. No other unusual events or radiation leaks have been reported. Nuclear power stations at Hamaoka, Kashiwazaki-Kariwa and Tomari are continuing normal operation, according to JAIF.

After an accident occurs at a nuclear power plant, the licensee must notify the national Nuclear and Industrial Safety Agency by law.

A minister in its controlling organisation, the Ministry of Economy, Trade and Industry, notifies the prime minister's office. The central nuclear emergency response headquarters (NERHQ) of the national government issues a nuclear

release

b/27

emergency declaration, which also includes instructions about preventative measures. It receives technical advice from the Nuclear Safety Commission. The NERHQ sends specialists to the HSC center to discuss the emergency.

After the emergency declaration is received, the local office of the national government's NERHQ arranges prevention measures based on factors including facility information, climate and monitoring.

Nuclear emergency response operations are coordinated in one of 20 so-called off-site centres spread across Japan, which are close to, but not inside, nuclear facilities. The off-site centre's role is to be the main centre of information, incident analysis, and emergency plan organisation and direction. Two or three senior specialists for nuclear emergency preparedness work in each OFC. In normal conditions, the specialists work as nuclear power safety inspectors, checking plant operation from the viewpoint of regulation. During an emergency, the specialists organize prevention measures as a secretariat and report it to a joint council for nuclear emergency response. The joint council includes not only the local office of the national government's NERHQ and the senior specialists, but also representatives of the Nuclear Safety Commission and prefectural and municipal NERHQs.

The joint council devises instructions to residents for evacuation and/or sheltering. It also instructs the emergency services and coast guard, self-defence force, Japan Nuclear Energy Safety Organisation (JNES), the National Institute of Radiological Sciences, the Japan Atomic Energy Agency, and other bodies.

JNES has constructed a dedicated high-speed network system connecting the 20 off-site centres and other agencies called Emergency Preparedness Response Network (EPRNet). It includes video conferencing systems, e-mail, telephone, fax, and connections to a meteorological information service, a plant information collection, diagnosis, prognosis and analytical prediction tool (called ERSS), and an emergency environmental dose prediction tool (called SPEEDI).

No Radiation Leaks Or Abnormalities in Quake-hit Japan: Prime Minister Kan

Tokyo, March 11 Kyodo -- (EDS: RECASTING) Japan has detected no abnormalities such as radiation leakage at nuclear power plants in the country, Prime Minister Naoto Kan said Friday, following a powerful earthquake and aftershocks that hit a wide area on the Pacific coast of the northeastern region.

A total of 11 nuclear reactors were automatically shut down at the Onagawa plant, Fukushima No. 1 and No. 2 plants and Tokai No. 2 plant, the industry ministry said, adding there were no immediate reports from monitoring posts of fires or other abnormalities near the nuclear plants after the 2:46 p.m. quake.

Kan told a press conference, "Parts of nuclear plants were automatically shut down but we haven't confirmed any effects induced by radioactive materials outside the facilities." Tokyo Electric Power Co., which operates the Fukushima plants, said it kept operating the Kashiwazaki-Kariwa nuclear plant on the Sea of Japan coast in Niigata Prefecture, while Hokkaido Electric Power Co. reported no problems at its Tomari No. 1, No. 2 and No. 3 plants on the northernmost main island.

There were no immediate signs of any problems at the Hamaoka nuclear plant on the Pacific coast in Shizuoka Prefecture, southwest of Tokyo, the prefectural government said.

9

Manoly, Kamal

From: Couret, Ivonne *OPA*
Sent: Friday, March 11, 2011 4:26 PM
To: Manoly, Kamal
Cc: Grobe, Jack; Hiland, Patrick; Khanna, Meena
Subject: ClimateWire interview - OPA Thanks

Kamal,
Thanks for supporting OPA with this interview.

GS 199/SEISMIC/DIABLO CANYON - OPA coordinated an interview with a ClimateWire reporter and NRC staff on the topics of seismic design requirements at U.S. nuclear plants, Diablo Canyon and the status of the Generic Issue 199, "Implications of Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States on Existing Plants" and the safety/risk assessment results. In addition, OPA provided reporter the website links on archived webcast on Commission briefings and seismic workshops, as well as provided the fact sheets. ClimateWire will run story Monday, March 14.

Ivonne L. Couret
Public Affairs Officer
Office of Public Affairs



(301) 415-8205
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.

B/28

Martin, Karnisha

From: Li, Yong
Sent: Friday, March 11, 2011 12:08 PM
To: NRO_DSER_RGS1 Distribution; NRO_DSER_RGS2 Distribution
Subject: RE: FYI: JNES-NRC bi-lateral co-operation meeting is happening now...

Hi,

just a quick update on nuclear power plant impact.

They are based on the telephone call between the JNES staff and his office in Japan, and still they are considered preliminary information.

Onagawa Nuclear power plant had a fire in the basement. Ground motion recorded at the site is around 0.5 g. Fukushima Unit 1 had a cooling system failure and residents within 2 or 5 (I forgot) km radius were asked to evacuate.

You can find the location of the plants in the attached map.

Besides, US Diablo Canyon power plant in CA was expecting a 1 meter tsunami at 10:30 AM.

Yong

Martin, Karnisha

From: Devlin, Stephanie
Sent: Friday, March 11, 2011 10:11 AM
To: Bauer, Laurel; Bieganousky, Wayne; Plaza-Toledo, Meralis; Rodriguez, Ricardo; Vega, Frankie; Xi, Zuhan; Candelario, Luisette; Cruz, Zahira; Stirewalt, Gerry; Thompson, Jenise; Wang, Weijun
Subject: FW: Anybody feel anything?
Attachments: Summary of earthquake in eastern Japan.doc

From: Li, Yong
Sent: Friday, March 11, 2011 8:32 AM
To: Stieve, Alice; Seber, Dogan; Graizer, Vladimir; Devlin, Stephanie
Subject: RE: Anybody feel anything?

A brief summary on the quake.

From: Stieve, Alice
Sent: Friday, March 11, 2011 8:21 AM
To: Seber, Dogan; Graizer, Vladimir; Li, Yong
Subject: Anybody feel anything?

Hey are any of you working today? I am NOT actually working. However I wanted to touch base with you after Joe came to tell me the news. I bet there will be lots of talk at NRC today. We need to go over there soon to see the power plants. I wish the TV news would spend more time on the technical aspects and less on the floating fires.

Alice

B/20

04/04/2011

Summary of 3/11/2011 Honshu earthquake in Japan

An earthquake with a magnitude 8.8 (Mw, USGS) struck the east coast of Japan on 3/11/2011, at 2:46PM local time, 3/11/2011 12:46 AM Eastern Standard Time. The epicenter of the main shock (38.322°N, 142.369°E) is located about 373 km North-East of Tokyo, Japan. The earthquake occurred at the depth of 24 km, according to the USGS.

The earthquake occurred as a result of thrust faulting near the subduction zone between the Pacific and North American Plates. The main shock was preceded by a series of large foreshocks over the previous two days beginning on March 9th with a 7.2 event approximately 40 km from the March 11 earthquake. The main shock was also followed by a series of strong aftershocks. The earthquake triggered tsunami swept across coastal area in Japan. US National Weather Service issued a tsunami warning for at least 50 countries and territories.

Four nuclear power plants closest to the quake were safely shut down, according to the U.N. nuclear watchdog agency. But The Japanese government declared a state of emergency at the Fukushima No. 1 power plant after its cooling system failed during the earthquake. About 2000 residents near the nuclear power plant were being told to evacuate, based on Kyodo News. MMI intensity value is about 7 for the three nuclear power plants closest to the epicenter (see attached figure).

There were at least 50 deaths related to the earthquake and more casualties will be expected. Several fires were also reported.

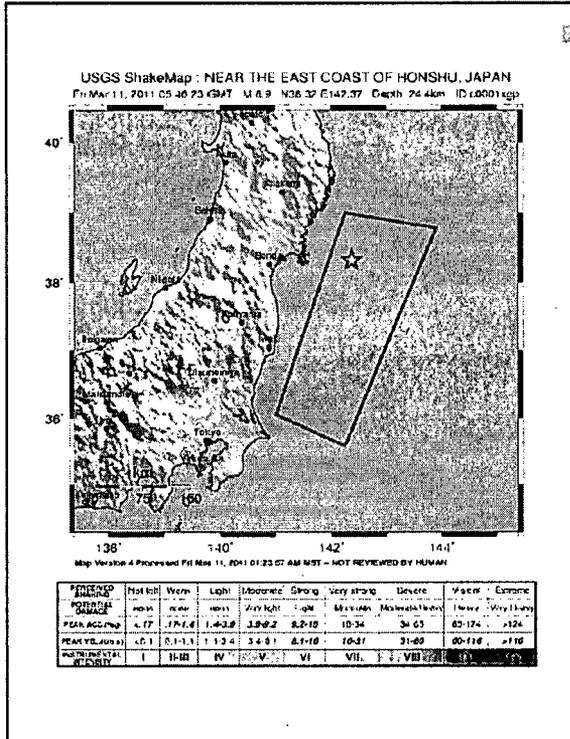


ShakeCast Report



Magnitude 8.9 - NEAR THE EAST COAST OF HONSHU, JAPAN Version 4
 Time: 2011-03-11 05:46:23 GMT Created: 2011-03-11 09:37:54 GMT
 Location: 38.32 N/ 142.37 E For more information and latest version see
 Depth: 24.4 km <http://earthquake.usgs.gov/shakemap>

These results are from an automated system and users should consider the preliminary nature of this information when making decisions relating to public safety. ShakeCast results are often updated as additional or more accurate earthquake information is reported or derived.



IAEA ShakeCast 2

Home Earthquakes Search FAQ Profile Register Login

Search for earthquakes from the last 7 days

ShakeCast Summary

Map Details Table

Number of facilities estimated: 4
 Peak Observed Acceleration (PGA): 15.725
 Peak Observed Velocity (PGV): 1.575
 Peak Observed Displacement (PGD): 0.1575
 Peak Spectral Acc at 0.1 sec (PSA01): 15.725
 Peak Spectral Acc at 0.3 sec (PSA03): 15.725
 Peak Spectral Acc at 1.0 sec (PSA10): 15.725
 Peak Spectral Acc at 3.0 sec (PSA30): 15.725
 Peak Intensity by the Epicenter: 15.725
 Distance: 142.37 km

M 8.9 - NEAR THE EAST COAST OF HONSHU, JAPAN

ID: L0001499
 Origin Time: 20110311054623
 Location: 142.37, 38.32

Intensity	PGA	PGV	PGD
IX	15.725	1.575	0.1575
VIII	7.8625	0.7875	0.07875
VII	3.93125	0.39375	0.039375
VI	1.965625	0.196875	0.0196875
V	0.9828125	0.0984375	0.00984375
IV	0.49140625	0.04921875	0.004921875
III	0.245703125	0.024609375	0.0024609375
II	0.1228515625	0.0123046875	0.00123046875
I	0.06142578125	0.00615234375	0.000615234375

- Recent significant earthquakes in the region
- M7.7 Miyagi-Oki, Japan at 6/12/1978 8:14
 - M7.4 NEAR THE EAST COAST OF HONSHU, JAPAN at 11/1/1989 18:25
 - M7.2 Miyagi-Oki, Japan at 8/16/2005 2:46
 - M7 NEAR THE EAST COAST OF HONSHU, JAPAN at 1/18/1981 18:11
 - M7 Miyagi-Oki, Japan at 5/26/2003 9:24

FACILITY TYPE	FACILITY ID	FACILITY NAME	LATITUDE	LONGITUDE	DAMAGE LEVEL	MMI	PGA	PGV	PSA03	PSA10	PSA30
NPP	JPN1	Fukushima Daiichi	37.4215	141.034	RED	7.72	25.8708	35.5119	57.8466	37.5128	7.4042
NPP	JPN2	Fukushima Daini	37.3163	141.025	RED	7.76	26.6768	36.4785	59.5783	38.5339	7.5874
NPP	JPN10	Onagawa	38.3998	141.501	RED	7.34	23.483	27.6412	52.4778	29.1987	5.7565
NPP	JPN4	Hamaoka	34.6242	138.14	GREEN	4.96	6.5016	10.322	15.3754	10.9036	2.4143
NPP	JPN7	Kashiwazaki - Kariwa	37.4317	138.598	YELLOW	5.53	8.5166	13.0735	19.9327	13.8102	2.9935
NPP	JPN15	Tokai	36.4654	140.607	RED	7.72	25.8298	35.4623	57.7583	37.4606	7.3948

Cruz, Zahira

From: Cruz, Zahira
Sent: Friday, March 11, 2011 12:24 PM
To: Devlin, Stephanie
Subject: RE: Japan EQ discussion after lunch

OK, I'll try to stop by. Thanks

From: Devlin, Stephanie
Sent: Friday, March 11, 2011 12:23 PM
To: Cruz, Zahira
Subject: RE: Japan EQ discussion after lunch

1, 1:30 i think.

From: Cruz, Zahira
Sent: Friday, March 11, 2011 12:23 PM
To: Devlin, Stephanie
Subject: RE: Japan EQ discussion after lunch

You know the time?

From: Devlin, Stephanie
Sent: Friday, March 11, 2011 12:22 PM
To: Cruz, Zahira
Subject: Japan EQ discussion after lunch

FYI: Yong called and said they are talking Japanese EQ stuff after lunch @ the JNES meeting.

stephanie

B/31

Manoly, Kamal

From: Hiland, Patrick *MRP*
Sent: Tuesday, March 15, 2011 10:55 AM
To: Manoly, Kamal
Subject: RE: Clarifying Questions on the Table

I have no doubt the MMI scale is defined correctly. You seem to miss the point, how many people in congress will recognize MMI? Now think how many will recognize Richter? When we answer questions we need to think of the audience. Perhaps we need to get Public Affairs to review our responses? I know that there is not a one-for-one equivalent.

From: Manoly, Kamal *MRP*
Sent: Tuesday, March 15, 2011 10:18 AM
To: Hiland, Patrick
Cc: Skeen, David; Wilson, George; Scales, Kerby
Subject: RE: Clarifying Questions on the Table

release

Pat,
The definition Annie provided is quite accurate. MMI is a measure of observed/reported damage and severity of shaking. You may add, at a specific location. The magnitude of an earthquake that is typically cited in the media, is a measure of the total energy release from an earthquake. There is no mathematical correlation between the two. As you know, in the world of design, we refer to peak ground acceleration, Zero Period Acceleration (ZPA) and more important, the shape of the ground response spectrum.
Kamal

From: Hiland, Patrick *MRP*
Sent: Tuesday, March 15, 2011 8:57 AM
To: Manoly, Kamal
Cc: Skeen, David; Wilson, George; Scales, Kerby
Subject: FW: Clarifying Questions on the Table

release

Not sure the MMI scale is useful to lay-people. The Chairman needs something that can be easily understood.

From: Kammerer, Annie *RES*
Sent: Tuesday, March 15, 2011 12:16 AM
To: Giitter, Joseph; Rihm, Roger
Cc: Howe, Allen; Nelson, Robert; Hiland, Patrick; Stutzke, Martin
Subject: RE: Clarifying Questions on the Table

Here is a table that we already have available which may be a good starting point. Jon Ake, Cliff Munson and I prepared this today for inclusion in the Q&As we are doing.

We do have the old deterministic earthquake that each of the plants are designed for (i.e. the assumed earthquake that translates to the ground motions used for each plant). Perhaps that is what is meant by the reference level earthquake. However, I don't think we want to put that out. Frankly, it is not a good story for us. Some are very low magnitude and the ground motions for the scenario earthquakes are extremely low if you compare with modern relationships.

Yes, please provide the information about the combined seismic/tsunami design basis. I thought that the loads were considered separately. I would be interested to know.

B/32

Annie

From: Giitter, Joseph *NRC*
Sent: Monday, March 14, 2011 9:47 PM
To: Rihm, Roger
Cc: Howe, Allen; Nelson, Robert; Hiland, Patrick; Kammerer, Annie; Stutzke, Martin
Subject: Clarifying Questions on the Table

release

I cc'd you on an earlier e-mail. I wasn't sure what you meant by reference level earthquake. Did you mean review level earthquake? Also, I wondered how the Chairman was planning to use this information. The design basis is usually expressed in terms of ground acceleration (horizontal) with a more complete description in terms of a curve showing acceleration versus frequency. However, you wouldn't be able to infer what level earthquake (for example, on the Richter Scale) the plant would handle without the soil characteristics, etc. Sorry if I'm being pedantic--I just want to make sure we give you what you're looking for.

Also, I could anticipate that the Chairman might get a question about whether the NRC licensed coastal plants are designed for a design basis earthquake in combination with a maximum probable tsunami. Let me know if you need that information.

Cruz, Zahira

From: Cruz, Zahira
Sent: Friday, March 11, 2011 1:16 PM
To: Vega, Frankie
Subject: RE: Japan EQ discussion after lunch

O-6B4...me imagino q podemos entrar pq Chris nos invite a todos en el branch.

From: Vega, Frankie
Sent: Friday, March 11, 2011 1:15 PM
To: Cruz, Zahira
Subject: RE: Japan EQ discussion after lunch

Sabes el salon? Todos podemos entrar?

From: Cruz, Zahira
Sent: Friday, March 11, 2011 1:14 PM
To: Vega, Frankie
Subject: RE: Japan EQ discussion after lunch

Estoy aca en OWF (en el touchdown center) pq fui a la 1pm pero no habia nadie en el salon... parece q va a empezar a la 1:30...pero no estoy segura

From: Vega, Frankie
Sent: Friday, March 11, 2011 1:10 PM
To: Cruz, Zahira
Subject: RE: Japan EQ discussion after lunch

De verdad que si, me avisas si todavia no te has ido

From: Cruz, Zahira
Sent: Friday, March 11, 2011 12:24 PM
To: Vega, Frankie
Subject: FW: Japan EQ discussion after lunch

FYI – Quizas sea interesante pasar por el meeting a ver q ellos dicen de lo q esta pasando en la planta nuclear en Japon...JNES es el NRC de Japon.

From: Devlin, Stephanie
Sent: Friday, March 11, 2011 12:23 PM
To: Cruz, Zahira
Subject: RE: Japan EQ discussion after lunch

1, 1:30 i think.

From: Cruz, Zahira
Sent: Friday, March 11, 2011 12:23 PM
To: Devlin, Stephanie
Subject: RE: Japan EQ discussion after lunch

B/33

You know the time?

From: Devlin, Stephanie

Sent: Friday, March 11, 2011 12:22 PM

To: Cruz, Zahira

Subject: Japan EQ discussion after lunch

FYI: Yong called and said they are talking Japanese EQ stuff after lunch @ the JNES meeting.

stephanie

Dixon-Herrity, Jennifer

From: Law, Yiu
Sent: Friday, March 11, 2011 1:06 PM
To: Dixon-Herrity, Jennifer
Subject: RE: News on TEPCO - the Fukushima Number One plant

Yeah, this article describes it in good detail. Looks like they are ok now, but not sure what will happen if they can't get the main or backup power back online soon.

<http://www.nytimes.com/2011/03/12/world/asia/12nuclear.html>

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

From: Dixon-Herrity, Jennifer
Sent: Friday, March 11, 2011 1:04 PM
To: Law, Yiu
Subject: FW: News on TEPCO - the Fukushima Number One plant

You asked and I see I have emails from the I&C folks who are also following it.

Jen

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

From: Ashcraft, Joseph
Sent: Friday, March 11, 2011 12:54 PM
To: Santos, Daniel; Jung, Ian; Bergman, Thomas; Dixon-Herrity, Jennifer; Holahan, Gary
Cc: Beacom, Royce; Li, Hulbert; Martinez, Erick; Nguyen, Khoi; Rhow, Sang; Truong, Tung; Jackson, Terry; Zhao, Jack
Subject: RE: News on TEPCO - the Fukushima Number One plant

Off of CNN blog...not confirmed.

[12:06 p.m. ET, 2:06 a.m. Tokyo] Radiation level rising in Fukushima No. 1 nuclear plant turbine building, Kyodo News Agency reports.

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

From: Santos, Daniel
Sent: Friday, March 11, 2011 12:50 PM
To: Jung, Ian; Bergman, Thomas; Dixon-Herrity, Jennifer; Holahan, Gary
Cc: Ashcraft, Joseph; Beacom, Royce; Li, Hulbert; Martinez, Erick; Nguyen, Khoi; Rhow, Sang; Truong, Tung; Jackson, Terry; Zhao, Jack
Subject: RE: News on TEPCO - the Fukushima Number One plant

Regarding Japan,

They have evacuated one area around a site because the DGs failed after one hour. They have brought in mobile power supply units. Please see the details and status of all the Japanese NPPs at:

http://www.world-nuclear-news.org/RS_Massive_earthquake_hits_Japan_1103111.html

One site has cross connected cooling systems to keep up with the decay heat cooling.

The reprocessing plant at Rokkasho is being powered by DGs. For the most updated reports see:

<http://www.jaif.or.jp/english/>

From: Jung, Ian

B/24

Sent: Friday, March 11, 2011 12:47 PM

To: Bergman, Thomas; Dixon-Herrity, Jennifer; Holahan, Gary

Cc: Ashcraft, Joseph; Beacom, Royce; Li, Hulbert; Martinez, Erick; Nguyen, Khoi; Rhow, Sang; Truong, Tung; Jackson, Terry; Santos, Daniel; Zhao, Jack

Subject: News on TEPCO - the Fukushima Number One plant

It seems like an SBO... - Ian

Reactor cooling equipment fails at TEPCO

The government has declared an emergency situation at one of Tokyo Electric Power company's nuclear power plants in quake-stricken Fukushima Prefecture. It says no radioactive materials have been leaked.

Tokyo Electric said an equipment failure has made it impossible to cool two reactors at the Fukushima Number One plant.

The firm says it does not have enough electric power to cool the reactors, which automatically stopped operating when the quake struck.

The government has taken precautionary measures to ensure the safety of nearby residents. But it says that the residents should remain calm, and that currently no evacuation is needed.

The power company is sending eight power generators to the site, and the Ground Self Defense Force is sending one more.

Friday, March 11, 2011 19:53 +0900 (JST)

Ian Jung, Chief
ICE2/DE/NRO
301-415-2969
ian.jung@nrc.gov

Donoghue, Joseph

From: Landry, Ralph
Sent: Friday, March 11, 2011 9:10 AM
To: Ader, Charles; NRO DSRA Branch Chiefs; Clark, Theresa; Dube, Donald
Subject: RE: quick Summary of the Hongshu earthquake in Japan

USGS upgraded the magnitude from that quoted to 8.9:

Magnitude 8.9

- **Friday, March 11, 2011 at 05:46:23 UTC**
- Friday, March 11, 2011 at 02:46:23 PM at epicenter
- Time of Earthquake in other Time Zones

Date-Time

Location

38.322°N, 142.369°E

Depth

24.4 km (15.2 miles) set by location program

Region

NEAR THE EAST COAST OF HONSHU, JAPAN

Distances

130 km (80 miles) E of **Sendai, Honshu, Japan**

178 km (110 miles) E of **Yamagata, Honshu, Japan**

178 km (110 miles) ENE of **Fukushima, Honshu, Japan**

373 km (231 miles) NE of **TOKYO, Japan**

**Location
Uncertainty**

horizontal +/- 13.5 km (8.4 miles); depth fixed by location program

Parameters

NST=350, Nph=351, Dmin=416.3 km, Rmss=1.46 sec, Gp= 29°,
M-type="moment" magnitude from initial P wave (tsuboi method) (Mi/Mwp),
Version=A

Source

- USGS NEIC (WDCS-D)

Event ID

usc0001xgp



From: Ader, Charles
Sent: Friday, March 11, 2011 8:56 AM
To: NRO DSRA Branch Chiefs; Clark, Theresa; Landry, Ralph; Dube, Donald
Subject: FW: quick Summary of the Hongshu earthquake in Japan

B/35

From: Johnson, Michael
Sent: Friday, March 11, 2011 8:50 AM
To: NRO_SES Distribution
Subject: FW: quick Summary of the Hongshu earthquake in Japan

FYI.

From: Chokshi, Nilesh
Sent: Friday, March 11, 2011 8:41 AM
To: Flanders, Scott; Johnson, Michael; Holahan, Gary
Subject: FW: quick Summary of the Hongshu earthquake in Japan

Will you keep informed.

From: Li, Yong
Sent: Friday, March 11, 2011 8:22 AM
To: Chokshi, Nilesh; Munson, Clifford
Cc: Cook, Christopher; Karas, Rebecca
Subject: quick Summary of the Hongshu earthquake in Japan

Donoghue, Joseph

From: Dube, Donald
Sent: Friday, March 11, 2011 11:59 AM
To: Clark, Theresa; Ader, Charles; Lombard, Mark; Landry, Ralph; Donoghue, Joseph; Dreisbach, Jason; Lee, Samuel; McKirgan, John; Mrowca, Lynn; Segala, John
Subject: RE: Japan Update: Evacuations ordered around Fukushima

Ok, if I had to make an educated judgment call from all the reports, Unit 1 is in hot shutdown, possibly in a station blackout, but in either case is not able to get to cold shutdown, possibly because of either underground piping failure (emergency service water) from the earthquake or clogging from the mud and debris washed in from the tsunami; this mud clogging/piping failure is consistent with what appears to be common cause failures of the EDGs after one hour of running;

Don

From: Clark, Theresa
Sent: Friday, March 11, 2011 11:42 AM
To: Ader, Charles; Lombard, Mark; Dube, Donald; Landry, Ralph; Donoghue, Joseph; Dreisbach, Jason; Lee, Samuel; McKirgan, John; Mrowca, Lynn; Segala, John
Subject: FW: Japan Update: Evacuations ordered around Fukushima

From: Breskovic, Clarence
Sent: Friday, March 11, 2011 11:38 AM
To: Breskovic, Clarence
Subject: Japan Update: Evacuations ordered around Fukushima

Contents

- [Japan Orders Evacuation of Residents Near N-plant 1](#)
- [Kyodo: Gsdf Sent To Area Near Fukushima Nuke Plant To Assist Evacuation. 1](#)
- [3,000 Ordered To Evacuate Near Quake-hit Fukushima Nuclear Plant 2](#)
- [Fukushima Pref. Warns of Radiation Leak at N-plant 3](#)

Japan Orders Evacuation of Residents Near N-plant

Tokyo, March 11 (Jiji Press) -- The government on Friday ordered evacuation of residents in a 3-kilometer radius from a quake-hit Tokyo Electric Power Co. nuclear power plant in Fukushima Prefecture, northern Japan, citing a possible radiation leak.

The government, however, has confirmed no radiation leak so far. The evacuation order was issued after the 8.8-magnitude quake hit northern Japan to have all the three reactors at the power plant shut down automatically.

Chief Cabinet Secretary Yukio Edano said at a news conference that the government called for preemptive evacuation, urging the 5,862 residents to stay calm in following the order.

B/26

The government also instructed 45,345 residents living outside the area but in a 10-kilometer radius to stay at home.

According to the Nuclear and Industrial Safety Agency of the Ministry of Economy, Trade and Industry, cooling functions of the No. 2 reactor at the plant have stopped working, affected by a power outage caused by the quake.

The agency is unable to confirm cooling water levels at the reactor and the No.1 reactor. The plant's emergency diesel power generation equipment has stopped working, leading the company to dispatch power supply cars, according to the agency.

As the power supply cars have reached the plant, the company is proceeding with work to resupply electricity to restore cooling functions.

The Fukushima prefectural government has reported that cooling water levels at the No.2 reactor are dropping and warned that continued decline would expose nuclear fuel rods to air to generate radiation.

Reactors were also automatically shut down at the company's Fukushima No. 2 nuclear power station, with emergency supply of cooling water starting at one of them.

The nuclear safety agency said sufficient cooling water is supplied at the reactor, but tsunami prevented the agency from confirming whether pumps taking in sea water for two other reactors are working properly.

Kyodo: Gsdf Sent To Area Near Fukushima Nuke Plant To Assist Evacuation

Tokyo, March 12 Kyodo -- A total of around 160 Ground Self-Defense Force personnel and a number of large vehicles have been dispatched to an area near the Fukushima No. 1 nuclear plant in Fukushima Prefecture to help evacuate local residents, a senior SDF officer said late Friday.

More than 100 members of a GSDF special unit trained to deal with chemical disasters have been advancing toward the area, SDF chief Ryoichi Oriki said at a news conference at the Defense Ministry.

Some 3,000 residents near the nuclear plant have been ordered to evacuate due to a problem with a cooling system detected at one of the six reactors at the Tokyo Electric Power Co. plant.

Meanwhile, liaison officers from U.S. Forces Japan were being sent to the ministry to coordinate the disaster response of the SDF and U.S. forces, he added.

Around 300 aircraft and about 40 vessels of the SDF have been dispatched or are being prepared for dispatch to deal with the disaster, according to the ministry.

3,000 Ordered To Evacuate Near Quake-hit Fukushima Nuclear Plant

Tokyo, March 11 Kyodo -- (EDS: ADDING GOV'T SPOKESMAN'S COMMENTS) Japan declared a state of atomic power emergency Friday after the country, which has about 50 nuclear power reactors, was hit by a powerful earthquake, instructing around 3,000 residents near the Fukushima No. 1 plant to evacuate.

Japan's top government spokesman Yukio Edano told an evening press conference, "We have a situation where one of the reactors (of the plant) cannot be cooled down." But the chief Cabinet secretary said the evacuation instruction was only precautionary.

"No radiation has leaked outside the reactor. The incident poses no danger to the environment at the moment," Edano said.

The post-quake situation prompted the Vienna-based International Atomic Energy Agency to scramble for details from contacts with Japan's industry ministry, while saying in a statement that at least four nuclear power plants "closest to the quake have been safely shut down" after the 2:46 p.m. quake.

Tokyo Electric Power Co., the operator of the Fukushima plant, reported that the level of the water surrounding the fuel rods was going down in the reactor.

Radioactive materials could be emitted if part of a rod is exposed to the air.

But officials of the prefectural government dismissed a view that the plant is in any critical situation, saying the top of the water is 3.4 meters above the fuel rods at the troubled No. 2 reactor.

The evacuation advisory was issued for people living within a 3-kilometer radius of the plant, while those living within a 10-kilometer radius were asked to stay home, Edano said.

Prime Minister Naoto Kan declared the emergency even though no radiation leak has been detected after the magnitude 8.8 quake so that authorities can easily implement emergency relief measures, Edano said.

Japanese Defense Minister Toshimi Kitazawa ordered the Self-Defense Forces to act in response to the state of atomic power emergency. Also, the Defense Ministry dispatched a chemical corps of the Ground Self-Defense Force to the plant.

Motohisa Ikeda, senior vice industry minister, also left Tokyo for Fukushima on Friday evening by an SDF helicopter.

According to the industry ministry, a total of 11 nuclear reactors were automatically shut down at the Onagawa plant, Fukushima No. 1 and No. 2 plants and Tokai No. 2 plant after the biggest-magnitude quake in the country's modern history.

At the Onagawa plant in Miyagi Prefecture, a fire started at a building housing the turbine, the operator, Tohoku Electric Power Co., said, denying it detected any signs of radiation leaks.

Water spilled from pools containing fuel rods at the Kashiwazaki-Kariwa plant on the Sea of Japan coast in Niigata Prefecture and the Onagawa plant, the operators said, saying they saw no signs suggesting radiation leaks.

Hokkaido Electric Power Co. reported no problems at its Tomari No. 1, No. 2 and No. 3 plants on the northernmost main island.

There were no immediate signs of any problems at the Hamaoka nuclear plant on the Pacific coast in Shizuoka Prefecture, southwest of Tokyo, the prefectural government said.

Fukushima Pref. Warns of Radiation Leak at N-plant

Fukushima, March 11 (Jiji Press) -- The Fukushima prefectural government on Friday warned that water levels dropped at a reactor of a quake-hit Tokyo Electric Power Co. <9501> nuclear power plant, posing a threat of a radiation leak.

If the water levels at the No.2 reactor at the Fukushima No. 1 nuclear power station of the company keep falling, nuclear fuel rods would be exposed to air to generate radiation, according to the prefecture.

The prefecture urged residents in a 2-kilometer radius from the reactor to immediately evacuate.

Lu, Shanlai

From: Lu, Shanlai
Sent: Friday, March 11, 2011 9:20 AM
To: Donoghue, Joseph; Ulses, Anthony; Mendiola, Anthony; Akstulewicz, Frank; Ader, Charles; Lombard, Mark; Ruland, William; Bahadur, Sher; Landry, Ralph; Clifford, Paul
Subject: Japan nuclear site declares state of emergency after quake - plant experienced a mechanical failure in the system needed to cool the reactor

<http://www.chicagotribune.com/news/nationworld/la-fgw-quake-nuclear-20110312,0,6862975.story>

We are safe and lucky this time.

3/27

McKirgan, John

From: McKirgan, John
Sent: Friday, March 11, 2011 1:43 PM
To: Ashley, Clinton; Chien, Nan; Grady, Anne-Marie; Jackson, Christopher; Jensen, Walton; Nold, David; ODriscoll, James; Peng, Shie-Jeng; Ayres, Annette; Drozd, Andrzej; Goel, Raj; Haider, Syed; Miller, Eric; Wagage, Harry
Subject: Summary of earthquake in eastern Japan.doc
Attachments: Summary of earthquake in eastern Japan.doc

FYI.

B/28

04/01/2011

Summary of 3/11/2011 Honshu earthquake in Japan

An earthquake with a magnitude 8.8 (M_w, USGS) struck the east coast of Japan on 3/11/2011, at 2:46PM local time, 3/11/2011 12:46 AM Eastern Standard Time. The epicenter of the main shock (38.322°N, 142.369°E) is located about 373 km North-East of Tokyo, Japan. The earthquake occurred at the depth of 24 km, according to the USGS.

The earthquake occurred as a result of thrust faulting near the subduction zone between the Pacific and North American Plates. The main shock was preceded by a series of large foreshocks over the previous two days beginning on March 9th with a 7.2 event approximately 40 km from the March 11 earthquake. The main shock was also followed by a series of strong aftershocks. The earthquake triggered tsunami swept across coastal area in Japan. US National Weather Service issued a tsunami warning for at least 50 countries and territories.

Four nuclear power plants closest to the quake were safely shut down, according to the U.N. nuclear watchdog agency. But The Japanese government declared a state of emergency at the Fukushima No. 1 power plant after its cooling system failed during the earthquake. About 2000 residents near the nuclear power plant were being told to evacuate, based on Kyodo News. MMI intensity value is about 7 for the three nuclear power plants closest to the epicenter (see attached figure).

There were at least 50 deaths related to the earthquake and more casualties will be expected. Several fires were also reported.

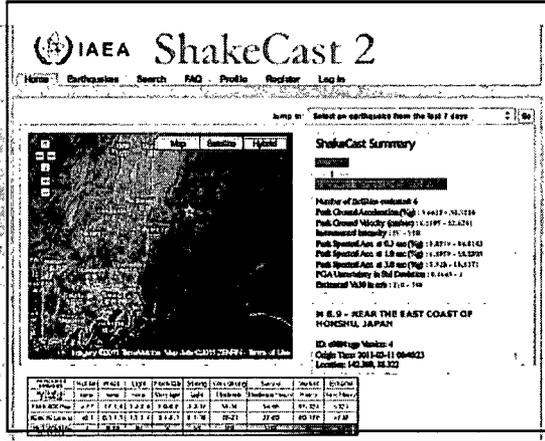
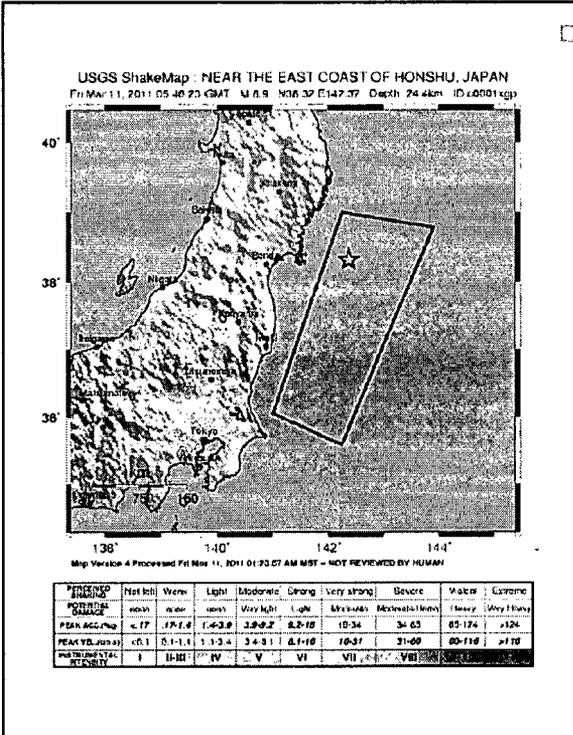


ShakeCast Report



Magnitude 8.9 - NEAR THE EAST COAST OF HONSHU, JAPAN **Version 4**
 Time: 2011-03-11 05:46:23 GMT Created: 2011-03-11 09:37:54 GMT
 Location: 38.32 N/ 142.37 E For more information and latest version see
 Depth: 24.4 km <http://earthquake.usgs.gov/shakemap>

These results are from an automated system and users should consider the preliminary nature of this information when making decisions relating to public safety. ShakeCast results are often updated as additional or more accurate earthquake information is reported or derived.



- Recent significant earthquakes in the region
- M7.7 Miyagi-Oki, Japan at 6/12/1978 8:14
 - M7.4 NEAR THE EAST COAST OF HONSHU, JAPAN at 11/1/1989 18:25
 - M7.2 Miyagi-Oki, Japan at 8/16/2005 2:46
 - M7 NEAR THE EAST COAST OF HONSHU, JAPAN at 1/18/1981 18:11
 - M7 Miyagi-Oki, Japan at 5/26/2003 9:24

FACILITY TYPE	FACILITY ID	FACILITY NAME	LATITUDE	LONGITUDE	DAMAGE LEVEL	MMI	PGA	PGV	PSA03	PSA10	PSA30
NPP	JPN1	Fukushima Daiichi	37.4215	141.034	RED	7.72	25.8708	35.5119	57.8466	37.5128	7.4042
NPP	JPN2	Fukushima Daimi	37.3163	141.025	RED	7.76	26.6768	36.4785	59.5783	38.5339	7.5874
NPP	JPN10	Onagawa	38.3998	141.501	RED	7.34	23.483	27.6412	52.4778	29.1987	5.7565
NPP	JPN4	Hamaoka	34.6242	138.14	GREEN	4.96	6.5016	10.322	15.3754	10.9036	2.4143
NPP	JPN7	Kashiwazaki - Kariwa	37.4317	138.598	YELLOW	5.53	8.5166	13.0735	19.9327	13.8102	2.9935
NPP	JPN15	Tokai	36.4654	140.607	RED	7.72	25.8298	35.4623	57.7583	37.4606	7.3948

McCann, Edward

From: Qualls, Phil
Sent: Friday, March 11, 2011 3:07 PM
To: McCann, Edward
Subject: RE: new article on Japan NPP

This may get really ugly in the next few days.

From: McCann, Edward
Sent: Friday, March 11, 2011 1:46 PM
To: Qualls, Phil
Subject: RE: new article on Japan NPP

This is true. They have to.

From: Qualls, Phil
Sent: Friday, March 11, 2011 2:45 PM
To: McCann, Edward; Melfi, Jim; Latta, Robert
Subject: new article on Japan NPP

It sounds like they are venting containment and evacuating a 2 mile radius

http://www.breitbart.com/article.php?id=D9LT6T580&show_article=1

0/29

McCann, Edward

NRR

From: Qualls, Phil
Sent: Friday, March 11, 2011 2:39 PM
To: McCann, Edward
Subject: RE: japan

I would not bet on anything helping after a 8.9. I hope that the operators are good at improvising.

From: McCann, Edward
Sent: Friday, March 11, 2011 1:36 PM
To: Qualls, Phil
Subject: RE: japan

I hope Japan developed an AIA and Beyond Design Basis Procedures and Incident Plans they would help now.

From: Qualls, Phil
Sent: Friday, March 11, 2011 2:31 PM
To: McCann, Edward
Subject: RE: japan

Probably beyond DBE. How do you design for a 8.9? However, even if DBE was 9, there is a likelihood some multitude of things failed. Offsite power is gone for the foreseeable future as the grid is down. I think the weak link is the "median fragility of ceramic insulators in the electrical grid" NUREG CR 4910 (I have a copy from the old days from somewhere).

With an 8.9, if a pipe support or snubber fails, pipe whip would probably cause a LOCA. EDGs must function. With 8.9 they may not for a whole lot of reasons. I have a hard time believing we are transporting water in to a facility on the coast. I hope the news article is wrong. I saw the story on MSNBC website and I know how accurate their US political reporting of our beloved President is.

From: McCann, Edward
Sent: Friday, March 11, 2011 1:21 PM
To: Qualls, Phil
Subject: japan

I heard that the US Air Force is going to bring cooling water to the N Plant. Loss of Power loss of diesel generators and cooling systems failed due to earthquake. That is not good. Earthquake beyond design basis?

B/40

Vettori, Robert

From: Hernandez, Raul
Sent: Friday, March 11, 2011 07:48
To: NRO_DSRA_SBPA; NRO_DSRA_SBPB Distribution
Subject: Japan Declares Nuclear Emergency

Japan Declares Nuclear Emergency, As Cooling System Fails At Power Plant

Update 3: 2000 residents near the Fukushima Nuclear Plant have been urged to evacuate.

Update 2: Japan has declared a nuclear emergency.

Update: There's no evidence of any radioactive leakage, but officials have confirmed that the cooling process for the nuclear plant has not yet gone according to plan.

Original post: Ominous flash from Kyodo Wire:

The operator of the Fukushima No. 1 nuclear plant reported an abnormality Friday following a powerful earthquake which hit a wide area in northeastern Japan including Fukushima Prefecture, the industry ministry said.

The system to cool reactor cores in case of emergency stopped at the No. 1 and No. 2 reactors of the plant operated by Tokyo Electric Power Co., it said.

There are reports that the Japanese PM will declare a nuclear emergency.

Check the link for further updates

<http://www.businessinsider.com/fukushima-nuclear-plant-2011-3>

B/H/1

Vettori, Robert

From: Hernandez, Raul
Sent: Friday, March 11, 2011 07:54
To: Hernandez, Raul; NRO_DSRA_SBPA; NRO_DSRA_SBPB Distribution
Subject: RE: Japan Declares Nuclear Emergency

Fire at Tohoku Elec Onagawa nuclear plant -Kyodo

TOKYO, March 11 | Fri Mar 11, 2011 4:45am EST

TOKYO, March 11 (Reuters) - A fire broke out at Tohoku Electric Power Co's (9506.T) Onagawa nuclear plant in northeastern Japan following Friday's major earthquake, Kyodo news agency said.

Prior to the Kyodo report, the company had said it had not received information on whether there had been any problems at the nuclear power plant after the disaster.

Separately, Fukushima Prefecture, the site of a Tokyo Electric Power (9501.T) nuclear power plant, said on Friday the plant's reactor cooling system was functioning, denying an earlier report that it was malfunctioning.

Japanese media reported that the government had decided to declare a nuclear power emergency situation, which occurs if there is confirmation of radioactivity leaks from a nuclear power plant or a reactor cooling system breaks down. (Reporting by Chikako Mogi and Risa Maeda; Editing by Edmund Klamann)

From: Hernandez, Raul
Sent: Friday, March 11, 2011 7:48 AM
To: NRO_DSRA_SBPA; NRO_DSRA_SBPB Distribution
Subject: Japan Declares Nuclear Emergency

Japan Declares Nuclear Emergency, As Cooling System Fails At Power Plant

Update 3: 2000 residents near the Fukushima Nuclear Plant have been urged to evacuate.

Update 2: Japan has declared a nuclear emergency.

Update: There's no evidence of any radioactive leakage, but officials have confirmed that the cooling process for the nuclear plant has not yet gone according to plan.

Original post: Ominous flash from Kyodo Wire:

The operator of the Fukushima No. 1 nuclear plant reported an abnormality Friday following a powerful earthquake which hit a wide area in northeastern Japan including Fukushima Prefecture, the industry ministry said.

The system to cool reactor cores in case of emergency stopped at the No. 1 and No. 2 reactors of the plant operated by Tokyo Electric Power Co., it said.

There are reports that the Japanese PM will declare a nuclear emergency.

Check the link for further updates

<http://www.businessinsider.com/fukushima-nuclear-plant-2011-3>

Vettori, Robert

From: Hernandez, Raul
Sent: Friday, March 11, 2011 08:02
To: NRO_DSRA_SBPB Distribution; NRO_DSRA_SBPA
Subject: MSNBC - State of emergency is declared at 2 Japanese nuclear plants

State of emergency is declared at 2 Japanese nuclear plants

Process for cooling reactor 'not going as planned' in wake of quake, administrator says

TOKYO — Japan's top government spokesman and local administrators say emergencies have been issued at two nuclear power plants over cooling-system fears in the wake of Friday's giant 8.9-magnitude earthquake. Chief Cabinet Secretary Yukio Edano said the nuclear power plant in Fukushima developed a mechanical failure in the system needed to cool the reactor after it was shut down after the earthquake. He said there was no radiation leak.

Edano said the measure was a precaution and there was no radiation leak at the Fukushima No. 1 power plant. He said the facility was not in immediate danger.

Meanwhile, an administrator at the Tohoku Electric Power Co's Onagawa facility said the process for the cooling reactor is "not going as planned," adding that "nuclear emergency situation" has been declared. The company asked people nearby to stay calm, the official TV news channel NHK reported.

A fire broke out at the plant following the quake, the Kyodo news agency said. Prior to the Kyodo report, the company had said it had not received information on whether there had been any problems at the plant after the disaster.

At the Fukushima facility, the site of a Tokyo Electric Power nuclear power plant, a spokesman on Friday said that the plant's reactor cooling system was working, denying an earlier report that it was malfunctioning. Miyagi prefecture, where it is located, was one of the areas worst hit by the tsunami.

Kyodo also reported that an emergency core-cooling unit had been activated at the Fukushima nuclear plant, without giving further details.

The four Japanese nuclear power plants closest to the epicenter of the quake have been safely shut down, the United Nations atomic watchdog said Friday.

The quake struck just under 250 miles northeast of Tokyo, the U.S. Geological Survey said. It was followed by more than a dozen aftershocks, one as strong as 7.1.

Earlier, Prime Minister Naoto Kan said the quake caused "major damage" in northeastern Japan, but that nuclear power facilities in the area were not damaged and there was no radiation leakage.

B/42

Martin, Karnisha

From: Devlin, Stephanie
Sent: Friday, March 11, 2011 12:01 PM
To: Bauer, Laurel; Bieganousky, Wayne; Plaza-Toledo, Meralis; Rodriguez, Ricardo; Vega, Frankie; Xi, Zuhan; Candelario, Luisette; Cruz, Zahira; Stirewalt, Gerry; Thompson, Jenise; Wang, Weijun
Subject: RE: Anybody feel anything?

<http://www.reuters.com/article/2011/03/11/us-japan-quake-nuclear-clinton-idUSTRE72A4LR20110311?feedType=RSS&feedName=domesticNews>

The United States has transported coolant to a Japanese nuclear plant affected by a massive earthquake and will continue to assist Japan, Secretary of State Hillary Clinton said on Friday.

"We just had our Air Force assets in Japan transport some really important coolant to one of the nuclear plants," Clinton said at a meeting of the President's Export Council.

"You know Japan is very reliant on nuclear power and they have very high engineering standards but one of their plants came under a lot of stress with the earthquake and didn't have enough coolant," Clinton said.

stephanie

From: Bauer, Laurel
Sent: Friday, March 11, 2011 10:31 AM
To: Devlin, Stephanie
Subject: RE: Anybody feel anything?

No kidding. I thought my email was freaking out this morning. It looked like I had pages of EQ alerts. ☺

Laurel
(301) 415-3210

From: Devlin, Stephanie
Sent: Friday, March 11, 2011 10:30 AM
To: Bauer, Laurel; Bieganousky, Wayne; Plaza-Toledo, Meralis; Rodriguez, Ricardo; Vega, Frankie; Xi, Zuhan; Candelario, Luisette; Cruz, Zahira; Stirewalt, Gerry; Thompson, Jenise; Wang, Weijun
Subject: RE: Anybody feel anything?

the aftershocks are amazing! i've gotten emails about \geq M5 earthquakes in Japan every minute or so.

stephanie

From: Bauer, Laurel
Sent: Friday, March 11, 2011 10:23 AM
To: Bieganousky, Wayne; Devlin, Stephanie; Plaza-Toledo, Meralis; Rodriguez, Ricardo; Vega, Frankie; Xi, Zuhan; Candelario, Luisette; Cruz, Zahira; Stirewalt, Gerry; Thompson, Jenise; Wang, Weijun
Subject: RE: Anybody feel anything?

B/44

There is a meeting going on right now between NRC and JNES organized by Annie. I am sure it is a hot topic for discussion.

Laurel
(301) 415-3210

From: Bieganousky, Wayne
Sent: Friday, March 11, 2011 10:21 AM
To: Devlin, Stephanie; Bauer, Laurel; Plaza-Toledo, Meralis; Rodriguez, Ricardo; Vega, Frankie; Xi, Zuhan; Candelario, Luisette; Cruz, Zahira; Stirewalt, Gerry; Thompson, Jenise; Wang, Weijun
Subject: RE: Anybody feel anything?

Is anyone from the NRC stepping in?

From: Devlin, Stephanie
Sent: Friday, March 11, 2011 10:19 AM
To: Bieganousky, Wayne; Bauer, Laurel; Plaza-Toledo, Meralis; Rodriguez, Ricardo; Vega, Frankie; Xi, Zuhan; Candelario, Luisette; Cruz, Zahira; Stirewalt, Gerry; Thompson, Jenise; Wang, Weijun
Subject: RE: Anybody feel anything?

i heard the same. in the doc forwarded:

"Japanese government declared a state of emergency at the Fukushima No. 1 power plant after its cooling system failed during the earthquake. About 2000 residents near the nuclear power plant were being told to evacuate"

stephanie

From: Bieganousky, Wayne
Sent: Friday, March 11, 2011 10:17 AM
To: Devlin, Stephanie; Bauer, Laurel; Plaza-Toledo, Meralis; Rodriguez, Ricardo; Vega, Frankie; Xi, Zuhan; Candelario, Luisette; Cruz, Zahira; Stirewalt, Gerry; Thompson, Jenise; Wang, Weijun
Subject: RE: Anybody feel anything?

FoxNews is reporting, via some nuclear expert not associated with the NRC, that they are worried about the cooling of the rods. Apparently, they have no power to get water to the reactor.

Wayne

From: Devlin, Stephanie
Sent: Friday, March 11, 2011 10:11 AM
To: Bauer, Laurel; Bieganousky, Wayne; Plaza-Toledo, Meralis; Rodriguez, Ricardo; Vega, Frankie; Xi, Zuhan; Candelario, Luisette; Cruz, Zahira; Stirewalt, Gerry; Thompson, Jenise; Wang, Weijun
Subject: FW: Anybody feel anything?

From: Li, Yong
Sent: Friday, March 11, 2011 8:32 AM
To: Stieve, Alice; Seber, Dogan; Graizer, Vladimir; Devlin, Stephanie
Subject: RE: Anybody feel anything?

A brief summary on the quake.

From: Stieve, Alice

Sent: Friday, March 11, 2011 8:21 AM

To: Seber, Dogan; Graizer, Vladimir; Li, Yong

Subject: Anybody feel anything?

Hey are any of you working today? I am NOT actually working. However I wanted to touch base with you after Joe came to tell me the news. I bet there will be lots of talk at NRC today. We need to go over there soon to see the power plants. I wish the TV news would spend more time on the technical aspects and less on the floating fires.

Alice

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Live coverage of Libya and Middle East uprisings



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U.S. delivers coolant to Japan plant: Clinton

Washington Post | WASHINGTON | Fri Mar 11, 2011 11:05am EST

(Reuters) - The United States has transported coolant to a Japanese nuclear plant affected by a massive earthquake and will continue to assist Japan, Secretary of State Hillary Clinton said on Friday.

"We just had our Air Force assets in Japan transport some really important coolant to one of the nuclear plants," Clinton said at a meeting of the President's Export Council.

"You know Japan is very reliant on nuclear power and they have very high engineering standards but one of their plants came under a lot of stress with the earthquake and didn't have enough coolant," Clinton said.

(Reporting by Doug Palmer; editing by Will Dunham)

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Mar 11, 2011

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Comments (12)

putneyb wrote:

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If Clinton said this, she is an idiot. Your reporter and editors are idiots for printing this. The coolant is water.

Mar 11, 2011 12:28pm EST -- Report as abuse

rtstone wrote:

What amazes me is the fact that the U.S.A. continues to give even in it's greatest time of need and you would think that would be worth something in the eyes of the rest of the world. However, it seems that when we are down for the count every one seems to be waiting in the wind to deal the final blow.

Mar 11, 2011 12:29pm EST -- Report as abuse

Boch wrote:

In the nuclear world, we call "really important coolant" pure water. That's it. We're not conquering heroes here, thanks though Hillary.

Mar 11, 2011 12:32pm EST -- Report as abuse

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www.massmegawatts.com

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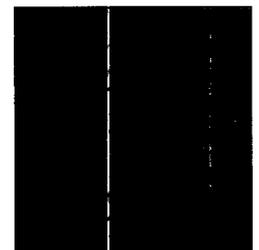
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A growing number of Republicans are criticizing President Barack Obama for failing to lay out a clear plan on Libya and mounting costly

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of parts and products' began to feel the full impact of Japan's catastrophic earthquake.

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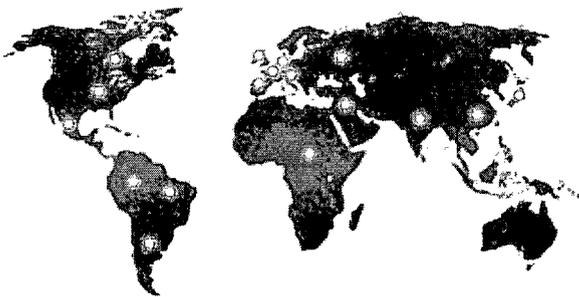
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Cruz, Zahira

From: Hernandez.Samuel@epamail.epa.gov
Sent: Friday, March 11, 2011 8:40 AM
To: Cruz, Zahira
Subject: news clip

http://www.huffingtonpost.com/2011/03/11/japan-earthquake-tsunami_n_834380.html

=====
Samuel Hernández Quiñones
Environmental Engineer
Environmental Protection Agency
Office of Water
1200 Pennsylvania Ave. NW
Washington, DC 20460
202-564-1735

"USEPA Protecting Human Health and the Environment"

B/45

Hopkins, Jon

NAK
From: Astwood, Heather, *NAK*
Sent: Friday, March 11, 2011 8:30 AM
To: Leeds, Eric; Boger, Bruce; McGinty, Tim; Valentine, Nicholee; Titus, Brett; Susco, Jeremy; Roquecruz, Carla; Nguyen, Quynh; Meighan, Sean; Heida, Bruce; Fields, Leslie; Cusumano, Victor; Cartwright, William; Azeem, Almas
Cc: Cullingford, Michael; Hopkins, Jon; Quinones, Lauren; Regan, Christopher; Rodriguez, Veronica
Subject: FW: Japan: Fukushima 1 & 2 cooling system problems

FYI

From: Breskovic, Clarence *OP*
Sent: Friday, March 11, 2011 6:11 AM
To: Breskovic, Clarence
Subject: Japan: Fukushima 1 & 2 cooling system problems

According to NHK TV news (Japan Broadcasting Corporation) the Fukushima 1 & 2 reactors are experiencing reactor cooling problems after diesel generator failures but also saying there is no cause for alarm even though the government has declared a "nuclear emergency situation".

Hopkins, Jon

From: Hopkins, Jon, *NRR*
Sent: Friday, March 11, 2011 8:42 AM
To: Brown, Frederick, *NRR*
Cc: Thomas, Eric
Subject: FW:
Attachments: News Releases No.2_IAEA.docx; 110311_press_release_on_earthquake1 (2).pdf; News Releases No4_IAEA.docx; NPP_Japan_map2011.pdf

Fred,

Attached is the info. that I have just received from OIP, who is in contact with Japan. It gives the operating/shutdown status of NPPs of interest.

I've also attached a map of Japan NPPs that Mike Cullingford provided me.

Jon

From: Foggie, Kirk, *DIP*
Sent: Friday, March 11, 2011 8:35 AM
To: Hopkins, Jon
Cc: Boger, Bruce; Regan, Christopher; Cullingford, Michael; Emche, Danielle; Astwood, Heather; Mamish, Nader; Abrams, Charlotte; Ramsey, Jack; Stahl, Eric
Subject: RE:

Jon et al.,

Attached are the press releases NISA provided last night/early this morning.

We are getting information realtime from NISA and JNES staff still here in the U.S. after attending the RIC. The most recent information has been forwarded to NSIR to be used in the ET brief currently taking place. Jon, I will update you with information as it comes in today.

Kirk

From: Hopkins, Jon, *NRR*
Sent: Friday, March 11, 2011 7:55 AM
To: Foggie, Kirk
Cc: Boger, Bruce; Regan, Christopher; Cullingford, Michael; Emche, Danielle; Astwood, Heather
Subject:

Kirk,

If you could let NRR know of any info. that you find out about the status of Japan's NPPs, it will be appreciated.

If you need assistance, please let me know.

Jon

Hokuriku Electric Co said on Friday all of three reactors at its Onagawa nuclear plant in northern Japan shut down automatically after the quake.

Kyodo news agency said a fire broke out at Tohoku Electric Power Company's Onagawa nuclear plant in northeastern Japan following the earthquake.

Separately, Fukushima Prefecture, the site of a Tokyo Electric Power nuclear power plant, said on Friday the plant's reactor cooling system was functioning, denying an earlier report that it was malfunctioning.

<http://www.baltimoresun.com/news/nation-world/la-fgw-quake-nuclear-20110312,0,6542180.story>

<http://in.reuters.com/article/2011/03/11/idINIndia-55498320110311>

<http://washingtonexaminer.com/news/2011/03/japan-issues-emergency-nuke-plant-no-leak>

<http://www.dw-world.de/dw/article/0,,14905150,00.html>

March 11, 2011

Nuclear and Industrial Safety Agency

Seismic Damage Information (the 2nd Release)
(As of 16:15 March 11, 2011)

Nuclear and Industrial Safety Agency (NISA) confirmed the current conditions of Tomari Power Station, Hokkaido Electric Power Co., Inc.

Higashidori Nuclear Power Station and Onagawa Nuclear Power Station, Tohoku Electric Power Co., Inc

Higashidori Nuclear Power Station,, Fukushima Dai-ichi Nuclear Power Station and Fukushima Dai-ni Nuclear Power Station, Tokyo Electric Power Co., Inc. and works at the Japan Nuclear Fuel are as follows:

Walkdowns are continuing at these power stations.

1. Summary of Damage

1. Summary of Damage

(1) Time of Occurrence: 14:46 (UTC 5:46) March 11, 2011, Friday

(2) Epicenter: Off-Coast of Sanriku (North Latitude: 38; East Longitude: 142.9)

10km deep, M7.9

(3) Seismic Intensity in Japanese Scale

<Area of Seismic Intensity Larger Than and Including 4>

7: Northern Miyagi Prefecture

6+: Northern and southern Ibaraki Prefecture

5+: Sanpachi-Kamikita Aomori Prefecture

5-: Chuetsu, Niigata Prefecture

<Municipality of Seismic Intensity Larger than and Including 4>

6+: Naraha Machi, Tomioka Machi, Ookuma-machi, and Futaba-machi, Fukushima Prefecture

6-: Ishinomaki-city and, Onagawa town (by Seismograph of NPP)of ,

Miyagi Prefecture and Tokaimura, Ibaraki Pref.

5: Kariwa-village, Niigata Prefecture

4: Rokkasho-village, Higashidori-village, Aomori Prefecture,
Kashiwazaki-city, Niigata Prefecture and Yokosuka-city, Kanagawa
Prefecture

1: Tomari-mura, Hokkaido

1. The status of operation at Power Stations

a. Tomari Power Station: Hokkaido Electric Power Co., Inc. (Tomari-mura,
Furuu-gun, Hokkaido)

(1) The status of operation

Unit 1 (579MWe): In continued operation

Unit 2 (579MWe): In continued operation

Unit 3 (912MWe): In continued operation

(2) Readings at monitoring post etc.

Variation in the monitoring post readings: Yes/No

Variation in the main stack monitor readings: Yes/No

(3) Report concerning other malfunction

b. Higashidori Nuclear Power Station, Tohoku Electric Power Co., Inc.
(Higashidori-mura, Shimokita-gun, Aomori Prefecture)

(1) The status of operation

Unit 1 (1,100MWe) (outage for periodic inspection)

(2) Readings at monitoring post etc.

Variation in the monitoring post readings: No

Variation in the main stack monitoring readings: No

(3) Report concerning other malfunction

Report of fire: No

c. Onagawa Nuclear Power Station (Onagawa-machi and Ishinomaki-shi,
Miyagi Prefecture)

(1) The status of operation

Unit 1 (524MWe) (Automatic shutdown)

Unit 2 (825MWe) (Automatic shutdown)

Unit 3 (825MWe) (Automatic shutdown)

(567 Gal was observed on the foundation slab.)

(2) Readings of monitoring post etc.

Variation in the monitoring post readings: No

Variation in the main stack monitor readings: No

(3) Report concerning other malfunction

Report of fire: No -Confinement function was confirmed.

d. Fukushima Dai-ichi Nuclear Power Station, Tokyo Electric Power Co., Inc. (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)

Unit4(784MW): in periodic inspection outage

Unit5(784MW): in periodic inspection outage

Unit6(1,100MW): in periodic inspection outage

(2) Readings at monitoring post etc.

Variation in the monitoring post readings: No

Variation in the main stack monitoring readings: No

(3) Report concerning other malfunction

Article 10* of Act on Special Measures Concerning Nuclear Emergency Preparedness (Fukushima Dai-ichi(Units 1,2 and 3)

(* In a heightened alert conditioning)

e. Fukushima-Daini Nuclear Power

Station(TEPCO)(Naraha-cho/Tomioka-cho, Futaba-gun, Fukushima pref.)

(1) The status of operation

Unit1(1,100MW): (Automatic shutdown)

Unit2(1,100MW): (Automatic shutdown)

Unit3(1,100MW): (Automatic shutdown)

Unit4(1,100MW): (Automatic shutdown)

(2) Readings at monitoring post etc.

Variation in the monitoring post readings: No

Variation in the main stack monitoring readings: No

(3) Report concerning other malfunction

Report of fire: No-Confinement function was confirmed.

f. Tokai Dai-ni Nuclear Power Station(JAPC)

(1) The status of operation

Unit1(1,100MW): Automatically shut down

(2) Readings at monitoring post etc.

Variation in the monitoring post readings: No

Variation in the main stack monitoring readings: No

(3) Report concerning other malfunction

Report of fire: No-Confinement function was confirmed.

2. JNFL(Rokkasyo-mura, Kamikita-gun, Aomori Pref)

(1) The status of operation

-Reprocessing facility: Originally outage

(2) Report concerning other malfunction

Report of fire: No-Confinement function was confirmed.

3. Action taken by NISA

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 Act on Special Measures Concerning Nuclear Emergency Preparedness (Fukushima Dai-ichi(Units 1,2 and 3)

All facilities which will be confirmed safely will be eliminated from next press release

(Contact Person)

Mr. Masaomi Koyama

Deputy Director, International Affairs

Office, NISA/METI
Phone:+81-(0)3-3501-1087

Effect of the earthquake on the Nuclear Facilities in North-east area of Japan

(as of 2:46pm, 11of March, 2011)

Effect of earthquake on the Nuclear Facilities from the earthquake

Current status of nuclear facilities are as follows:

1. Onagawa Nuclear Power Station

-Units 1,2 and 3: Automatically shut down.

2. Fukushima-Daini Nuclear Power Station

- Units 1,2 and 3: Automatically shut down.

- Units 4,5 and 6: in periodic inspection outage

3. Fukushima-Daini Nuclear Power Station

-Units 1,2,3 and Unit4 : Automatically shut down.

4. Higashi-Dori Nuclear Power Station

- in periodic inspection outage

5. Rokkasho reprocessing facility

- emergency diesel generator is supplying electricity

6. Tokai Dai-ni Nuclear Power Station:automatically shut down

7. Hamaoka Nuclear Power Station

-Units 4 and 5: are operating

-Unit 3:in periodic inspection outage

8. Kashiwazaki-Kariwa Nuclear Power Station

-Units 1,5,6 and 7: are operating

-Units 2,3 and 4: in periodic inspection outage

9. Tomari Nuclear Power Station

-Units 1,2 and 3: are operating

There is no report of abnormal monitoring readings around NPPs that indicate irregular value at this time.

There are no reports of fire or failure.

Staff of NISA are gathering information

Contacts: +81-(0)3-3501-1087

International Affairs Office

Nuclear and Industrial Safety Agency(NISA)

March 11, 2011
Nuclear and Industrial Safety Agency

Seismic Damage Information (the 4th Release)
(As of 18:45 March 11, 2011)

(*English version of the 3rd release has not published)

Nuclear and Industrial Safety Agency (NISA) confirmed the current conditions of Tomari Power Station, Hokkaido Electric Power Co., Inc.

Higashidori Nuclear Power Station and Onagawa Nuclear Power Station, Tohoku Electric Power Co., Inc

Higashidori Nuclear Power Station,, Fukushima Dai-ichi Nuclear Power Station and Fukushima Dai-ni Nuclear Power Station, Tokyo Electric Power Co., Inc. and works at the Japan Nuclear Fuel are as follows:

Walkdowns are continuing at these power stations.

1. Summary of Damage

- (1) Time of Occurrence: 14:46 (UTC 5:46) March 11, 2011, Friday
- (2) Epicenter: Off-Coast of Sanriku (North Latitude: 38: East Longitude: 142.9), 10km deep, M8.4
- (3) Seismic Intensity in Japanese Scale
<Area of Seismic Intensity Larger Than and Including 4>
7: Northern Miyagi Prefecture
6+: Northern and southern Ibaraki Prefecture
5+: Sanpachi-Kamikita Aomori Prefecture
5-: Chuetsu, Niigata Prefecture
<Municipality of Seismic Intensity Larger than and Including 4>
6+: Naraha Machi, Tomioka Machi, Ookuma-machi, and Futaba-machi, Fukushima Prefecture
6-: Ishinomaki-city and, Onagawa town (by Seismograph of NPP)of , Miyagi Prefecture and Tokaimura, Ibaraki Pref.

5: Kariwa-village, Niigata Prefecture

4: Rokkasho-village, Higashidori-village, Aomori Prefecture,
Kashiwazaki-city, Niigata Prefecture and Yokosuka-city, Kanagawa
Prefecture

1: Tomari-mura, Hokkaido

1. The status of operation at Power Stations

a. Higashidori Nuclear Power Station, Tohoku Electric Power Co., Inc.
(Higashidori-mura, Shimokita-gun, Aomori Prefecture)

(1) The status of operation

Unit 1 (1,100MWe) : in periodic inspection outage

(2) Readings at monitoring post etc.

Variation in the monitoring post readings: No

Variation in the main stack monitoring readings: No

(3) Report concerning other malfunction

Report of fire: No

b. Onagawa Nuclear Power Station (Onagawa-machi and Ishinomaki-shi,
Miyagi Prefecture)

(1) The status of operation

Unit 1 (524MWe): automatic shutdown

Unit 2 (825MWe): automatic shutdown

Unit 3 (825MWe): automatic shutdown

(2) Readings of monitoring post etc.

Variation in the monitoring post readings: No

Variation in the main stack monitor readings: No

(3) Report concerning other malfunction

Report of fire: CO2 extinguishment started at 17:15

c. Fukushima Dai-ichi Nuclear Power Station, Tokyo Electric Power Co., Inc.
(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(784MW): in periodic inspection outage
Unit 5(784MW): in periodic inspection outage
Unit 6(1,100MW): in periodic inspection outage

(2) Readings at monitoring post etc.

Variation in the monitoring post readings: No

Variation in the main stack monitoring readings: No

(3) Report concerning other malfunction

Article 10* of Act on Special Measures Concerning Nuclear Emergency

Preparedness (Fukushima Dai-ichi, Units 1,2 and 3)

(*A heightened alert condition)

d. Fukushima-Daini Nuclear PowerStation(TEPCO)

(Naraha-cho/Tomioka-cho, Futaba-gun, Fukushima pref.)

(1) The status of operation

Unit1(1,100MW): automatic shutdown

Unit2(1,100MW): automatic shutdown

Unit3(1,100MW): automatic shutdown

Unit4(1,100MW): automatic shutdown

(2) Readings at monitoring post etc.

Variation in the monitoring post readings: No

Variation in the main stack monitoring readings: No

(3) Report concerning other malfunction

Report of fire: No

2. JNFL(Rokkasyo-mura, Kamikita-gun, Aomori Pref)

(1) The status of operation

Reprocessing facility: Originally outage

(2) Report concerning other malfunction

Report of fire: No

2. Action taken by NISA

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, Units 1,2 and 3.

16:36: TEPCO notified to NISA in accordance with Article 15 of the Act for Special Measures Concerning Nuclear Emergency Preparedness regarding Fukushima Dai-ichi, Units 1 and 2.

All facilities which have been confirmed safety will be eliminated from next press release.

(Contact Person)

Mr. Masaomi Koyama

Deputy Director, International Affairs
Office, NISA/METI

Phone:+81-(0)3-3501-1087

	Nuclear Power Plant
	BWR (in operation)
	BWR (under construction)
	PWR (in operation)
	PWR (under construction)

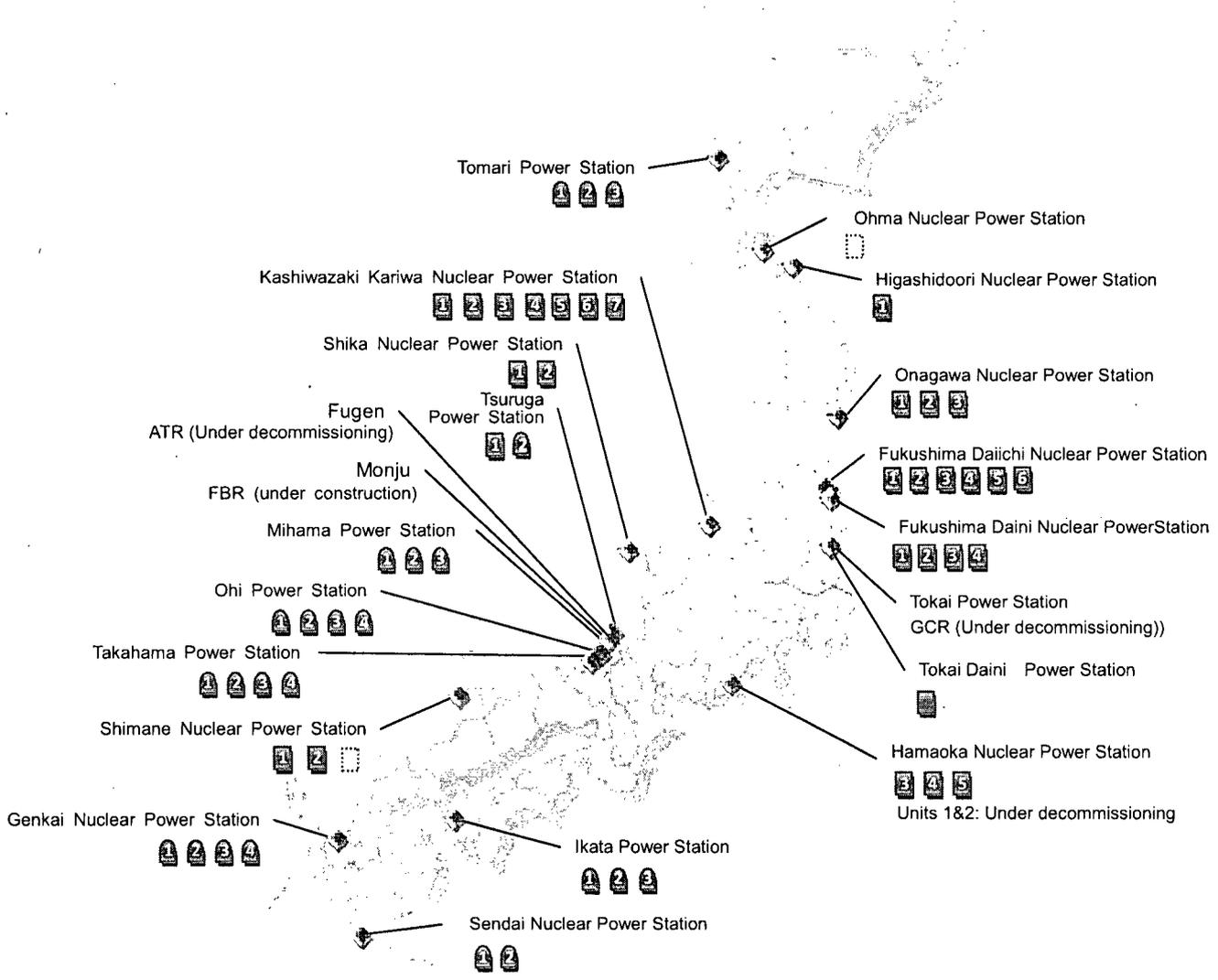


Fig. A-2 Locations of Nuclear Installations

Hopkins, Jon

From: Hopkins, Jon, *MR*
Sent: Friday, March 11, 2011 8:44 AM
To: Brown, Frederick; Thomas, Eric
Subject: FW: INFORMATION Japan No radiation Leaks Or Abnormalities - 11 reactors shut down

More info from OIP.

From: Astwood, Heather *MR*
Sent: Friday, March 11, 2011 8:25 AM
To: Leeds, Eric; Boger, Bruce; McGinty, Tim; Valentine, Nicholee; Titus, Brett; Susco, Jeremy; Roquecruz, Carla; Nguyen, Quynh; Meighan, Sean; Heida, Bruce; Fields, Leslie; Cusumano, Victor; Cartwright, William; Azeem, Almas
Cc: Cullingford, Michael; Hopkins, Jon; Quinones, Lauren; Regan, Christopher; Rodriguez, Veronica
Subject: INFORMATION Japan No radiation Leaks Or Abnormalities - 11 reactors shut down

FYI

From: Breskovic, Clarence *DVP*
Sent: Friday, March 11, 2011 4:05 AM
To: Breskovic, Clarence
Subject: Japan: No Radiation Leaks Or Abnormalities - 11 reactors shut down

No Radiation Leaks Or Abnormalities in Quake-hit Japan: Prime Minister Kan

Tokyo, March 11 Kyodo -- (EDS: RECASTING) Japan has detected no abnormalities such as radiation leakage at nuclear power plants in the country, Prime Minister Naoto Kan said Friday, following a powerful earthquake and aftershocks that hit a wide area on the Pacific coast of the northeastern region.

A total of 11 nuclear reactors were automatically shut down at the Onagawa plant, Fukushima No. 1 and No. 2 plants and Tokai No. 2 plant, the industry ministry said, adding there were no immediate reports from monitoring posts of fires or other abnormalities near the nuclear plants after the 2:46 p.m. quake.

Kan told a press conference, "Parts of nuclear plants were automatically shut down but we haven't confirmed any effects induced by radioactive materials outside the facilities." Tokyo Electric Power Co., which operates the Fukushima plants, said it kept operating the Kashiwazaki-Kariwa nuclear plant on the Sea of Japan coast in Niigata Prefecture, while Hokkaido Electric Power Co. reported no problems at its Tomari No. 1, No. 2 and No. 3 plants on the northernmost main island.

There were no immediate signs of any problems at the Hamaoka nuclear plant on the Pacific coast in Shizuoka Prefecture, southwest of Tokyo, the prefectural government said.

Khanna, Meena

From: Skeen, David *NR*
Sent: Friday, March 11, 2011 8:52 AM
To: ← Hiland, Patrick; Manoly, Kamal; Khanna, Meena; Brown, Frederick; Thorp, John
Subject: Fw: CNS News
Attachments: NPP_Japan_map2011.pdf

All,
Here is some good info on Japanese emergency preparedness that Veronica shared with the CNS review team.
Please share as you see fit.

From: Rodriguez, Veronica *NR*
To: Skeen, David; Tappert, John; Grobe, Jack; Dehn, Jeff; Gibson, Lauren; Karwoski, Kenneth; McHale, John; Quinones, Lauren; Regan, Christopher; Tabatabai, Omid; Tate, Travis
Sent: Fri Mar 11 08:44:44 2011
Subject: CNS News

All ...
Please keep an eye on the news. The earthquake in Japan could be a topic of discussion at the CNS. Some articles are included below FYI.

Chris ... this is particularly important for you since you have the lead for this country's presentation.

--Veronica

Japan initiates emergency protocol after earthquake

11 March 2011

Nuclear Engineering International

Onagawa, Fukushima Daiichi, Fukushima Daini and Tokai nuclear power stations have automatically shut down following a magnitude 8.8 earthquake off the northeast coast of the largest island of Japan, Honshu.

All four operating plants on that coast have automatically shut down, or SCRAMmed, according to Japan Atomic Information Forum (JAIF). Higashidori 1, which is also located on Honshu's northeast coast, was shut down for a periodic inspection.

The earthquake struck at 2:45pm local time. A 6:45 pm local time report from the Japan Nuclear and Industrial Safety Agency contained more information of damage and other problems in a site-by-site report.

-A CO2 fire has broken out at Onagawa nuclear power station.

-Utility TEPCO has requested the establishment of a nuclear emergency response programme for Fukushima Daiichi 1&3 and Fukushima Daini 1.

JAIF reported that Fukushima Daiichi 1, 2 and 3 automatically shut down; units 4, 5 and 6 were in maintenance outages. Fukushima Daini 1, 2, 3 and 4 automatically shut down.

B/49

JAIF has reported that TEPCO sent the emergency report because emergency diesel generators at the two sites are out of order. It said that there is no report that the radiation was detected out of the site. It said that an emergency headquarters has been set up and will issue information hourly.

JAIF also reported that the Rokkasho reprocessing facility was being powered by emergency diesel generators. No other unusual events or radiation leaks have been reported. Nuclear power stations at Hamaoka, Kashiwazaki-Kariwa and Tomari are continuing normal operation, according to JAIF.

After an accident occurs at a nuclear power plant, the licensee must notify the national Nuclear and Industrial Safety Agency by law.

A minister in its controlling organisation, the Ministry of Economy, Trade and Industry, notifies the prime minister's office. The central nuclear emergency response headquarters (NERHQ) of the national government issues a nuclear emergency declaration, which also includes instructions about preventative measures. It receives technical advice from the Nuclear Safety Commission. The NERHQ sends a specialist and the NSC sends a commissioner to the site.

After the emergency declaration is received, the local office of the national government's NERHQ arranges prevention measures based on factors including facility information, climate and monitoring.

Nuclear emergency response operations are coordinated in one of 20 so-called off-site centres spread across Japan, which are close to, but not inside, nuclear facilities. The off-site centre's role is to be the main centre of information, incident analysis, and emergency plan organisation and direction. Two or three senior specialists for nuclear emergency preparedness work in each OFC. In normal conditions, the specialists work as nuclear power safety inspectors, checking plant operation from the viewpoint of regulation. During an emergency, the specialists organize prevention measures as a secretariat and report it to a joint council for nuclear emergency response. The joint council includes not only the local office of the national government's NERHQ and the senior specialists, but also representatives of the Nuclear Safety Commission and prefectural and municipal NERHQs.

The joint council devises instructions to residents for evacuation and/or sheltering. It also instructs the emergency services and coast guard, self-defence force, Japan Nuclear Energy Safety Organisation (JNES), the National Institute of Radiological Sciences, the Japan Atomic Energy Agency, and other bodies.

JNES has constructed a dedicated high-speed network system connecting the 20 off-site centres and other agencies called Emergency Preparedness Response Network (EPRNet). It includes video conferencing systems, e-mail, telephone, fax, and connections to a meteorological information service, a plant information collection, diagnosis, prognosis and analytical prediction tool (called ERSS), and an emergency environmental dose prediction tool (called SPEEDI).

No Radiation Leaks Or Abnormalities in Quake-hit Japan: Prime Minister Kan

Tokyo, March 11 Kyodo -- (EDS: RECASTING) Japan has detected no abnormalities such as radiation leakage at nuclear power plants in the country, Prime Minister Naoto Kan said Friday, following a powerful earthquake and aftershocks that hit a wide area on the Pacific coast of the northeastern region.

A total of 11 nuclear reactors were automatically shut down at the Onagawa plant, Fukushima No. 1 and No. 2 plants and Tokai No. 2 plant, the industry ministry said, adding there were no immediate reports from monitoring posts of fires or other abnormalities near the nuclear plants after the 2:46 p.m. quake.

Kan told a press conference, "Parts of nuclear plants were automatically shut down but we haven't confirmed any effects induced by radioactive materials outside the facilities." Tokyo Electric Power Co., which operates the Fukushima plants, said it kept operating the Kashiwazaki-Kariwa nuclear plant on the Sea of Japan coast in Niigata Prefecture, while Hokkaido Electric Power Co. reported no problems at its Tomari No. 1, No. 2 and No. 3 plants on the northernmost main island.

• There were no immediate signs of any problems at the Hamaoka nuclear plant on the Pacific coast in Shizuoka Prefecture, southwest of Tokyo, the prefectural government said.

Caponiti, Kathleen

From: Karwoski, Kenneth *NRK*
Sent: Friday, March 11, 2011 9:00 AM
To: Hardies, Robert; Harris, Charles; Hoffman, Keith
Subject: FYI - japan

Japan initiates emergency protocol after earthquake

11 March 2011

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Hopkins, Jon

From: Hopkins, Jon, *NRK*
Sent: Friday, March 11, 2011 9:13 AM
To: Brown, Frederick, *NRK*
Cc: Thomas, Eric; Regan, Christopher; Astwood, Heather; Cullingford, Michael; Quinones, Lauren
Subject: Our Opns Center offered to Japan for their use

Fred,

OIP, Jack Ramsey, just called me. We have offered the use of our Ops Center to Japan (Mike Weber idea). And it appears that they have accepted.

We expect that Japan staff will arrive shortly.

Jon

B/S/1

Caponiti, Kathleen

From: Cusumano, Victor *WMP*
Sent: Friday, March 11, 2011 9:19 AM
To: Lubinski, John
Subject: RE: Japan initiates emergency protocol after earthquake

OK - I was surprised you weren't on distro - makes sense now.

Vic

From: Lubinski, John *WMP*
Sent: Friday, March 11, 2011 9:11 AM
To: Cusumano, Victor
Subject: RE: Japan initiates emergency protocol after earthquake

Vic,

Thanks. Currently, DIRS (Eric Thomas) has the lead for coordinating information for NRR. I was in a couple of briefings this morning. They are getting the Breskovic e-mails.

From: Cusumano, Victor *WMP*
Sent: Friday, March 11, 2011 8:54 AM
To: Lubinski, John; Evans, Michele; Thomas, Brian; Hardies, Robert; Karwoski, Kenneth; Lupold, Timothy; McMurtray, Anthony; Mitchell, Matthew; Taylor, Robert
Subject: FW: Japan initiates emergency protocol after earthquake

From: Astwood, Heather *WMP*
Sent: Friday, March 11, 2011 8:32 AM
To: Leeds, Eric; Boger, Bruce; McGinty, Tim; Valentine, Nicholee; Titus, Brett; Susco, Jeremy; Roquecruz, Carla; Nguyen, Quynh; Meighan, Sean; Heida, Bruce; Fields, Leslie; Cusumano, Victor; Cartwright, William; Azeem, Almas
Cc: Cullingford, Michael; Hopkins, Jon; Quinones, Lauren; Regan, Christopher; Rodriguez, Veronica
Subject: FW: Japan initiates emergency protocol after earthquake

FYI

From: Breskovic, Clarence *DVD*
Sent: Friday, March 11, 2011 6:39 AM
To: Breskovic, Clarence
Subject: Japan initiates emergency protocol after earthquake

Japan initiates emergency protocol after earthquake

11 March 2011

Nuclear Engineering International

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collection, diagnosis, prognosis and analytical prediction tool (called ERSS), and an emergency environmental dose prediction tool (called SPEEDI).

Hopkins, Jon

From: Hopkins, Jon, NAR
Sent: Friday, March 11, 2011, 10:08 AM
To: Astwood, Heather, NAR
Subject: RE: INFORMATION Japan No radiation Leaks Or Abnormalities - 11 reactors shut down

Thanks Heather. Appreciated. Jon

From: Astwood, Heather
Sent: Friday, March 11, 2011 8:25 AM
To: Leeds, Eric; Boger, Bruce; McGinty, Tim; Valentine, Nicholee; Titus, Brett; Susco, Jeremy; Roquecruz, Carla; Nguyen, Quynh; Meighan, Sean; Heida, Bruce; Fields, Leslie; Cusumano, Victor; Cartwright, William; Azeem, Almas
Cc: Cullingford, Michael; Hopkins, Jon; Quinones, Lauren; Regan, Christopher; Rodriguez, Veronica
Subject: INFORMATION Japan No radiation Leaks Or Abnormalities - 11 reactors shut down

FYI

From: Breskovic, Clarence, OLP
Sent: Friday, March 11, 2011 4:05 AM
To: Breskovic, Clarence
Subject: Japan: No Radiation Leaks Or Abnormalities - 11 reactors shut down

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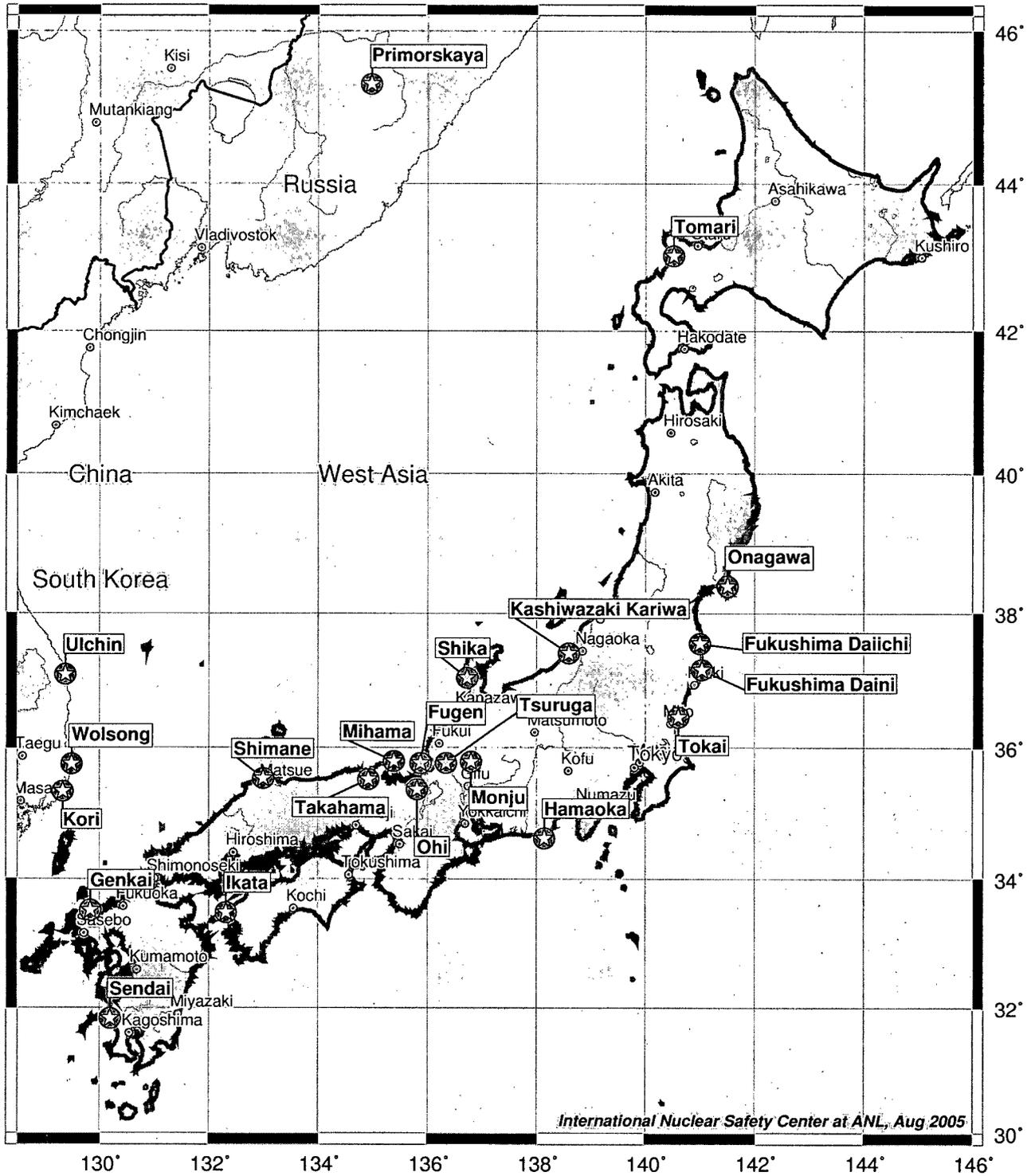
There were no immediate signs of any problems at the Hamaoka nuclear plant on the Pacific coast in Shizuoka Prefecture, southwest of Tokyo, the prefectural government said.

Cartwright, William

From: Bernardo, Robert *NRB*
Sent: Friday, March 11, 2011 7:14 AM
To: Thomas, Eric *NRB*
Cc: Haskell, Russell
Attachments: japan reactors.pdf

Decent map of Japan reactor locations

B/SY



Hopkins, Jon

From: Foggie, Kirk *DIP*
Sent: Friday, March 11, 2011 8:05 AM
To: Hopkins, Jon
Cc: Boger, Bruce; Regan, Christopher; Cullingford, Michael; Emche, Danielle; Astwood, Heather; Ramsey, Jack; Abrams, Charlotte
Subject: Re:

John et al.,

I will pass some info from NISA to you in a few minutes.

Kirk
Sent from Blackberry.

From: Hopkins, Jon
To: Foggie, Kirk *NR*
Cc: Boger, Bruce; Regan, Christopher; Cullingford, Michael; Emche, Danielle; Astwood, Heather
Sent: Fri Mar 11 07:55:10 2011
Subject:

Kirk,

If you could let NRR know of any info. that you find out about the status of Japan's NPPs, it will be appreciated.

If you need assistance, please let me know.

Jon

Hokuriku Electric Co said on Friday all of three reactors at its Onagawa nuclear plant in northern Japan shut down automatically after the quake.

Kyodo news agency said a fire broke out at Tohoku Electric Power Company's Onagawa nuclear plant in northeastern Japan following the earthquake.

Separately, Fukushima Prefecture, the site of a Tokyo Electric Power nuclear power plant, said on Friday the plant's reactor cooling system was functioning, denying an earlier report that it was malfunctioning.

<http://www.baltimoresun.com/news/nation-world/la-fgw-quake-nuclear-20110312,0,6542180.story>

<http://in.reuters.com/article/2011/03/11/idINIndia-55498320110311>

<http://washingtonexaminer.com/news/2011/03/japan-issues-emergency-nuke-plant-no-leak>

<http://www.dw-world.de/dw/article/0,,14905150,00.html>

B/55

Hopkins, Jon

From: Brown, Frederick *NRR*
Sent: Friday, March 11, 2011 8:08 AM
To: Hopkins, Jon *NRR*
Subject: Re: Japan earthquake & NPPs

Thanks Jon.

Please include Eric Thomas.

From: Hopkins, Jon *NRR*
To: Brown, Frederick
Sent: Fri Mar 11 07:59:14 2011
Subject: FW: Japan earthquake & NPPs

Fred,

Don't know a lot, but some reports on Japan NPP status are below. If I find out any good info., I'll forward to you.

Jon

From: Hopkins, Jon *NRR*
Sent: Friday, March 11, 2011 7:55 AM
To: Foggie, Kirk
Cc: Boger, Bruce; Regan, Christopher; Cullingford, Michael; Emche, Danielle; Astwood, Heather
Subject:

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<http://www.baltimoresun.com/news/nation-world/la-fgw-quake-nuclear-20110312.0,6542180.story>

<http://in.reuters.com/article/2011/03/11/idINIndia-55498320110311>

B/S6

<http://washingtonexaminer.com/news/2011/03/japan-issues-emergency-nuke-plant-no-leak>

<http://www.dw-world.de/dw/article/0,,14905150,00.html>

Hopkins, Jon

From: Hopkins, Jon (NRR)
Sent: Friday, March 11, 2011 7:59 AM
To: Brown, Frederick (NRR)
Subject: FW: Japan earthquake & NPPs

Fred,

Don't know a lot, but some reports on Japan NPP status are below. If I find out any good info., I'll forward to you.

Jon

From: Hopkins, Jon
Sent: Friday, March 11, 2011 7:55 AM
To: Foggie, Kirk
Cc: Boger, Bruce; Regan, Christopher; Cullingford, Michael; Emche, Danielle; Astwood, Heather
Subject:

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http://www.baltimoresun.com/news/nation-world/la-fgw-quake-nuclear-20110312_0_6542180_story

<http://in.reuters.com/article/2011/03/11/idINIndia-55498320110311>

<http://washingtonexaminer.com/news/2011/03/japan-issues-emergency-nuke-plant-no-leak>

<http://www.dw-world.de/dw/article/0,,14905150,00.html>

B/S7

5

Cohen, Shari

From: Leeds, Eric, *NRR*
Sent: Friday, March 11, 2011 12:25 PM
To: 'Jean.GAUVAIN@oecd.org'
Subject: RE: OECD/NEA - WGPC Secretariat - FW: Japan Situation update (Friday 11 March 11:45 UTC - 19:45 Japan time)

Thank you!!!

Eric J. Leeds, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
301-415-1270

release

From: Jean.GAUVAIN@oecd.org [mailto:Jean.GAUVAIN@oecd.org]

Sent: Friday, March 11, 2011 7:34 AM

To: klaus.kotthoff@grs.de; yves.vandenbergh@belv.be; imj@csn.es; tanaka-nobuo@jnes.go.jp; petteri.tiippana@stuk.fi; benoit.deboeck@belv.be; Thorp, John; greg.rzentkowski@cnsccsn.gc.ca; jean-christophe.niel@asn.fr; bogdan@secnrs.ru; alexander.duchac@ec.europa.eu; utenkov@gosnadzor.ru; vc@aerb.gov.in; x.bernard-bruls@iaea.org; christian.kirchsteiger@ec.europa.eu; nakamura-koichiro1@meti.go.jp; olivier.veyret@asn.fr; adeline.clos@asn.fr; lauriane.giroud-giacomel@asn.fr; diane.jackson@oecd.org; toshihiko.kamada@mofa.go.jp; pierre.barras@belv.be; Cullingford, Michael; hklonk@bfs.de; jukka.laaksonen@stuk.fi; leedh@kins.re.kr; maciej.jurkowski@paa.gov.pl; michel.bieth@ec.europa.eu; silviu.pop@cncan.ro; roberto.ranieri@isprambiente.it; steve.nsd.lewis@hse.gsi.gov.uk; andrej.stritar@gov.si; ozawa-yoshihiro@jnes.go.jp; akosoroukov@yahoo.com; marli.vogels@minvrom.nl; mcasero@unesa.es; mikulas.bencat@ujd.gov.sk; jukka.kupila@stuk.fi; christine.wassilew@bmu.bund.de; wolfgang.breyer@kerntext.de; per.bystedt@ssm.se; ryh@kins.re.kr; kees.desbouvrie@minvrom.nl; ismael.yabda@tractebel.com; tlm3@wanadoo.fr; thomas.sigrist@ensi.ch; Astwood, Heather; mike.weightman@hse.gsi.gov.uk; sidorchuk@secnrs.ru; rafal.frac@oecd-poland.org; lgutierrez@cnsns.gob.mx; manfred.schrauben@fanc.fgov.be; evr@csn.es; jouko.turpeinen@fortum.com; vmgonzalez@cnsns.gob.mx; k400kmc@kins.re.kr; acm@csn.es; leekw@kins.re.kr; andreas.wielenberg@grs.de; walter.gloeckle@um.bwl.de; a.nicic@iaea.org; leopold.vrankar@gov.si; francescopaolo.michetti@isprambiente.it; watanabe.norio@jaea.go.jp; remy.bertrand@irsn.fr; jcb@csn.es; franco.malerba@esteri.it; zdenek.tipek@sujb.cz; klas.idehaag@ssm.se; pavel.bobaly@ujd.gov.sk; Holahan, Gary; nnn@gan.ru; rob.campbell@hse.gsi.gov.uk; Kobetz, Timothy; g.caruso@iaea.org; dwchung@kins.re.kr; petr.brandejs@sujb.cz; benoit.poulet@cnsccsn.gc.ca; hans.wanner@ensi.ch; benjamin.stanford@oecd.org; sabhardwaj@npcil.co.in; michael.herttrich@bmu.bund.de; jiri.vesely@sujb.cz; didier.wattrelos@irsn.fr; juergen.wolf@bmu.bund.de; giorgio.grimaldi@apat.it; ktkim@kins.re.kr; Dudes, Laura; Tabatabai, Omid; rhonda.evans@arpansa.gov.au; masayuki.yoneya@cao.go.jp; vince.fisher@awe.co.uk; irga@csn.es; grigoras.benescu@cncan.ro; dgawande@npcil.co.in; derek.lacey@hse.gsi.gov.uk; lux@haea.gov.hu; soda.kunihisa@jaea.go.jp; ales.janezic@gov.si; len.creswell@hse.gsi.gov.uk; kanno-masanori@jnes.go.jp;

B/58

georg.schwarz@ensi.ch; marta.ziakova@ujd.gov.sk; lennart.carlsson@ssm.se; i.sokolova@gosnadzor.ru; safety@gan.ru; hans-rudolf.fierz@ensi.ch; marc.noel@ec.europa.eu; burton.valpy@cncs-ccsn.gc.ca; julien.husse@asn.fr; Lukes, Robert; timo.vanttola@vtt.fi; swaller@cnsns.gob.mx; juhasz@haea.gov.hu; michael.maqua@grs.de; seija.suksi@stuk.fi; m.schneider@bfs.de; yhhah@kins.re.kr; dana.drabova@sujb.cz; kirsi.alm-lytz@stuk.fi; kenneth.broman@ssm.se; niina.yliknuussi@ec.europa.eu; wolfgang.hilden@ec.europa.eu; yang@kins.re.kr; Leeds, Eric; michel.lemay@cncs-ccsn.gc.ca; peter.corcoran@cncs-ccsn.gc.ca; aspeshkov@mnr.gov.ru; noguchi-y asunori@meti.go.jp; m. Kearney@iaea.org; kutin@gosnadzor.ru; lankin@secnrs.ru; yamamoto-yoshihiro@jnes.go.jp; mlgs@csn.es; snrao@aerb.gov.in; fred.vaniddekinge@minvrom.nl; karol.janko@ujd.gov.sk; pyw@kins.re.kr; fichtinger@haea.gov.hu; akasaka@mext.go.jp; Johnson, Michael; tamao-shigeo@jnes.go.jp; ralph.schulz@ensi.ch; je@cnsns.gob.mx; soaresjc@cii.fc.ul.pt; takahashi-masakazu@meti.go.jp; kawaguchi-ken@jnes.go.jp; motokuni.eto@cao.go.jp; kozlov-vv@atomenergoprom.ru; alexandra.brasat@amb-roumanie.fr

Subject: OECD/NEA - WGPC Secretariat - FW: Japan Situation update (Friday 11 March 11:45 UTC - 19:45 Japan time)

Dear CNRA and WGOE and WGIP Members,

Cc Other WG Chairs

Please find hereafter information about the earthquake in Japan received from our former NEA colleague that was sent earlier today by the NEA secretariat to the WGPC Flashnews network

Update of Japan NPP situation Friday 11 March at 11:45 UTC time.

Jean Gauvain - NEA/NSD – CNRA/WGPC Secretariat

From: Akihiro YAMAMOTO [mailto:a-yamamoto@houshasen.tsuruga.fukui.jp]

Sent: Friday, March 11, 2011 12:00

Subject: [Yama] Situation update (19:45 Japan time)

NISA is now holding a press conference.

Fukushima 1-1 (ECCS mode)

Fukushima 1-2 (ECCS mode) - **Call off the emergency**

Fukushima 1-3 (ECCS mode)

Fukushima 2-1 (ECCS mode)

The problem is that they can't monitor water injection (ECCS).

It might be a problem of the monitoring system.

In fact, TEPCO called off the emergency of unit 1-2 a while ago because they are able to monitoring the water level in the reactor now.

Yama

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Akihiro YAMAMOTO

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From: Akihiro YAMAMOTO [mailto:a-yamamoto@houshasen.tsuruga.fukui.jp]

Sent: Friday, March 11, 2011 7:30 PM

Subject: [Yama] Situation now - ECCS mode

Dear all,

TEPCO (Tokyo Electric Power Company) declared the state of emergency of following NPPs:

Fukushima 1-1

Fukushima 1-2

Fukushima 1-3

Fukushima 2-1 (**ECCS mode now**)

I am trying to get information why DG can't start up (problem of intake sea water for the cooling DG system?)

There is a fire from turbine building (B1 floor) at Onagawa NPP unit 1 but the fire fighting was completely succeeded.

<http://www.yomiuri.co.jp/dy/national/20110311dy01.htm>

A while ago, Fukui (my office located) had also earthquake (M4.1). We have 15 NPPs but no damage to the NPPs.

Yama

+++++

Akihiro YAMAMOTO

Ageing Management Specialist,

Nuclear Safety Measurement Division

Fukui Prefectural Government

Telephone: +81 (0) 776 20 0314

E-mail: a-yamamoto@houshasen.tsuruga.fukui.jp

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Maier, Bill

From: Frazee, Terry (DOH) [Terry.Frazee@DOH.WA.GOV]
Sent: Saturday, March 12, 2011 11:06 AM
To: Browder, Rachel; Erickson, Randy; Maier, Bill
Subject: Update needed

I understand that Linda will call me after today's briefing (presumably underway now). Much concern for public messaging here at local (Seattle) and governor level. This is even if no rad complications as result of explosion. I will need something from NRC no later than 11 PST. Thanks for your help this morning, Rachel.

B/S9

From: [NEWS Automated Mailer](#)
To: NEWS.Contact-Point@iaea.org
Subject: New Event on NEWS, Japan, Power Reactor
Date: Saturday, March 12, 2011 10:07:34 AM

Dear NEWS User,

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

"Abnormal rise of radioactive dosage value at site boundary (INES Level 4)"

has as of today, Saturday, 12 March 2011, 15:05:47 UTC, been added to the NEWS Web site.
Additional information regarding the new Event is as follows:

Sender Country: Japan
Date of Event: 2011-03-12
Facility/Place: FUKUSHIMA-DAIICHI-1

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

B/60

From: [Operations Center Bulletin](#)
To: [OST02_HOC](#)
Subject: NRC IS RESPONDING TO AN EMERGENCY OUTSIDE of the United States
Date: Saturday, March 12, 2011 4:20:57 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. 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

B/61

Ross, Robin

From: Nguyen, Quynh
Sent: Tuesday, March 15, 2011 12:18 PM
To: Thomas, Eric
Subject: RE: Earthquake

No.... Flyers illness!

Get better!!!! Will do!

release

From: Thomas, Eric *NRK*
Sent: Tuesday, March 15, 2011 12:16 PM
To: Nguyen, Quynh
Cc: Sigmon, Rebecca
Subject: RE: Earthquake

Quynh,

Please cc myself and Rebecca Sigmon for the rest of today. I am out with the flu.

Thx, Eric

release

From: Nguyen, Quynh
Sent: Tuesday, March 15, 2011 12:05 PM
To: Manoly, Kamal
Cc: Martin, Robert; Thomas, Eric; Meighan, Sean; Boger, Bruce; Grobe, Jack
Subject: FW: Earthquake

Kamal,

We are working on earthquake question responses. Maybe you want to start thinking about responding with how the plants are built?

release

From: Kammerer, Annie *RES*
Sent: Tuesday, March 15, 2011 11:04 AM
To: Ake, Jon; Munson, Clifford
Cc: Meighan, Sean; Nguyen, Quynh
Subject: RE: Earthquake

Jon/Cliff: another request, but something we can do later today. Quynh and Sean preparing a response to the questions, "what if an 8.9 happened at one of our plants." This is an obvious question from the public who doesn't understand tectonics and one that we are going to be asked over and over.

I'm suggesting the approach to developing the response:

- 1) Explain that an 8.9 can't happen at the plants
- 2) Explain that plants are designed to ground motions and not magnitudes
- 3) Figure out the distance from the plane to the plants in Japan. Try to determine rough estimates of the ground motions at the plants (note, we have some numbers on the shakemap, but they are too low based on the recording of 0.58g at onagawa) (Jon do you have a subduction model at your fingertips?)
- 4) use that estimate to compare to the ground motions and to say "this ground motion is only expected every XX years on average at this plant. However an 8.9 can't occur because it requires a subduction zone...."

B/62

This needs to be written up so that the public can understand.

Again, this is not the top of the list, but something to do today when we get a breather.

Sean/Quynh: we'll do our best.

Annie

From: Kammerer, Annie
Sent: Tuesday, March 15, 2011 10:34 AM
To: Nguyen, Quynh
Cc: Meighan, Sean
Subject: RE: Earthquake

From: Nguyen, Quynh
Sent: Tuesday, March 15, 2011 10:33 AM
To: Kammerer, Annie
Cc: Meighan, Sean
Subject: Earthquake

Holahan, Gary

From: Jean.GAUVAIN@oecd.org
Sent: Saturday, March 12, 2011 6:41 AM
Subject: NEA/CNRA - WGPC Secretariat - [Fukushima] NISA Website with Press Releases in English
Attachments: NISA-PR_en_Fukushima_20110312-4.pdf

Dear colleagues,

Following the dramatic event in Japan and receiving many questions from member countries, please find below the address of the Japanese Nuclear Regulatory Body where Press release in English are posted:

<http://www.nisa.meti.go.jp/english/>

Attached is the latest press release posted today at 11:00 UTC

Best Regards

Jean Gauvain

Secretariat of the CNRA/Working Group of Public Information of Nuclear Regulatory Organisations OECD/NEA
Nuclear Safety Division Mobile +33 6 79 94 81 93

B/63

March 12, 2011

Nuclear and Industrial Safety Agency

Seismic Damage Information(the 13th Release)
(As of 11:00 March 12, 2011)

Nuclear and Industrial Safety Agency (NISA) confirmed the current situation of Higashidori and Onagawa NPSs, Tohoku Electric Power Co., Inc
Higashidori, Fukushima Dai-ichi, Fukushima Dai-ni and Kashiwazaki-Kariwa NPSs, Tokyo Electric Power Co., Inc. and electricity, gas, heat supply and complex as follows:

1. Summary of Damage(Earthquake at Sanriku-Oki)

- (1) Time of Occurrence: 14:46 (UTC 5:46) March 11, 2011, Friday
- (2) Epicenter: Off-Coast of Sanriku (North Latitude: 38; East Longitude: 142.9), 10km deep, M8.8
- (3) Seismic Intensity in Japanese Scale
<Area of Seismic Intensity Larger Than and Including 4>
7: Northern Miyagi Prefecture
6+: Northern and southern Ibaraki Prefecture
5+: Sanpachi-Kamikita Aomori Prefecture
5-: Chuetsu, Niigata Prefecture
<Municipality of Seismic Intensity Larger than and Including 4>
6+: Naraha Machi, Tomioka Machi, Ookuma-machi, and Futaba-machi, Fukushima Prefecture
6-: Ishinomaki-city and, Onagawa town (by Seismograph of NPP)of , Miyagi Prefecture and Tokaimura, Ibaraki Pref.
5-: Kariwa-village, Niigata Prefecture
4: Rokkasho-village, Higashidori-village, Aomori Prefecture, Kashiwazaki-city, Niigata Prefecture and Yokosuka-city, Kanagawa Prefecture

1: Tomari-village, Hokkaido

2. The status of operation at Power Stations(Number of automatic shutdown(units): 10 (as of 11:00, March12)

a. Onagawa Nuclear Power Station (Onagawa-machi and Ishinomaki-shi, Miyagi Prefecture)

(1) The status of operation

Unit 1 (524MWe): automatic shutdown

Unit 2 (825MWe): automatic shutdown

Unit 3 (825MWe): automatic shutdown

(2) Readings of monitoring post etc.

Variation in the monitoring post readings: No

Variation in the main stack monitor readings: No

(3) Report concerning other malfunction

It is confirmed Smoke in the first basement of the Turbine Building was confirmed the extinguished at 22:55 on March 11th.

b. 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(784MW): in periodic inspection outage

Unit 5(784MW): in periodic inspection outage

Unit 6(1,100MW): in periodic inspection outage

(2) Readings at monitoring post etc.

From 04:00, March 12 by the measurement of radioactive materials in the surrounding area of the power station using monitoring cars. (As of 09:40, March12)It was confirmed that radioactivity was increased compared to the one at 04:00, March 12.

MP6 (near the main gate) 0.07microSv/h ->5.1 micro Sv/h
(04:00, March12->09:10, March 12)

MP8 (observation platform) 0.07microSv/h ->2.9 micro Sv/h
(04:00, March 12->09:40, March 12)

(3) Report concerning other malfunction

Article 10* of Act on Special Measures Concerning Nuclear Emergency

Preparedness (Fukushima Dai-ichi)

(*A heightened alert condition)

Article 15** of Act on Special Measures Concerning Nuclear Emergency

Preparedness (Fukushima Dai-ichi, Units 1 and 2)

(** Nuclear emergency situation)

Situation of power source to recover water injection function at the Station.

-Cable from electric power generating cars are under connecting work(as of 11:00, March 12)

Pressure in the containment vessel has arisen. Steam release is undertaking in order to relieve pressure.

c. Fukushima-Daini Nuclear Power Station(TEPCO)

(Naraha-cho/Tomioka-cho, Futaba-gun, Fukushima pref.)

(1) The status of operation

Unit1(1,100MW): automatic shutdown

Unit2(1,100MW): automatic shutdown

Unit3(1,100MW): automatic shutdown

Unit4(1,100MW): automatic shutdown

(2) Readings at monitoring post etc.

Variation in the monitoring post readings: No

Variation in the main stack monitoring readings: No

(3) Report concerning other malfunction

Report of fire: No

Article 10* of Act on Special Measures Concerning Nuclear Emergency

Preparedness (Fukushima Dai-ni, Unit 1)

(*A heightened alert condition)

Article 15** of Act on Special Measures Concerning Nuclear Emergency

Preparedness (Fukushima Dai-ni, Units 1,2 and 4)

(**Nuclear emergency situation)

3. Industrial Safety

oElectricity

* Tokyo Electric Power Co. (as of 10:49, March 12, 2011)

Scale of loss of electrical power: approx. 970 thousand houses

Power loss area:

Ibaraki Pref.: Whole area,

Tochigi Pref.: Whole area of eastern part, Utsunomiya-shi, Mooka-shi

Chiba Pref.: Katori-shi, Yamatake-shi

* Tohoku Electric Power Co. (as of 09:00, March 12, 2011)

Scale of loss of electrical power: approx.4,220 thousand houses (under investigation)

Power loss area:

Aomori Pref.: Whole area

Iwate Pref.: Whole area,

Akita Pref: Whole area

Miyagi Pref: whole area

Yamagata Pref: Almost whole area

Fukushima Pref: Some area

Niigata Pref.: Some area

* Hokkaido Electric Power Co. (as of 10:00, March 12, 2011)

Scale of loss of electrical power: approx.160 houses

Power loss area: Samani-shi

*Chubu Electric Power Co. (as of 07:30, March 12, 2011)

Scale of loss of electrical power: approx.100 houses(Nagano prefecture),

○General Gas(as of 10:20, March 12)

The Japan Gas Association dispatched its six advance teams of thirty staff (five teams for Sendai and one team for Joban area) at 07:00, 12 March upon request from Sendai-shi.

Sendai-city municipal Gas, Kesenuma-city municipal Gas, Ishinomaki Gas have trouble contacting. The Japan Gas Association confirmed that there are no supply disruption in the supply area of city gas in Hokkaido, Aomori, Yamagata, and Akita prefecture.

* Tokyo Gas Co.

Hitachi branch: 30,008 houses are in supply disruption. There is no damage in equipment, however, equipment is inoperable due to loss of power. Walkdown unit of eight person departed at 18:45, March 11 and already arrived at 06:00, March 12. Time of recovery is not certain.

Eastern part of Joso: 453 houses were in supply disruption in Ushiku (supply restarted at 17:10, March 11)

471 houses were in supply disruption in Ushiku-shi
Ushiku-cho (supply restarted at 22:36 March 11)

77 houses are in supply disruption in
Ryuugasaki (supply restarted at 16:20, March 11)

40 houses are in supply disruption in Nishi-ku,
Yokohama-shi (supply restarted at 17:29, March 11)

Gas leaked from a Nozzle of an LNG tank at Sodegaura but no ignition (restored on 02:30, March 12)

*Gas Bureau of Sendai-shi: whole supply disruption (approx. 360 thousand houses)

*Shiogama Gas Co.: approx. 12,000 houses are in supply disruption (all of supply area is out of service due to no supply from Gas Bureau of Sendai)

*Kamaishi Gas Co.: approx. 10,000 houses are in supply disruption. First floor of this Gas facility sank.

*Hatano Gas Co.: 330 houses are in supply disruption

*Keiyo Gas Co.: Leakage occurred at 5 locations of middle pressure conduit
Leakage occurred at many parts of Low pressure conduits
5,445 houses in Urayasu-shi are in supply disruption.
Supply to Yachiyo Station stopped.

*Kujukuri choei Gas: Approx 258 houses are in supply disruption.

*Atsugi Gas Co: leakage occurred at 1 location of middle pressure conduit.

*Fukushima Gas Co.: Approx. 2,726 houses are in supply disruption

*Tohoku Gas (part of Shirakawa-shi): 300 houses are in supply disruption

*Joban kyodo Gas (Iwaki-shi): 14,000 houses (whole customer) are in supply disruption

*Tobu Gas (Tsuchiura-shi): 7,500 houses are in supply disruption

*Tosai Gas (Kasukabe-shi) Gas leakage occurred from conduit. 150 houses in apartment are in supply disruption

*Odawara Gas (Odawara-shi)

leakage occurred at 1 locations of low pressure branch conduit and 3 locations of ex-core inner conduit and have restored at 21:30 11 March. Other areas are under investigation.

○Community Gas(as of 10:20, March 12)

Severe damage has not been reported to Japan Community Gas Association so far. No information is available about the damage in North part of Ibaraki prefecture.

*Tokyo Gas energy(North part of Ibaraki): Factory stopped supply to 943 houses in Nakago-New Town due to the leakage from pipe.

*Sato Kosan (based in Iwatsuki-ku, Saitama City) Iwatsuki-housing complex: Gas leakage occurred from conduit. 451 sites are in supply disruption.

*Syutoken Gas(based in Sakura-City) Chitose-housing complex:1,320 houses are in supply disruption

*Kashima Marui Gas(Kamisu-shi):Gas conduit was damaged. 527 houses are in supply disruption. Time of recovery is not certain.

*Imaichi Gas: Gas leakage occurred from conduit at the simple gas complex in Nikko-shi: 240 houses were in gas supply disruption.

*Nihon Gas: Gas leakage occurred from conduit at simple gas complex in the jurisdiction: 76 houses in Nasu-karasuyama-shi, 97 houses in Inashiki-shi, 594 houses in Tokai-mura, Natsu-gun,370 houses in Yaita-shi, and 3299 houses in Itako-shi were in gas supply disruption.

These areas other than Itako-shi will be restored on March 12. Residents in 1876 houses of Hinode housing complex in Itako-shi evacuated from this region due to liquefaction of the ground. Time of recovery is not certain.

212 houses in Noda-shi were in gas supply disruption. This area was supposed to be restored in March 11.

*Horikawa Industry (Bando city, Ibaraki Pref.) : Iwai Greenland Due to liquefaction of the ground, 566 houses are in supply disruption.

*Tajima : 250 houses were in gas supply disruption at the simple gas complex in Hachioji-city. This area will be restored within March 12.

○Gas conduit Operators(as of 10:20, March12)

*JX Nikko Nisseki Energy: Hachinohe LNG Station

Premise, electric room and in-house electricity generator equipment, were flooded by the 2nd wave of tsunami and the gas supply was stopped.

According to Japan National Gas Association, there are no damage to pipelines of conduit-transport companies.(as of 23:00, March 11)

○Heat supply(as of 10:20, March12)

*Yamagata Netsu Kyokyu(Yamagata-shi): Stopped heat supply

*Onahama Haiyu(Onahama, Iwaki-shi): stopped heat supply due to the breakage of pipe. Heat supply pipes underground might be affected. Time of recovery is not certain.

*"HITACHI NETSU ENERGY"(Hitachi City): stopped heat supply due to the electrical outage at 15:19, March11.

*"CHIBA NETSU KYOKYU"(Chiba-city): stopped freezer, etc. at 16:19, March 11. Supply was stopped and walkdown is conducted at 16:19, March 11.

*"NISHI-IKEBUKURO NETSU KYOKYU": stopped freezer and boiler at 15:45, March 11.

*"TOKYO NETSU KYOKYU";

-stopped boiler in Takeshiba and Yurakucho areas at 15:20, March 11

-stopped supply to one of the building complex at Hikarigaoka for approx. 3 hours due to the leakage of pipe at 21:35, March 11(Restart supplying at 00:05, March 12)

*Yokohama Business Park NETSU KYOKYU (Hodogaya-ku, Yokohama city)

15:50 Stopped steam and cold water supply to PREZZO building

16:20 restored by temporary repair

oComplex(as of 11:00, March 12)

*Cosmo Oil factory Chiba branch

A column of Butane Butylene storage tank was broken. Fire occurred due to gas leakage. One person suffered serious-injury, 4 persons suffered minor injury.

*JX Nippon Oil&Energy Corporation Sendai oil factory(sendai-city, Miyagi prefecture)

-Fire occurred from an explosion of low temperature LPG tank

4. 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, Units 1,2 and 3.

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-ichi 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

20:50: Fukushima prefecture's emergency preparedness headquarters issued a directive 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 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 for 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.

(March12)

5:22 Unit 1 of Fukushima Dai-ichi notified NISA of the situation of the Article 15 of Act on Special Measures Concerning Nuclear Emergency Preparedness.

5:32 Unit 2 of Fukushima Dai-ichi 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.

06:01 Regarding Units 1,2 and 4 of Fukushima Dai-ichi NPS, TEPCO reported NISA in accordance with Article 15 of Act on Special Measures Concerning Nuclear Emergency Preparedness.

7:45 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-ichi 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-ichi Nuclear Power Station must evacuate.
- Residents living in the area of 10km radius from Fukushima-Dai-ichi NPS must take sheltering

Earthquake at Nagano Prefecture

1. Summary of Damage(Earthquake at north part of Nagano prefecture)

- (1) Time of Occurrence: 3:59 (UTC 18:59) March 12, 2011, Saturday
- (2) Epicenter: North part of Nagano Prefecture(North Latitude: 37; East Longitude: 138.6), 10km deep, M6.6
- (3) Seismic Intensity in Japanese Scale
<Area of Seismic Intensity>
5: Kashiwazaki-city, Niigata prefecture and Kariwa-village, Niigata prefecture.

2. Status of operation at Power Stations

a. Kashiwazaki-Kariwa Nuclear Power Station, Tokyo Electric Power Co., Inc.(TEPCO)

- (1) The status of operation
 - Unit1(1,100MW): Keep operation
 - Unit2(1,100MW): in periodic inspection outage
 - Unit3(1,100MW): in periodic inspection outage
 - Unit4(1,100MW): in periodic inspection outage
 - Unit5(1,356MW): Keep operation
 - Unit6(1,356MW): Keep operation
 - Unit7(1,356MW): Keep operation
- (2) Readings of monitoring post etc.
 - Variation in the monitoring post readings: No
 - Variation in the main stack monitor readings:No
- (3) Report concerning other malfunction
 - Report of fire: No

3 Industrial Safety

oGeneral Gas

Nagano municipal gas (Nagano city), Joetsu municipal gas, Myouko municipal gas, Ojiya municipal gas, Mitsuke municipal, Kashiwazaki municipal gas, Nagaoka of Hokuriku (Nagaoka city) gas are confirmed there are no supply disruption

*Facilities which have confirmed safety will be eliminated from the next press release.

Status of Residents Evacuation

(Information from the Resident Safety Team of OFC at 10:50 March 12)

Resident Safety Team of ERC

Ookuma-cho Completed two thirds of residents confirmed
 Futaba-cho Completed 80% of confirmed residents confirmed
 Tomioka-cho Confirming number of residents, difficult to forecast due to traffic jam
 Namie-cho Confirming number of residents, difficult to forecast due to traffic jam
 Naraha-cho Confirming number of residents, difficult to forecast due to traffic jam

*Evacuation has not completed yet.

*Residents are to be evacuated another refuges if present one is full.

Residents live in 10km radius

Vicinity of Fukushima Daiichi	Vicinity of Fukushima Daini			
	0-10km		0-3km	0-10km
Tomioka-cho	14,808	Tomioka-cho	6,534	15,961
Ookuma-cho	11,363	Ookuma-cho	-	7,127
Futaba-cho	7,243	Futaba-cho	-	1,238
Namie-cho	17,793	Namie-cho	1,515	8,100
Total	51,207	Total	8,049	32,426

Facilities which have confirmed safety will be eliminated from the next press release.

(Contact Person) Mr. Masaomi Koyama Deputy Director, International Affairs Office, NISA/METI Phone:+81-(0)3-3501-1087

From: [Johnson, Michael](#)
To: [Holahan, Gary](#); [Chokshi, Nilesh](#)
Subject: Re: Japanese Event
Date: Saturday, March 12, 2011 1:42:24 PM

I agree. In the near-term, they want to focus communications through the Liaison Team and OPA. They are preparing Q&As.

The ops. ctr. has the SOARCA results for PB and there has already been discussion of GSI-199.

Let's discuss further on Monday.
From my blackberry.

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

From: Holahan, Gary
To: Johnson, Michael
Sent: Sat Mar 12 13:33:32 2011
Subject: FW: Japanese Event

Mike,

My suggestion is to offer this initiative to Eric for his consideration they have 39 operating BWRs to worry about.

Gary

From: Chokshi, Nilesh
Sent: Saturday, March 12, 2011 1:18 PM
To: Johnson, Michael; Holahan, Gary
Cc: Flanders, Scott
Subject: Japanese Event

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I suggest we setup a small interoffice (DSER, DE of NRO, RES, NRR, DSRA, and risk divisions of RES and NRR) task group of seismic/tsunami/PRA experts with focus on getting information, fielding questions, preparing agency responses, and interacting with the internal and external stakeholders. I am sure that both the NRO and NRR will get many questions on how we design and a very renewed interest in GI-199. SOARCA will also be under a greater scrutiny. I think yesterday's events, in some ways, may shift the paradigm in which the siting issues are viewed.

Here is my suggested straw man formation of the task group and some initial thoughts on what will be the initial actions (I am focusing on areas of our purview, there will be lot of questions about EP, emergency response and other things. We may want to include that also):

Leader – SES
Collection and Synthesis of information – leader and Annie
Seismic/ground motion – Cliff Munson, Jon Ake
Tsunami – Henry Jones, Annie Kammerer
Response/Fragility of SSCs – Goutam, Jim Xu, Syed Ali, Kamal
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Liaison with OPA, OIP, Op. Exp. and NSIR

B164

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Revisit Qs and As associated with GI-199, Kashiwazaki event, Indian tsunami event, and add any other pertinent questions

Develop communication plan

Respond to any questions

Prepare briefing material on how do we design

The following information to deal with more technical issues and to pursue information need which we may develop.

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Examine our GI-199 approach – is it still a sound and robust approach? (I have some thoughts)

Identify any near-term need for studies/consultancy

Develop assistance plans

Etc.

I think we need to do this as soon as possible. Please let me know your thoughts. I am available to do whatever is needed – I have cancelled my travel plan for the next week.

Thanks,

Nilesh

From: [Holahan, Gary](#)
To: [Johnson, Michael](#); [Chokshi, Nilesh](#)
Subject: RE: Japanese Event
Date: Saturday, March 12, 2011 4:15:03 PM

OK good

From: Johnson, Michael
Sent: Saturday, March 12, 2011 1:42 PM
To: Holahan, Gary; Chokshi, Nilesh
Subject: Re: Japanese Event

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Nilesh

From: [Chokshi, Niles](#)
To: [Johnson, Michael](#); [Holahan, Gary](#)
Subject: RE: Japanese Event
Date: Saturday, March 12, 2011 3:31:32 PM

Mike and Gary,

Scott and I will be ready for further discussions on Monday.

Niles

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From: Johnson, Michael
Sent: Saturday, March 12, 2011 1:42 PM
To: Holahan, Gary; Chokshi, Niles
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Thanks,

Nilesh

Akstulewicz, Frank

From: Akstulewicz, Brenda
Sent: Saturday, March 12, 2011 9:11 AM
To: Akstulewicz, Frank
Subject: FW: Latest Kyodo News Story filed

Hey Bud -
Is this good news?
PS- you are the best husband in the world!

Explosion did not occur at reactor: Japan gov't spokesman

TOKYO, March 12, Kyodo

Japanese authorities have confirmed there was an explosion at the Fukushima No. 1 nuclear power plant Saturday afternoon but it did not occur at its troubled No. 1 reactor, top government spokesman Yukio Edano said.

The chief Cabinet secretary also told an urgent press conference that the operator, Tokyo Electric Power Co., has confirmed there is no damage to the steel container housing the reactor.

Edano said the 3:36 p.m. explosion caused the roof and the walls of the building housing the reactor's container to be blown off. He said there has been no serious damage to the steel container of the reactor.

The blast occurred as vapor from the container turned into hydrogen and mixed with outside oxygen, he added.

As a precaution, the authorities expanded from 10 kilometers to 20 km the radius of the area to be evacuated by residents living in the vicinity of the Fukushima No. 1 and No. 2. plants.

The top government spokesman said Tokyo Electric Power has begun operations to fill the reactor with sea water and pour in boric acid to prevent an occurrence of criticality, noting it may take several hours to inject water into the reactor. In addition, it will take about 10 days to fill the container with sea water, he said.

Officials of Japan's nuclear safety agency said there was no sign that radiation levels had jumped after the explosion.

The incident came after the plant lost its cooling functions after it was jolted by a magnitude 8.8 earthquake Friday and radioactive cesium and iodine were detected near the facility Saturday.

The detection of the materials, which are created following atomic fission, led Japan's nuclear safety agency to admit the reactor had partially melted -- the first such case in Japan.

The melting temperature for pellets containing cesium, a nuclear fissile material, is around 2,800 Celsius degrees and its release indicates the reactor has been significantly heated up.

B/65

A partial core meltdown also occurred in a major nuclear accident at Three Mile Island in the United States in 1979. About 45 percent of nuclear fuels melted in the incident, leading radioactive materials to be released.

According to the Fukushima prefectural government, the hourly radiation from the Fukushima plant reached 1,015 micro sievert before the explosion, an amount equivalent to that permissible for a person in one year.

Four workers -- two from the company and two others from another firm -- were injured in the explosion, according to Tokyo Electric Power. The four were working to deal with problems caused by a powerful earthquake that hit northeastern Japan on Friday, it said.

The company said the injuries the four have suffered are not life-threatening and that they are conscious.

Before the explosion, the operator of the quake-hit nuclear plants in Fukushima Prefecture, successfully released pressure in the container of the No. 1 reactor to prevent a nuclear meltdown, the Nuclear and Industrial Safety Agency said.

The depressurizing work involved the release of steam that includes radioactive materials. It is aimed at preventing the plants from sustaining damage and losing their critical containment function, and the government has issued an unprecedented order to conduct it at the Fukushima No. 1 and No. 2 plants.

The nuclear safety agency said as a result of reducing the container's pressure at the No. 1 plant, radioactive levels at the plant briefly went up. It denied that the radiation amount will pose an immediate threat to the health of nearby residents, as wind was blowing toward the sea in the Pacific coast town in northeastern Japan.

At the Fukushima plant, the amount of radiation reached around 1,000 times the normal level in the control room of the No. 1 reactor, and 140 times the normal level near the main gate of the plant at one point. It was the first time an external radioactive leak had been confirmed since the disaster.

==Kyodo

Ivonne L. Couret
Public Affairs Officer
Office of Public Affairs



 (301) 415-8205

 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.

Laur, Steven

From: Operations Center Bulletin *INSIK*
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 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.

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
- U.S. Department of State – www.state.gov
- FEMA – www.fema.gov
- White House – www.whitehouse.gov
- Nuclear Energy Institute – www.nei.org
- International Atomic Energy Agency – www.iaea.org/press

No response to this message is required.

B/66

THIS IS NOT A DRILL

Baca, Bernadette

From: Joe Colvin [president@ans.org]
Sent: Sunday, March 13, 2011 10:31 PM
To: Baca, Bernadette
Subject: Talking Points on Implications of Fukushima Accident to U.S. Nuclear Plants
Attachments: ANS Talking Points - 2011-03-13 R1_2.pdf

Dear ANS Members:

Over the last two days, the ANS Crisis Communications team has been very proactive and has handled a multitude of media and press calls. ANS spokespersons have participated in national television, radio and press interviews providing the views of the nuclear science and technology experts within the Society. We are particularly grateful to Dr. Dale Klein who has given tremendous support to the Society and the public in response to the events at Fukushima.

We have begun fielding media inquiries about the implications of the problems at Fukushima on the US program. We have prepared the attached talking points to assist responders to this line of questions. The talking points are consistent with the talking points prepared by the Nuclear Energy Institute (NEI) on the same subject.

Thank you all for your strong support!

Joe

B1 67

The predominance of ANS members reside in the U.S. As we interact with our family, neighbors and citizens in our communities many questions will come based on news coverage of the nuclear power plant situation in Japan. These talking points key on the theme 'could it happen in the U.S.?' *

ANS Member Talking Points

Implications to U.S. nuclear energy program from the Japanese earthquake

It is premature for the technical community to draw conclusions from the earthquake and tsunami tragedy in Japan with regard to the U.S. nuclear energy program. Many opposed to nuclear power will try to use this event to call for changes in the U.S. Japan is facing beyond a "worst case" disaster since we, the technical community, did not hypothesize an event of this magnitude. Thus far, even the most seriously damaged of Japan's 54 reactors have not released radiation at levels that would harm the public. That is testament to the way professionals in our profession operate: our philosophy of defense in-depth, excellent designs, high standards of construction, conduct of operations, and most important the effectiveness of employees in following emergency preparedness planning.

The Nuclear Science and Technology (NS&T) community takes very seriously our commitment to safe operation of any nuclear facility and will incorporate lessons learned based on this experience into our safety and operating procedures. The ANS will facilitate the sharing of technical information so that these lessons receive wide distribution and be archived for future stewards of this technology. Some points to remember from this week:

- Nuclear power plants have proven their value to society in Japan, the United States and elsewhere. They provide large amounts of base load electricity on an around-the-clock basis, and they do so cost-effectively with the lowest electricity production costs of any large energy source. Both Japan and the United States have benefited greatly from nuclear energy; it has been instrumental in the nations' economic success over the past half century and their high standard of living.
- Our hallmark as a NS&T organization is to incorporate operating experience and lessons learned. When we fully understand the facts surrounding the event in Japan, we will share, document and use those insights to make NS&T even safer.
- Nuclear energy has been and will continue to be a key element in meeting America's energy needs. The nuclear industry sets the highest standards for safety and, through our focus on continuous learning; we will incorporate lessons learned from the events in Japan. The dominant factors determining technology used for new generation will be demand for new generation, the competitiveness of nuclear energy in comparison with other sources of electricity generation, and the continued safe operation of U.S. nuclear power plants.

- There has not been a rush to judgment on the part of U.S. policymakers during the first few days of this situation. We believe that is due in part to the recognition on their part that nuclear energy must continue to play a key role in a diversified energy portfolio that strengthens U.S. energy security and fuels economic growth.

* The genesis of this document is the NEI "Talking Points - Implications to U.S. nuclear energy program of the Japanese earthquake" dated March 13, 2011

From: [Operations Center Bulletin](#)
To: [OST02 HOC](#)
Subject: FW: NRC IS RESPONDING TO AN EMERGENCY OUTSIDE of the United States
Date: Sunday, March 13, 2011 11:12:30 AM

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Other Sources of Information:

USAID – www.usaid.gov

B/68

U.S. Department of State – www.state.gov

FEMA – www.fema.gov

White House – www.whitehouse.gov

Nuclear Energy Institute – www.nei.org

International Atomic Energy Agency – www.iaea.org/press

No response to this message is required.

THIS IS NOT A DRILL

Vera, Marieliz

From: Jain, Bhagwat
Sent: Sunday, March 13, 2011 11:31 PM
To: Hawkins, Kimberly; Chuang, Tze-Jer; Ma, John; Park, Sunwoo; Patel, Pravin; Tegeler, Bret; Thomas, Brian; Thomas, Vaughn; Valentin, Milton; Vera, Marieliz; Jeng, David; Kazi, Abdul; Xu, Jim; Shams, Mohamed; Chakravorty, Manas
Cc: Bergman, Thomas
Subject: Japan Earthquake and Fukushima plants seismic design basis
Attachments: KK-TEPCO-2009-Seismic-update.pdf

All: FYI

The earthquake that hit Japan last Friday resulted in the ground shift of 8 ft ; i.e., roughly the site PGA of 2.67g. The site experienced a peak ground acceleration that was more than 2.5 times the upgraded PGA capacity of the Fukushima units.

In March 2008 TEPCO upgraded its estimates of likely peak ground acceleration (PGA) for Fukushima to 0.61g, and other operators have adopted the same figure. In October 2008 TEPCO accepted 1.02g PGA as the new seismic design basis for Kashiwazaki Kariwa, following the July 2007 earthquake there. Reportedly, the Fukushima units were upgraded to 1.02 PGA in 2009.

By comparison, the certified designs of new reactors in the US are based on PGA of 0.3g.

BP

B/69

Creating Disaster-resistant Nuclear Power Stations

TEPCO is taking steady and sure steps to strengthen nuclear power stations against disaster.

Ever since the July 16, 2007 Niigata-Chuetsu-Oki Earthquake, TEPCO has been taking various measures to strengthen the Kashiwazaki-Kariwa Nuclear Power Station against disaster. We are inspecting and evaluating all facilities, implementing the necessary restoration work, and improving seismic safety. We are applying the same initiatives to the Fukushima Daiichi and the Fukushima Daini Nuclear Power Stations, and have also incorporated the necessary considerations in the application for the construction of a nuclear reactor at the Higashidori Nuclear Power Station.

Confirming the soundness of facilities (Kashiwazaki-Kariwa)

Based on an inspection and evaluation plan we have submitted to the government, we are inspecting and evaluating all facilities and buildings of the power station in great detail, to ascertain the impacts of the earthquake.

Visual inspection and operation tests

We are conducting visual inspections and operation tests of all units to make sure none of the facilities with high safety significance have suffered damage from the earthquake.



Inspection of a low-pressure condensate pump



Visual inspection of the wall of the nuclear reactor building

Functional tests of equipment systems

After verifying the soundness of all equipment, we will evaluate groups of equipment that form a single system.



System functional test (inspection of the Unit 7 turbine bypass valve function)

Functional tests of entire plants

In order to confirm reactor pressure, reactor water level, steam flow rate, and other parameters, we will start up the nuclear reactor and generate power.

Improving the seismic safety of power stations

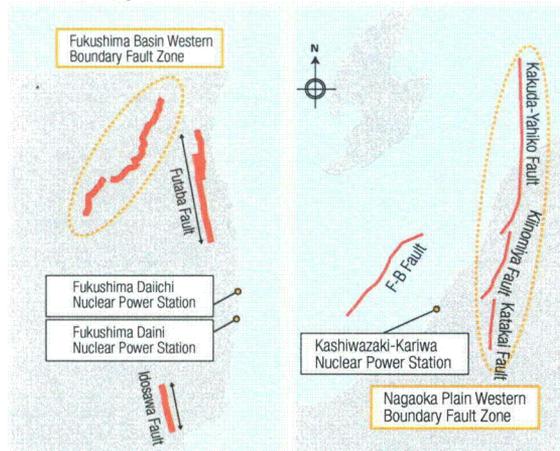
(Fukushima Daiichi, Fukushima Daini, Kashiwazaki-Kariwa)

To improve the seismic safety of our power stations, we are implementing the necessary reinforcement work based on a detailed assessment of seismic motion.

Geological surveys and assessment of active faults

We have conducted geological surveys to examine the subsurface structure and the movement of active faults around the power station sites. Based on the results of these surveys, we have identified and evaluated active faults that may have an impact on our power stations from among many that exist in the vicinity.

Active faults that may have a large impact on TEPCO's power stations



Fukushima Prefecture: Fukushima Daiichi and Fukushima Daini Nuclear Power Stations

Niigata Prefecture: Kashiwazaki-Kariwa Nuclear Power Station

Summary of design-basis seismic motion *

***Design-basis seismic motion**

The magnitude of seismic motion that provides a standard for earthquake resistance design of nuclear power stations

We have established design-basis seismic motion intensities based on an evaluation of active faults. Results shown below have been approved by the Nuclear Safety Commission of Japan.

Evaluation of seismic motion in each reactor at the Kashiwazaki-Kariwa Nuclear Power Station (Gal)

Position	Evaluated seismic motion	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7
Bottommost floor of the nuclear reactor building	Measured value of the Niigata-Chuetsu-Oki Earthquake	680	606	384	492	442	322	356
	Seismic motion calculated based on the design-basis seismic motion	845	809	761	704	606	724	738
	Seismic motion for improved seismic resistance	1,000						
Design-basis seismic motion	2,300			1,209				

Comment from a stakeholder :

Please give a detailed account of the safety of TEPCO's nuclear power stations. (Questionnaire)

TEPCO's reply :

To ensure the safety of our nuclear power stations, we are improving the seismic safety of our facilities and strengthening our disaster response framework.

▶ Seismic reinforcement work

To increase the seismic safety of our facilities, we have established target seismic vibration values by calculating the earthquake motion at the bottommost floor of the nuclear reactor building based on the design-basis seismic motion.

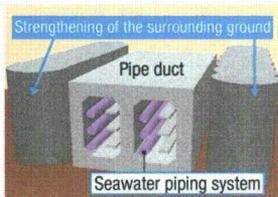
At the Kashiwazaki-Kariwa Nuclear Power Station, we are applying seismic reinforcement work to all reactors so they can withstand a seismic motion of 1,000 Gal.

• Major undertakings

- Strengthening and reinforcement of the pipework (including conduits, cable trays, air conditioning ducts)
- Strengthening the ground around the pipe duct by spraying and mixing cementing material with the earth
- Addition of steel reinforcements to the steel-reinforced truss supporting the roof of the nuclear reactor building
- Installation of vibration control devices to absorb vibrations of the exhaust stack used to ventilate the nuclear reactor building



Addition and reinforcement of pipework supports



Conceptual image of emergency seawater duct work (Fukushima Daiichi Nuclear Power Station)



Reinforcement of the truss of a nuclear reactor building roof



Installation of a vibration control device

Construction of seismic-isolated buildings

At the Kashiwazaki-Kariwa Nuclear Power Station, we are constructing a seismically isolated building that houses an emergency response center and important communications and power supply facilities.



Seismic-isolated building (rendering)

Reinforcement of firefighting facilities and framework (Fukushima Daiichi, Fukushima Daini, Kashiwazaki-Kariwa)

Based on the lessons learned from the earthquake, we have taken various initiatives to improve our initial response to fires.

▶ Strengthening initial firefighting activities

- Deployment of chemical fire trucks and pump trucks with water tanks
- Establishment of an initial firefighting unit in the in-house firefighting squad to provide 24-hour service, and implementation of systematic training programs



Fire trucks and firefighting personnel (Kashiwazaki-Kariwa Nuclear Power Station)

▶ Upgrading fire-extinguishing equipment

- Installation of earthquake-resistant, fire-safe water tanks



Earthquake-resistant, fire-safe water tank (Fukushima Daiichi Nuclear Power Station)

- Installation of an above-ground fire hydrant pipe network

Kashiwazaki-Kariwa: Completed

Fukushima Daiichi: To be completed by the end of Sept. 2009

Fukushima Daini: To be completed by the end of July 2009



Above-ground fire hydrant pipe network (Kashiwazaki-Kariwa Nuclear Power Station)

From: [Johnson, Michael](#)
To: [Mayfield, Michael](#); [Holahan, Gary](#)
Subject: Re: CBS SUNDAY MORNING NEWS SHOW
Date: Sunday, March 13, 2011 12:02:12 PM

This will be a natural reaction of some stakeholders.

The nuclear industry will need to get out in front of this.
From my blackberry.

From: Mayfield, Michael
To: Johnson, Michael; Holahan, Gary
Sent: Sun Mar 13 11:25:36 2011
Subject: CBS SUNDAY MORNING NEWS SHOW

Sen. Liberman called for a moratorium on new NPPs in the US until we understand the Japanese event. He tried to walk it back a little but still said we need to slow down 'a bit'. Just gets better and better.

B170

From: [Mayfield, Michael](#)
To: [Johnson, Michael](#)
Subject: Re: CBS SUNDAY MORNING NEWS SHOW
Date: Sunday, March 13, 2011 12:04:05 PM

We all knew this would be coming. I was just surprised to hear it from him.
Michael Mayfield
Sent from my BlackBerry

From: Johnson, Michael
To: Mayfield, Michael; Holahan, Gary
Sent: Sun Mar 13 12:02:11 2011
Subject: Re: CBS SUNDAY MORNING NEWS SHOW

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The nuclear industry will need to get out in front of this.
From my blackberry.

From: Mayfield, Michael
To: Johnson, Michael; Holahan, Gary
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B171

From: [Mayfield, Michael](#)
To: [Johnson, Michael](#)
Subject: Re: CBS SUNDAY MORNING NEWS SHOW
Date: Sunday, March 13, 2011 12:43:11 PM

I didn't get anything Friday. Stu was out in the am (Dr appt) and there wasn't an update e-mail from him. I'll chase it and get you something as soon as I can tomorrow.

Michael Mayfield

Sent from my BlackBerry

From: Johnson, Michael
To: Mayfield, Michael
Sent: Sun Mar 13 12:35:23 2011
Subject: Re: CBS SUNDAY MORNING NEWS SHOW

Yes. We'll discuss tomorrow.

I don't have the revised slides for the commission meeting. Did a revised version get sent around? If so, can you resend them? Thanks.

From my blackberry.

From: Mayfield, Michael
To: Johnson, Michael
Sent: Sun Mar 13 12:18:50 2011
Subject: Re: CBS SUNDAY MORNING NEWS SHOW

Should we be thinking about NRO's key messages? I suspect agency is working this at the broad level. Should we give thought to our story about the new plants?

Michael Mayfield

Sent from my BlackBerry

From: Johnson, Michael
To: Mayfield, Michael; Holahan, Gary
Sent: Sun Mar 13 12:02:11 2011
Subject: Re: CBS SUNDAY MORNING NEWS SHOW

This will be a natural reaction of some stakeholders.

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From: Mayfield, Michael
To: Johnson, Michael; Holahan, Gary
Sent: Sun Mar 13 11:25:36 2011
Subject: CBS SUNDAY MORNING NEWS SHOW

Sen. Liberman called for a moratorium on new NPPs in the US until we understand the Japanese event. He tried to walk it back a little but still said we need to slow down 'a bit'. Just gets better and better.

B/72

71

Caponiti, Kathleen

From: Taylor, Robert *NRK*
Sent: Monday, March 14, 2011 2:46 PM
To: Harrington, Holly, *OPA*
Subject: Additional Chairman Q&As.docx
Attachments: Additional Chairman Q&As.docx

Holly,

Eliot asked me to craft responses to some of Dave's "additional Chairman questions." Can you take a look at these and give me your thoughts?

Rob

B/73

POTENTIAL ADDITIONAL QUESTIONS FOR THE CHAIRMAN

1. Can this happen here?

The events that have occurred in Japan are the result of a combination of highly unlikely natural disasters. It is extremely unlikely that a similar event could occur in the United States.

2. I live near a nuclear power plant similar to the ones having trouble in Japan. How can we now be confident that this plant won't experience a similar problem?

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 reported for the site and surrounding area. The NRC is confident that the robust design of these plants makes it extremely unlikely that a similar event could occur in the U.S.

3. Has this crisis changed your opinion about the safety of US nuclear power plants?

No. The NRC remains confident that the design of U.S. nuclear power plants ensure the continued protection of public health and safety.

4. With all this happening, how can the NRC continue to approve new nuclear power plants?

It is premature to speculate what, if any, effect the events in Japan will have on the licensing of new nuclear power plants.

5. What is the NRC doing in response to the situation in Japan?

The NRC has taken a number of actions:

- a. Since the beginning of the event, the NRC has continuously manned its Operations Center in Rockville, MD in order to gather and examine all available information as part of the effort to analyze the event and understand its implications both for Japan and the United States.
- b. A team of officials from the U.S. Nuclear Regulatory Commission with expertise in boiling water nuclear reactors have deployed to Japan as part of a U.S. International Agency for International Development (USAID) team.
- c. The Nuclear Regulatory Commission has spoken with its counterpart agency in Japan, offering the assistance of U.S. technical experts.
- d. The NRC is coordinating its actions with other Federal agencies as part of the U.S. government response.

6. What other US agencies are involved, and what are they doing?

The entire federal family is responding to this event. The NRC is closely coordinating its efforts with the White House, DOE, DOD, USAID, and others. The U.S. government is providing whatever support requested by the Japanese government.

7. What else can go wrong?

The NRC is continuously monitoring the developments at the nuclear power plants in Japan. Circumstances are constantly evolving and it would be inappropriate to speculate on how this situation might develop over the coming days.

8. What is the worst-case scenario?

In a nuclear emergency, the most important action is ensure the core is covered with water to provide cooling to remove any heat from the fuel rods. Without adequate cooling, the fuel rods will melt.

9. The US has troops in Japan and has sent ships to help the relief effort – are they in danger from the radiation?

The NRC is not the appropriate federal agency to answer this question. DOD is better suited to provide information regarding its personnel.

10. Is there a danger of radiation making it to the United States?

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.

11. Is the US Government tracking the radiation released from the Japanese plants?

See response to Question 10.

12. Has the government set up radiation monitoring stations to track the release?

All U.S. nuclear power plants have existing monitoring stations with the ability to measure and track external radiation sources. However, should the federal government decide that additional monitoring stations are needed, the NRC will support that effort.

13. The radiation “plume” seems to be going out to sea – what is the danger of it reaching Alaska? Hawaii? The west coast?

See response to Question 10.

14. I live in the Western United States – should I be taking potassium iodide (KI)?

No protective measures are necessary in the United States. We do not expect any U.S. states or territories to experience harmful levels of radioactivity.

15. Are there other protective measures I should be taking?

The NRC supports the states with making protective measure recommendations for their residents. The NRC is not recommending any protective measures to the states as a result of the events 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.

16. What are the risks to my children?

See response to Question 15.

17. My family has planned a vacation to Hawaii/Alaska/Seattle next week – is it safe to go, or should we cancel our plans?

The NRC does not believe that the events in Japan warrant any travel restrictions within the United States or its territories.

18. What are the short-term and long-term effects of exposure to radiation?

The NRC does not expect that residents of the United States or its territories are at any risk of exposure to harmful levels of radiation resulting from the events in Japan.

On a daily basis, people are exposed to naturally occurring sources of radiation, such as from the sun or medical X-rays. The resulting effects are dependent on the strength and type of radiation as well as the duration of exposure.

-NRR

From: [NRR HIGNFY Resource](#)
To: [NRR Distribution](#)
Subject: Special Edition HIGNFY - Response to Recent Events in Japan - Maintain Effective Communication and Coordination
Date: Monday, March 14, 2011 6:01:12 PM

- March 14, 2011 -

*** SPECIAL EDITION *
Have I Got News For You!**

Office of Nuclear Reactor Regulation Mission Statement

NRR supports the NRC mission to protect public health, safety, and the environment by developing and implementing rulemaking, licensing, oversight, and incident response programs for reactors. We conduct these activities in a manner that develops trust and is consistent with the NRC organizational values.

**Response to Recent Events in Japan
Maintain Effective Communication and Coordination**

As you are all aware from the Agency wide e-mails, the NRC Operations Center is being manned 24 hours a day to support monitoring of the situation in Japan. Many of your NRR colleagues are involved with this effort.

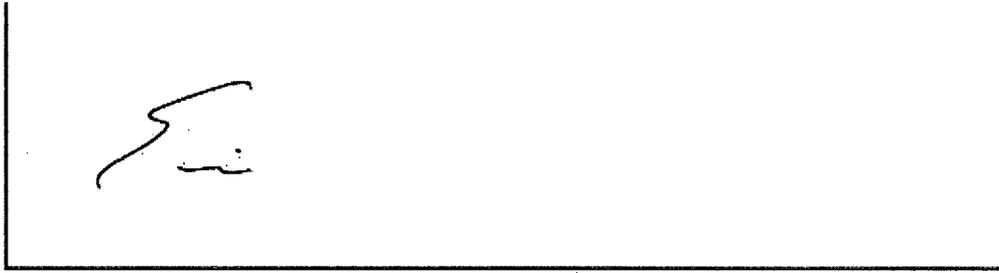
Here in NRR, we can look forward in the coming days and months to many questions about the situation in Japan and the relevance to domestic nuclear facilities. The staff in the Operations Center has already been working on these types of questions and answers. It will be important to maintain effective communication and coordination between the work done in the Office, and the work done in the Operations Center.

In an effort to minimize disruption of Operations Center activities, NRR has designated Eric Thomas (eric.thomas@nrc.gov) in NRR's Operating Experience Branch to be the focused single point of contact for information requests that NRR staff may have for the Reactor Safety and Preventative Measures Teams in the Operations Center.

If you are assigned a task involving event questions and answers, please let Eric know so that he can coordinate with the Operations Center to ensure that we are providing consistent responses. If you are contacted directly by staff in the Operations Center, please respond to the request promptly, and provide an electronic copy of your response to Eric so that he can maintain the response for future use by others.

Thanks for your cooperation and assistance!

0174



- NKK

From: [Thomas, Brian](#)
To: [Boger, Bruce](#)
Cc: [Nguyen, Quynh](#); [Lubinski, John](#); [Cusumano, Victor](#)
Date: Monday, March 14, 2011 2:10:05 PM

Bruce,
As requested in today's meeting here are a couple of individuals in DCI with expertise/capabilities to support the Japanese.

Tim Lupold:

- Trained in Severe Accident Management procedures for a Pressurized Water Reactor.
- While working in industry, was also trained and served as the director of the engineering facility providing engineering support for the site for emergency response drills.
- Was also trained and served as the director of the site emergency response center for emergency response drills at a PWR. All of my experience relates to PWRs. All of my experience dates back to the time that I worked in industry, which is over 5 years ago.

Tony McMurtray:

- Approximately 5 ½ years serving as the senior resident inspector at Peach Bottom nuclear power plant (BWR-4), including completion of the 7 week BWR series at the TTC.
- Approximately 3 ½ years as a Branch Chief in NSIR/DPR/Emergency Preparedness (EP). Branch handled EP inspection, rulemaking, outreach (especially with FEMA), and security interface issues.
- Approximately 1 ½ years as the Branch Chief in the NSIR/DPR/Incident Response (IR) Coordination Branch. Branch handled exercise coordination and liaison with other Federal Departments and Agencies (notably DHS and FEMA).

Please feel free to contact me at x2803 if additional information is needed.

...brian

Brian E. Thomas, Acting Deputy Director
Division of Component Integrity (DCI)
Office of Nuclear Reactor Regulations (NRR)
U. S. Nuclear Regulatory Commission
(301) 415-2803

B/TS

From: [Miller, Ilyne](#) - NRC
To: [Hopkins, Jon](#); [Eng, Patricia](#)
Cc: [Lubinski, John](#)
Subject: RE: Re:Proposed agenda for KM meeting on March 16
Date: Monday, March 14, 2011 9:38:18 AM

This is such a heart-breaker! Thanks, Jon.

Ilyne

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

From: Hopkins, Jon - NRC
Sent: Monday, March 14, 2011 9:19 AM
To: Eng, Patricia; Miller, Ilyne
Cc: Lubinski, John
Subject: FW: Re:Proposed agenda for KM meeting on March 16

Patricia & Ilyne,

The KM meeting with Japan on March 16 has been postponed.

No new date for the meeting at this time.

I'll contact you when we hear that Japan is ready to reschedule.

Thank you for your preparation and support, Jon

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

From: Hopkins, Jon - NRC
Sent: Monday, March 14, 2011 9:15 AM
To: 'Aono Kenjiro'
Cc: Foggie, Kirk; Cullingford, Michael; kurihara-mikio@jnes.go.jp; asahara-shinya@jnes.go.jp; yamachika-hidehiko@jnes-usa.org; michael-chinworth@jnes-usa.org
Subject: RE: Re:Proposed agenda for KM meeting on March 16

Dear Aono-san,

We understand and postponing the KM meeting is perfectly acceptable to the NRC.

Whenever the time is appropriate to reschedule the meeting, please contact either me or Kirk Foggie in our Office of International Programs.

If we can be of any other assistance to you, please let us know.

Best regards,
Jon

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

From: Aono Kenjiro [<mailto:aono-kenjiro@jnes-usa.org>] - Public
Sent: Saturday, March 12, 2011 12:43 PM
To: Hopkins, Jon
Cc: Foggie, Kirk; Cullingford, Michael; kurihara-mikio@jnes.go.jp; asahara-shinya@jnes.go.jp; yamachika-hidehiko@jnes-usa.org; Aono Kenji; michael-chinworth@jnes-usa.org
Subject: RE: Re:Proposed agenda for KM meeting on March 16
Importance: High

B176

Dear Hopkins-san,

We are sorry to inconvenience you, but we need to postpone our meeting appointment on KM on March 18.

As you know, big earthquake hits on North side of Japan and several nuclear power plants got huge damage by that impact. So, JNES HQ started emergency task team composed of specialists in several field to support NISA immediately after earthquake. Mr. Kurihara has to stay Japan till this problem is clear as he is one of the members of this task team.

Please understand our situation. We would like to propose alternative date for our meeting in the near future as we are eager to hold our meeting after this problem is solved out.

Best Regards;
Kenjiro

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

From: Hopkins, Jon [<mailto:Jon.Hopkins@nrc.gov>] - *UKR*
Sent: Monday, March 07, 2011 9:21 AM
To: kurihara-mikio@jnes.go.jp
Cc: Foggie, Kirk; Cullingford, Michael; Aono, Kenjiro;
asahara-shinya@jnes.go.jp
Subject: RE: Re:Proposed agenda for KM meeting on March 16

Dear Mr. Kurihara,

Below is our proposed agenda.

Best regards,

Jon Hopkins
Senior Project Manager for International Activities
Office of Nuclear Reactor Regulation
USNRC
+1 301 415 3027

Agenda

10:30

a.m. Introductions

10:45 a.m. Knowledge Management (KM)
overview JNES

11:10 a.m. KM
overview NRC

11:35 a.m. Knowledge portal
demonstration NRC

12 noon Lunch

1:15 p.m. KM
policy NRC

J. Grobe

1:45
p.m. Discussion
Both

2:15 p.m. NRC responses to JNES KM
questions Both

3:00 p.m. Future KM
plans Both

3:20 p.m. Meeting
review Both

3:30 p.m. Meeting close

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

From: kurihara-mikio@jnes.go.jp [<mailto:kurihara-mikio@jnes.go.jp>] - Public
Sent: Sunday, March 06, 2011 8:12 PM
To: Hopkins, Jon
Cc: Foggie, Kirk; Cullingford, Michael; AonoKenjiro; asahara-shinya@jnes.go.jp
Subject: Re:Proposed agenda for KM meeting on March 16

Dear Mr.Hopkins

Thank you for you sendig your proposed agenda, but we can't read attachment unfortunately. Probably, application software version is different between NRC and JNES. It's happy for us if you resend it by PDF.

Best regards,

Mikio KURIHARA
Japan Nuclear Energy Safety Organuzation(JNES)
Knowledge-based Planning Group
Technology and information Generating Office
Policy Planning and Coodination Division

Tel:+81(3)4511-1180
E-mail:kurihara-mikio@jnes.go.jp - Public

>Dear Mr. Kurihara,

>

>Attached is our proposed agenda for the March 16 meeting on knowledge management.

>

>I apologize for the delay.

>

>Best regards,

>

>Jon Hopkins

>Senior Project Manager for International Activities

>Office of Nuclear Reactor Regulation
>USNRC
>+1 301 415 3027

>
>

>-----Original Message-----

>From: kurihara-mikio@jnes.go.jp [<mailto:kurihara-mikio@jnes.go.jp>]
>Sent: Friday, March 04, 2011 4:05 AM
>To: Hopkins, Jon
>Cc: Foggie, Kirk; Cullingford, Michael; AonoKenjiro;
asahara-shinya@jnes.go.jp
>Subject: Re: KM meeting on March 16

- Public

>

>Dear Mr.Hopkins

>

>We have not yet received your draft agenda of March 16.
>I think you might be so busy for the RIC so on, however,
>it will be appreciated for our preparation if sending us
>it immediately.

>

>Best Regards;

>

>Mikio KURIHARA

> Japan Nuclear Energy Safety Organization(JNES)
> Knowledge-based Planning Group
> Technology and information Generating Office
> Policy Planning and Coordination Division

>

> Tel:+81(3)4511-1180

> E-mail:kurihara-mikio@jnes.go.jp

- Public

>

>

>

>>Dear Mr. Kurihara,

>>

>>We have received your questions and are looking at them now. I
anticipate sending to you our draft agenda by next Wednesday.

>>

>>We look forward to the meeting.

>>

>>Best regards,

>>

>>Jon Hopkins

>>Senior Project Manager for International Activities

>>NRR/DPR

>>301-415-3027

>>Jon.Hopkins@nrc.gov

>>

>>

>>-----Original Message-----

>>From: kurihara-mikio@jnes.go.jp [<mailto:kurihara-mikio@jnes.go.jp>]
>>Sent: Wednesday, February 23, 2011 11:23 PM
>>To: Hopkins, Jon
>>Cc: Foggie, Kirk; Cullingford, Michael; AonoKenjiro;
asahara-shinya@jnes.go.jp
>>Subject: KM meeting on March 16

- Public

>>

>>Dear Mr.Hopkins

>>

>>Thank you for your kind arrangement of March 16 meeting with us.

>>Would you please send us your proposed meeting agenda as soon as possible ?

>>If you need more detail for preparing meeting agenda or for answering

>>to our questionnaire sent via Aono-san before, please ask us unreservedly.

>>It'll be appreciated if you send us your answer to our questionair

>>in advance in a possible extent.

>>

>>Best Regards;

>>

>>Mikio KURIHARA

>> Japan Nuclear Energy Safety Organization(JNES)

>> Knowledge-based Planning Group

>> Technology and information Generating Office

>> Policy Planning and Coordination DIVision

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>> Tel:+81(3)4511-1180

>> E-mail:kurihara-mikio@jnes.go.jp - *Public*

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NRR

From: [Cusumano, Victor](#)
To: [Thomas, Brian](#); [Lubinski, John](#); [Hardies, Robert](#); [Karwoski, Kenneth](#); [Lupold, Timothy](#); [McMurtray, Anthony](#); [Mitchell, Matthew](#); [Taylor, Robert](#)
Subject: American Nuclear Society Mailings on the Fukushima Incident
Date: Monday, March 14, 2011 8:57:12 AM
Attachments: [ANS Japan Backgrounder.pdf](#)
[ANS Talking Points - 2011-03-13 R1 2.pdf](#)

From the ANS...

Two attachments:

A short backgrounder on what is currently believed to be the operational chain of events at Fukushima, and second, the ANS/NEI "talking points" brief on implications on the US nuclear industry. This is what they are using during press briefings.

Caveat emptor... consider the source.

Vic

VICTOR CUSUMANO
TECHNICAL ASSISTANT

NRR/DCI
Phone: 301.415.4011
Location: 0-09C10

B177

American Nuclear Society Backgrounder: Japanese Earthquake/Tsunami; Problems with Nuclear Reactors

3/12/2011 5:22 PM EST

To begin, a sense of perspective is needed... right now, the Japanese earthquake/tsunami is clearly a catastrophe; the situation at impacted nuclear reactors is, in the words of IAEA, an "Accident with Local Consequences."

The Japanese earthquake and tsunami are natural catastrophes of historic proportions. The death toll is likely to be in the thousands. While the information is still not complete at this time, the tragic loss of life and destruction caused by the earthquake and tsunami will likely dwarf the damage caused by the problems associated with the impacted Japanese nuclear plants.

What happened?

Recognizing that information is still not complete due to the destruction of the communication infrastructure, producing reports that are conflicting, here is our best understanding of the sequence of events at the Fukushima I-1 power station.

- The plant was immediately shut down (scrammed) when the earthquake first hit. The automatic power system worked.
- All external power to the station was lost when the sea water swept away the power lines.
- Diesel generators started to provide backup electrical power to the plant's backup cooling system. The backup worked.
- The diesel generators ceased functioning after approximately one hour due to tsunami induced damage, reportedly to their fuel supply.
- An Isolation condenser was used to remove the decay heat from the shutdown reactor.
- Apparently the plant then experienced a small loss of coolant from the reactor.
- Reactor Core Isolation Cooling (RCIC) pumps, which operate on steam from the reactor, were used to replace reactor core water inventory, however, the battery-supplied control valves lost DC power after the prolonged use.
- DC power from batteries was consumed after approximately 8 hours.
- At that point, the plant experienced a complete blackout (no electric power at all).
- Hours passed as primary water inventory was lost and core degradation occurred (through some combination of zirconium oxidation and clad failure).

- Portable diesel generators were delivered to the plant site.
- AC power was restored allowing for a different backup pumping system to replace inventory in reactor pressure vessel (RPV).
- Pressure in the containment drywell rose as wetwell became hotter.
- The Drywell containment was vented to outside reactor building which surrounds the containment.
- Hydrogen produced from zirconium oxidation was vented from the containment into the reactor building.
- Hydrogen in reactor building exploded causing it to collapse around the containment.
- The containment around the reactor and RPV were reported to be intact.
- The decision was made to inject seawater into the RPV to continue to the cooling process, another backup system that was designed into the plant from inception.
- Radioactivity releases from operator initiated venting appear to be decreasing.

Can it happen here in the US?

- While there are risks associated with operating nuclear plants and other industrial facilities, the chances of an adverse event similar to what happened in Japan occurring in the US is small.
- Since September 11, 2001, additional safeguards and training have been put in place at US nuclear reactors which allow plant operators to cool the reactor core during an extended power outage and/or failure of backup generators – “blackout conditions.”

Is a nuclear reactor "meltdown" a catastrophic event?

- Not necessarily. Nuclear reactors are built with redundant safety systems. Even if the fuel in the reactor melts, the reactor's containment systems are designed to prevent the spread of radioactivity into the environment. Should an event like this occur, containing the radioactive materials could actually be considered a "success" given the scale of this natural disaster that had not been considered in the original design. The nuclear power industry will learn from this event, and redesign our facilities as needed to make them safer in the future.

What is the ANS doing?

ANS has reached out to The Atomic Energy Society of Japan (AESJ) to offer technical assistance.

ANS has established an incident communications response team.

This team has compiling relevant news reports and other publicly available information on the ANS blog, which can be found at ansnuclearcafe.org.

The team is also fielding media inquiries and providing reporters with background information and technical perspective as the events unfold.

Finally, the ANS is collecting information from publicly available sources, our sources in government agencies, and our sources on the ground in Japan, to better understand the extent and impact of the incident.

The predominance of ANS members reside in the U.S. As we interact with our family, neighbors and citizens in our communities many questions will come based on news coverage of the nuclear power plant situation in Japan. These talking points key on the theme 'could it happen in the U.S.?' *

ANS Member Talking Points

Implications to U.S. nuclear energy program from the Japanese earthquake

It is premature for the technical community to draw conclusions from the earthquake and tsunami tragedy in Japan with regard to the U.S. nuclear energy program. Many opposed to nuclear power will try to use this event to call for changes in the U.S. Japan is facing beyond a "worst case" disaster since we, the technical community, did not hypothesize an event of this magnitude. Thus far, even the most seriously damaged of Japan's 54 reactors have not released radiation at levels that would harm the public. That is testament to the way professionals in our profession operate: our philosophy of defense in-depth, excellent designs, high standards of construction, conduct of operations, and most important the effectiveness of employees in following emergency preparedness planning.

The Nuclear Science and Technology (NS&T) community takes very seriously our commitment to safe operation of any nuclear facility and will incorporate lessons learned based on this experience into our safety and operating procedures. The ANS will facilitate the sharing of technical information so that these lessons receive wide distribution and be archived for future stewards of this technology. Some points to remember from this week:

- Nuclear power plants have proven their value to society in Japan, the United States and elsewhere. They provide large amounts of base load electricity on an around-the-clock basis, and they do so cost-effectively with the lowest electricity production costs of any large energy source. Both Japan and the United States have benefited greatly from nuclear energy; it has been instrumental in the nations' economic success over the past half century and their high standard of living.
- Our hallmark as a NS&T organization is to incorporate operating experience and lessons learned. When we fully understand the facts surrounding the event in Japan, we will share, document and use those insights to make NS&T even safer.
- Nuclear energy has been and will continue to be a key element in meeting America's energy needs. The nuclear industry sets the highest standards for safety and, through our focus on continuous learning; we will incorporate lessons learned from the events in Japan. The dominant factors determining technology used for new generation will be demand for new generation, the competitiveness of nuclear energy in comparison with other sources of electricity generation, and the continued safe operation of U.S. nuclear power plants.

- There has not been a rush to judgment on the part of U.S. policymakers during the first few days of this situation. We believe that is due in part to the recognition on their part that nuclear energy must continue to play a key role in a diversified energy portfolio that strengthens U.S. energy security and fuels economic growth.

* The genesis of this document is the NEI "Talking Points - Implications to U.S. nuclear energy program of the Japanese earthquake" dated March 13, 2011

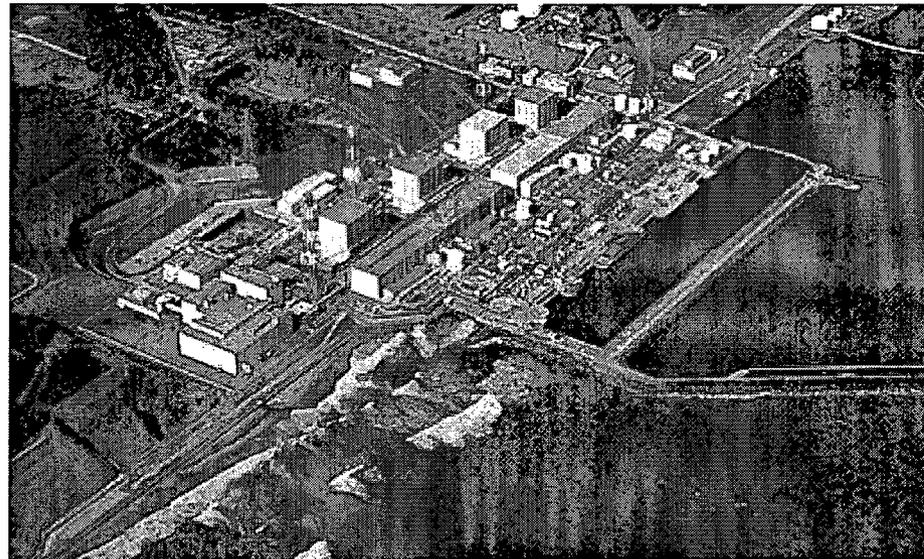
Allen, Linda

From: Johnson, Timothy
Sent: Monday, March 14, 2011 4:19 PM
To: Smith, Brian; Tschiltz, Michael; Wescott, Rex
Subject: Fukushima
Attachments: Fukishima Event - FPL Response.ppt

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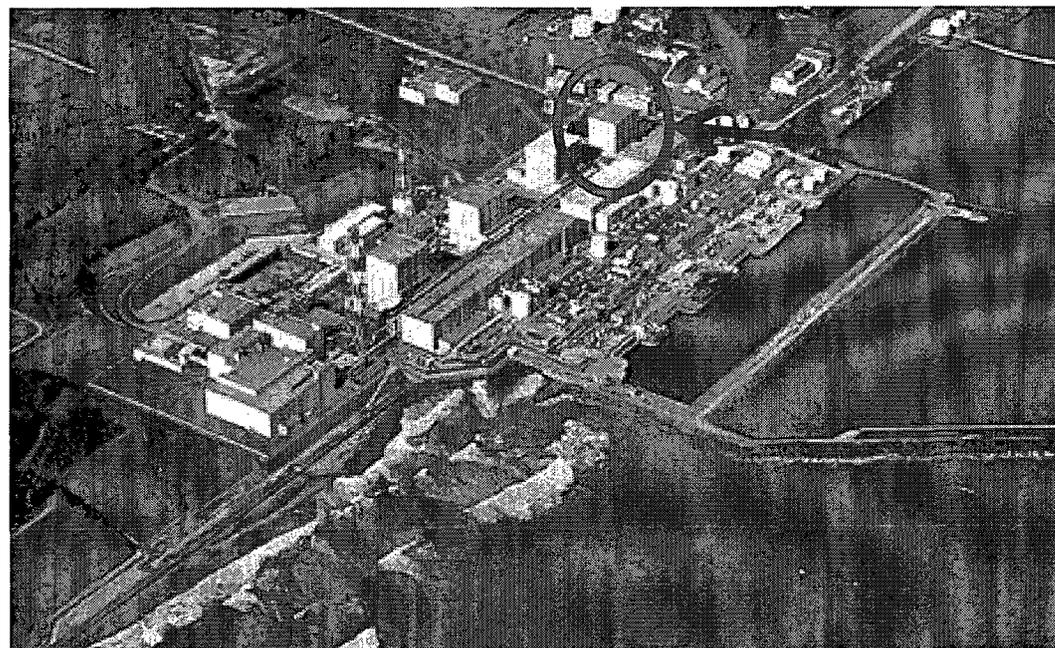
B/78

Fukushima Daiichi Nuclear Plant Event Summary and FPL/DAEC Actions



Fukushima Daiichi Nuclear Station

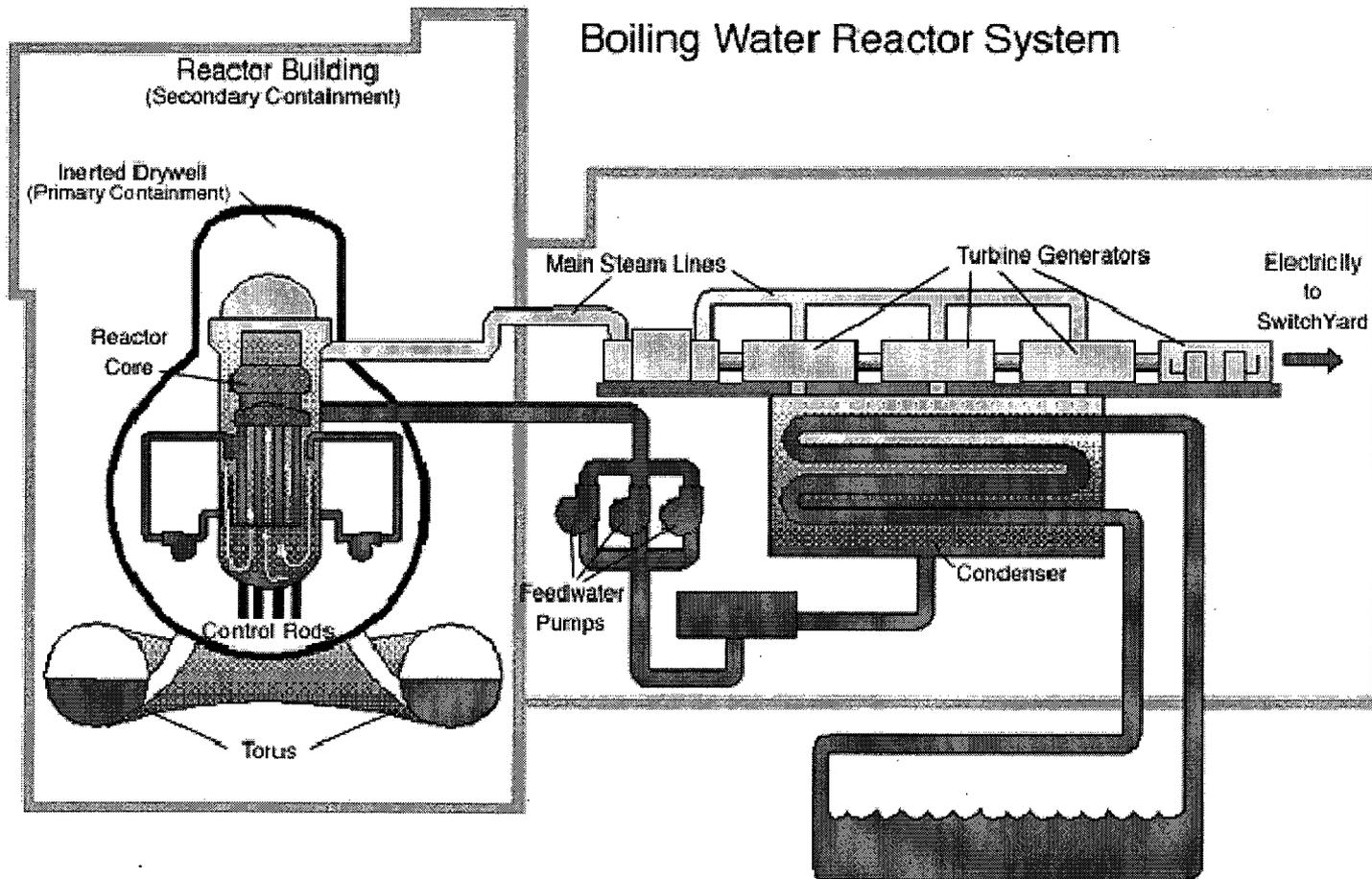
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Unit 1

Fukushima Daiichi Unit 1

- Typical BWR 3 and 4 Reactor Design
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Fukushima Daiichi Unit 1

■ Mechanism of Boiling Water Reactor Power Station

Primary Containment Vessel (Dry Well)

It would confine radioactive substances discharged from the reactor facilities if some pipes were broken by accident.

Reactor Pressure Vessel

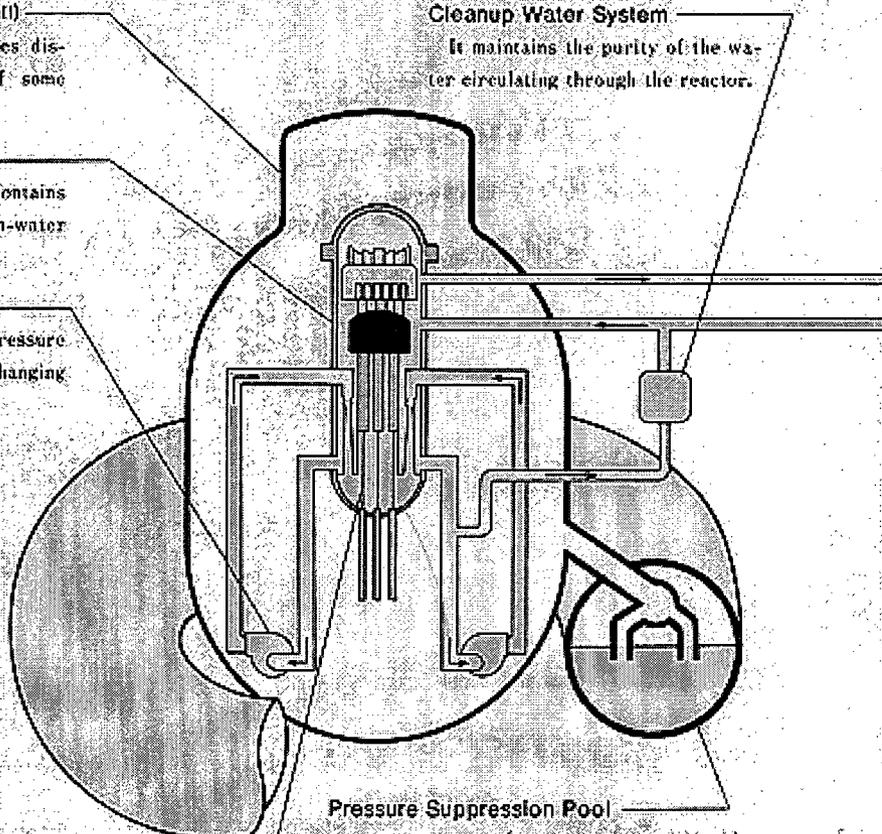
It is made of 12cm thick steel and contains fuel, control rods, jet pumps, steam-water separator and steam dryer.

Primary Recirculation pump

It circulates water in the reactor pressure vessel and changes reactor power by changing water quantity.

Cleanup Water System

It maintains the purity of the water circulating through the reactor.



Control Rods

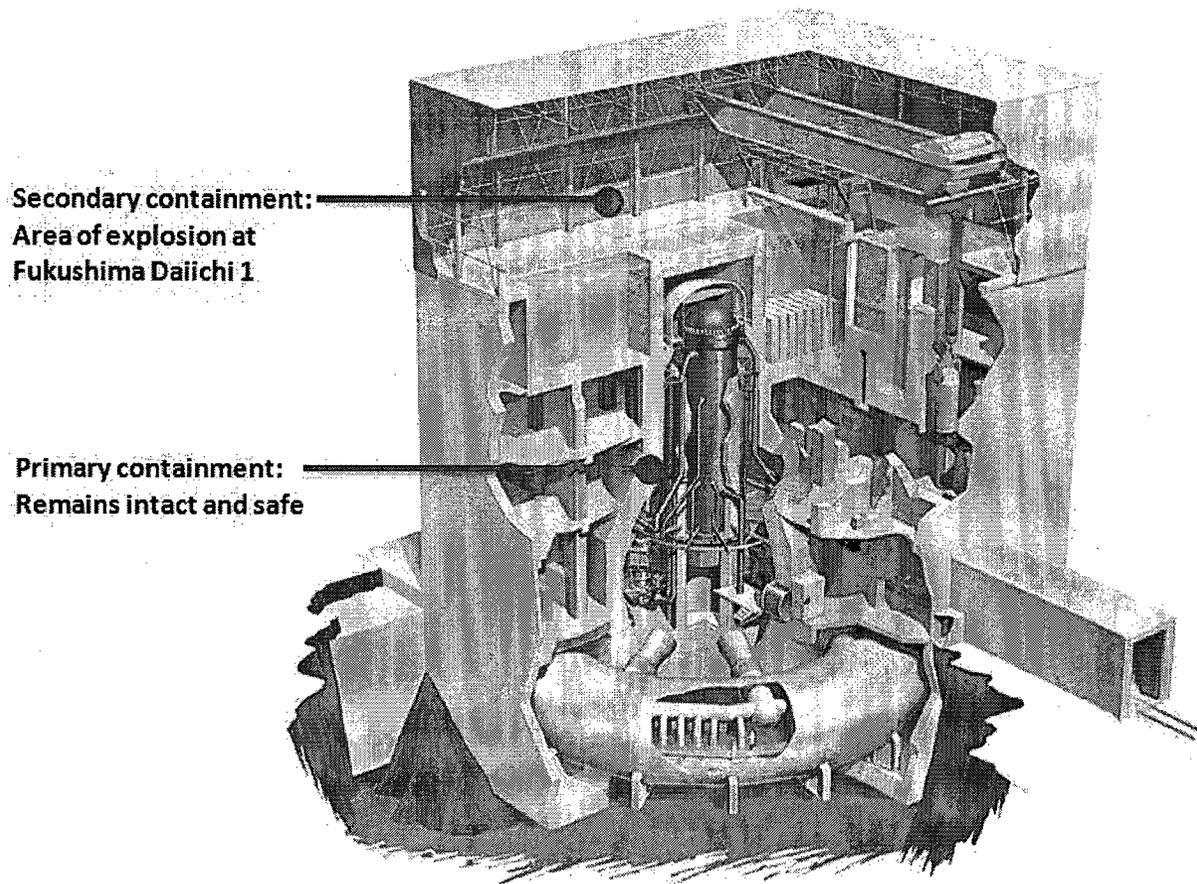
They are used to start and stop the reactor and to change reactor power (amount of nuclear fission) by individually inserting and extracting from the bottom of the reactor.

Pressure Suppression Pool

(Suppression Chamber)

It always contains water. Should pipes in the primary containment vessel ever break, leaked steam would be conducted into the pool, where it would be cooled down and condensed with a large amount of water to suppress any rise in pressure in the primary containment vessel.

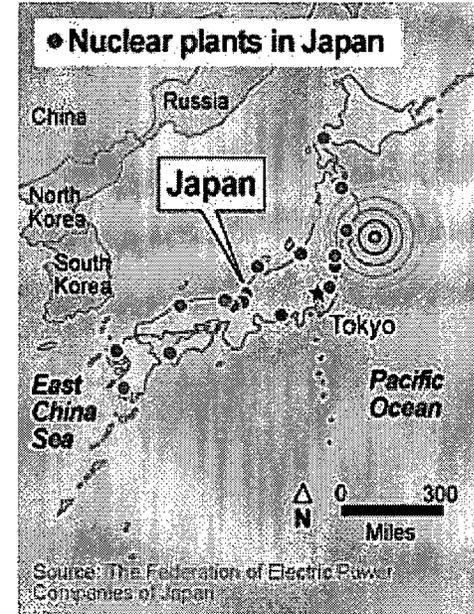
Fukushima Daiichi Unit 1



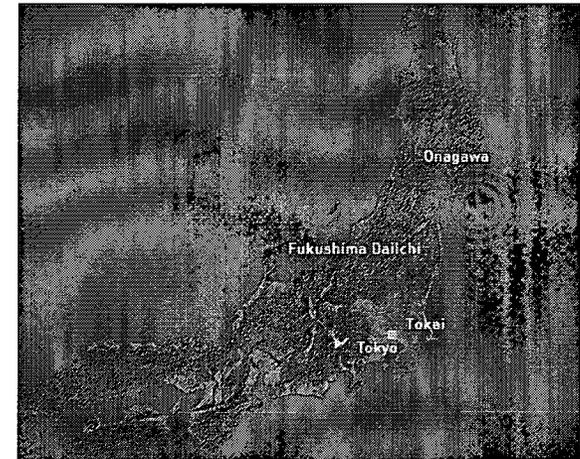
Boiling Water Reactor Design

Event Initiation

- The Fukushima nuclear facilities were damaged in a magnitude 8.9 earthquake on March 11 (Japan time), centered offshore of the Sendai region, which contains the capital Tokyo.
 - Plant designed for magnitude 8.2 earthquake. An 8.9 magnitude quake is 7 times in greater in magnitude.
- Serious secondary effects followed including a significant tsunami, significant aftershocks and a major fire at a fossil fuel installation.



By Janet Loehrke, USA TODAY



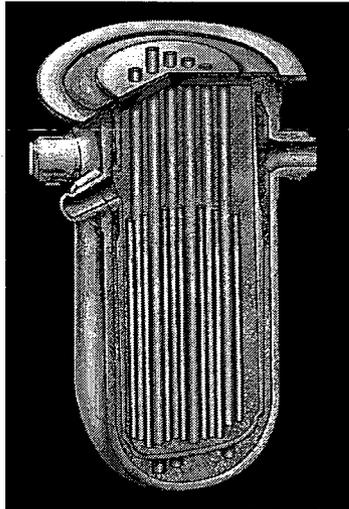
Initial Response

- Nuclear reactors were shutdown automatically. Within seconds the control rods were inserted into core and nuclear chain reaction stopped.
- Cooling systems were placed in operation to remove the residual heat. The residual heat load is about 3% of the heat load under normal operating conditions.
- Earthquake resulted in the loss of offsite power which is the normal supply to plant.
- Emergency Diesel Generators started and powered station emergency cooling systems.
- One hour later, the station was struck by the tsunami. The tsunami was larger than what the plant was designed for. The tsunami took out all multiple sets of the backup Emergency Diesel generators.
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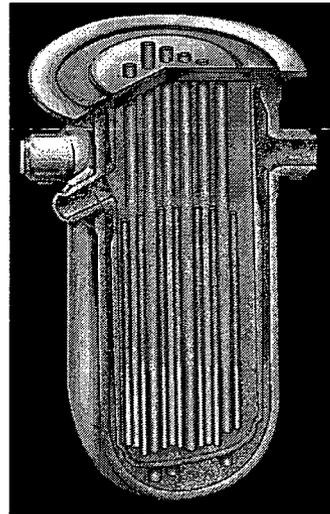
Loss of Makeup

- Offsite power could not be restored and delays occurred obtaining and connecting portable generators.
- After the batteries ran out, residual heat could not be carried away any more.
- Reactor temperatures increased and water levels in the reactor decreased, eventually uncovering and overheating the core.
- Hydrogen was produced from metal-water reactions in the reactor.
- Operators vented the reactor to relieve steam pressure - energy (and hydrogen) was released into the primary containment (drywell) causing primary containment temperatures and pressures to increase.
- Operators took actions to vent the primary containment to control containment pressure and hydrogen levels. Required to protect the primary containment from failure.
- Primary Containment Venting is through a filtered path that travels through duct work in the secondary containment to an elevated release point on the refuel floor (on top of the reactor building).
- A hydrogen detonation subsequently occurred while venting the secondary containment. Occurred shortly after and aftershock at the station. Spark likely ignited hydrogen.

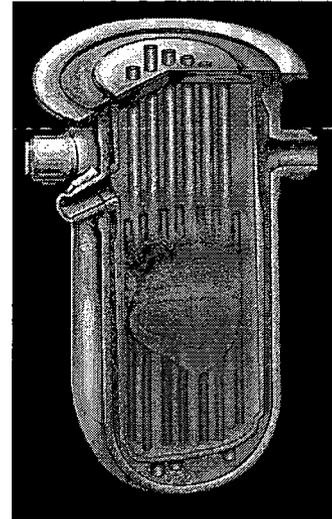
Core Damage Sequence



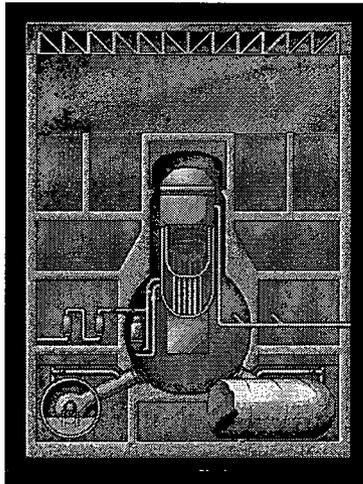
Core Uncovered



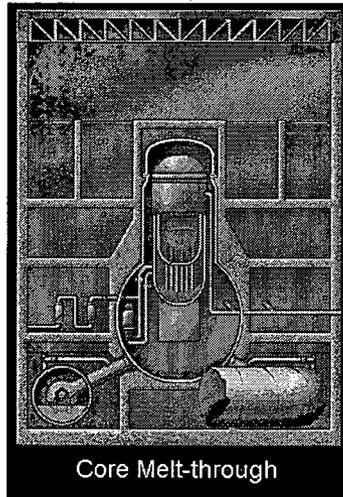
Fuel Overheating



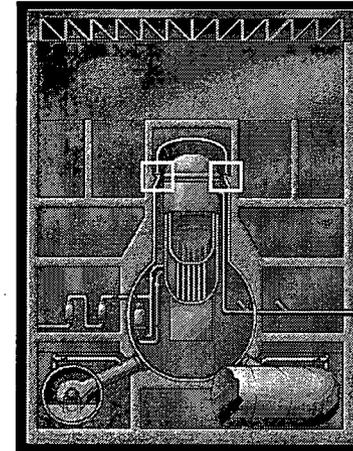
Fuel melting - Core Damaged



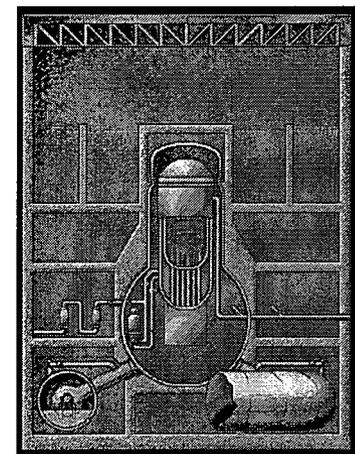
Core Damaged but retained in vessel



Core Melt-through
Some portions of core melt into lower RPV head

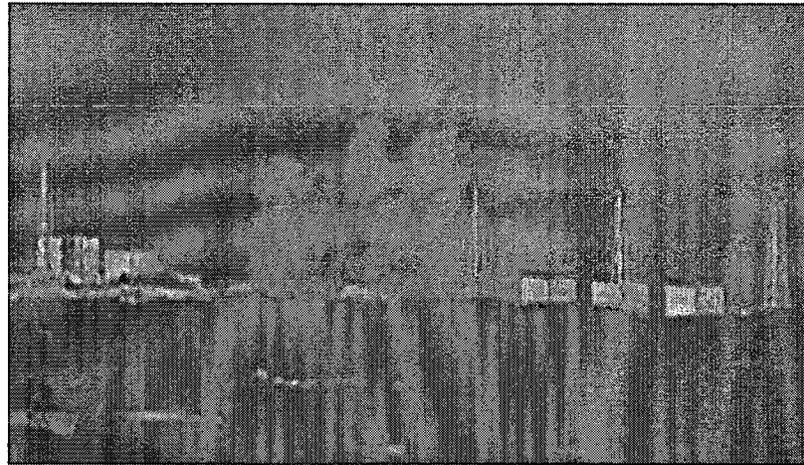


Containment pressurizes.
Leakage possible at drywell head



Releases of hydrogen into secondary containment

Hydrogen Detonation at Unit 1

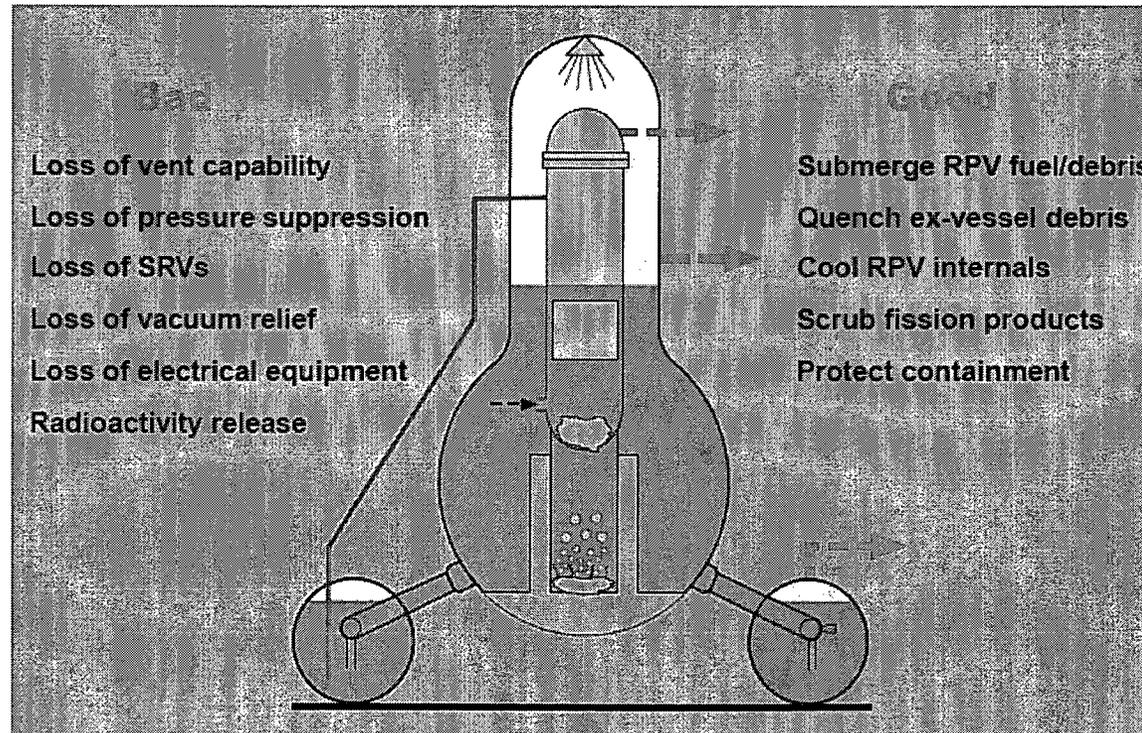


Reactor Building

Mitigating Actions

- The station was able to deploy portable generators and utilize a portable pump to inject sea water into the reactor and primary containment.
- Station was successful in flooding the primary containment to cool the reactor vessel and debris that may have been released into the primary containment.
- Boric acid was added to the seawater used for injection. Boric acid is “liquid control rod”. The boron captures neutrons and speeds up the cooling down of the core. Boron also reduces the release of iodine by buffering the containment water pH.

Containment Flooding Effects





Emergency Response

- Equivalent of General Emergency declared to the event at Unit 1.
- Evacuation of public performed within 20 km (13 miles) of plant; approximately 200,000 people evacuated.
- Similar hydrogen detonation subsequently occurred at Unit 3 on Sunday, March 14th (Japan time). Primary containment remained intact at Unit's 1 and 3 throughout the accident. There was considerable damage to the secondary containment (reactor building).
- Highest recorded radiation level at the Fukushima Daiichi site was 155.7 millirem. Radiation levels were subsequently reduced to 4.4 millirem after the after the containment was flooded. The NRC's radiation dose limit for the public is 100 millirem per year.
- Several fatalities occurred at the station along with numerous injured workers.
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FPL/DAEC Response

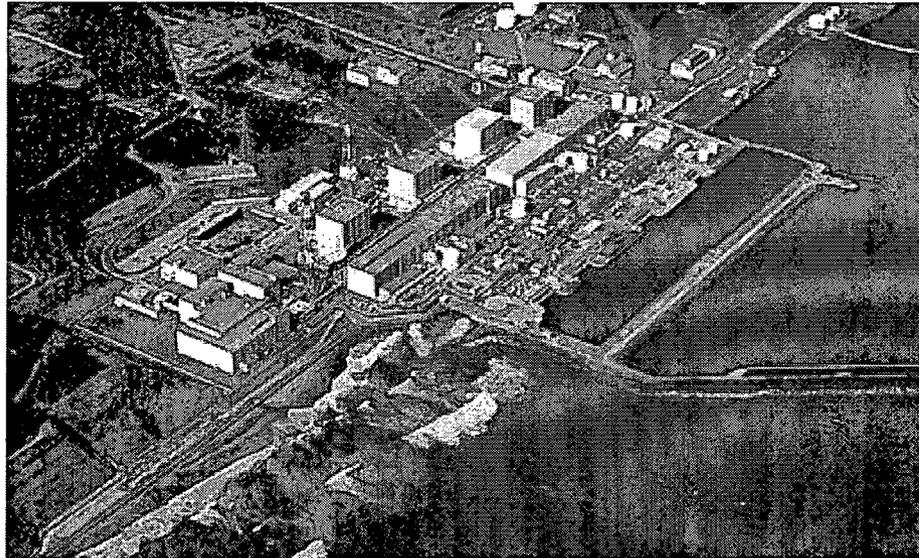
- The Juno Beach Command Center has been staffed.
- The CNO is in direct contact with INPO, NEI, and the NRC.
- Extensive evaluations are underway to validate design capabilities and vulnerabilities of all FPL units for events such as earthquakes, flooding, and extended Station Blackouts.
- Operators and Emergency Response personnel maintain a high level of readiness to respond to events including severe accidents.
- Procedures are in place to respond to events including abnormal operating procedures, emergency operating procedures, and severe accident management guidelines.
- After 9/11, stations implemented Emergency Management Guidelines designed to optimize response to large scale events such as those experienced at Fukushima.



FPL/DAEC Response

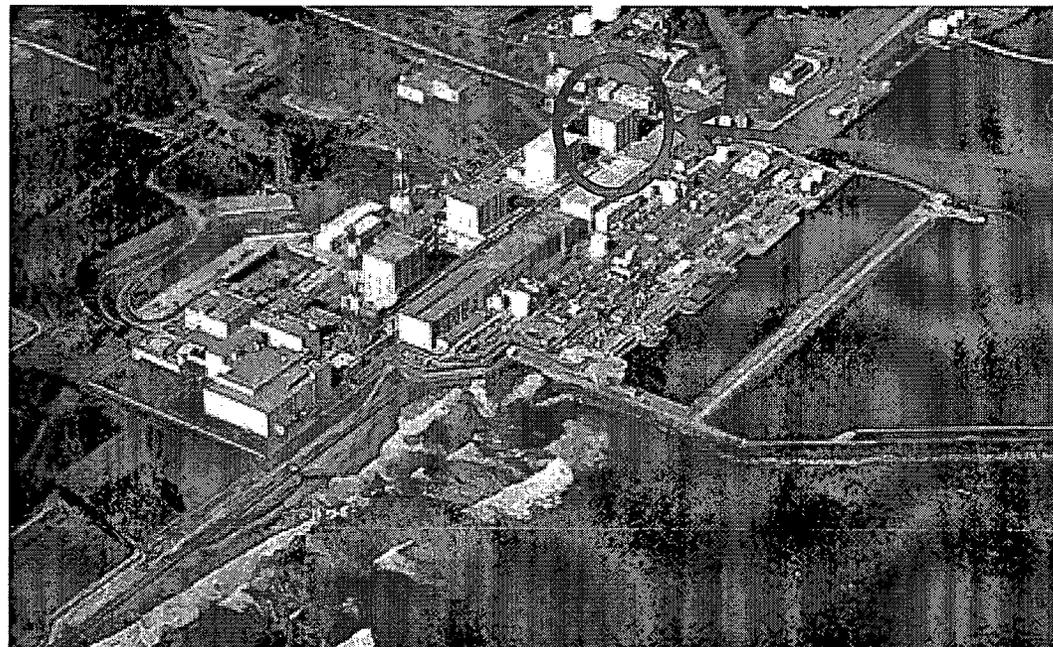
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 - Developed procedures and staged equipment needed to manually open reactor relief valves and containment vent valves under loss of power conditions
- FPL will continue to work with INPO, NEI and the NRC to access lessons learned and additional actions that can be taken to further enhance our readiness for severe accidents.

Fukushima Daiichi Nuclear Plant Event Summary and FPL/DAEC Actions



Fukushima Daiichi Nuclear Station

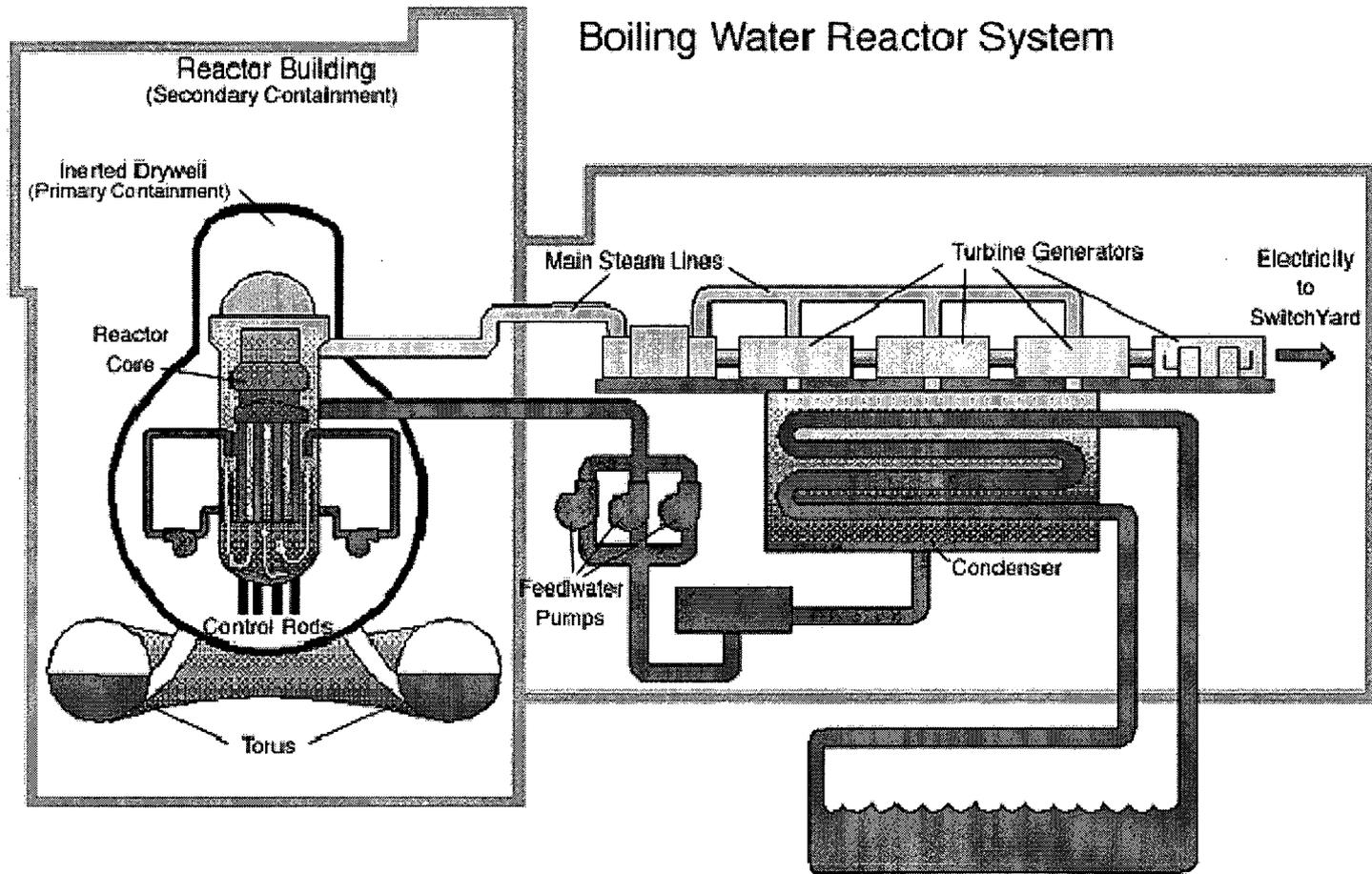
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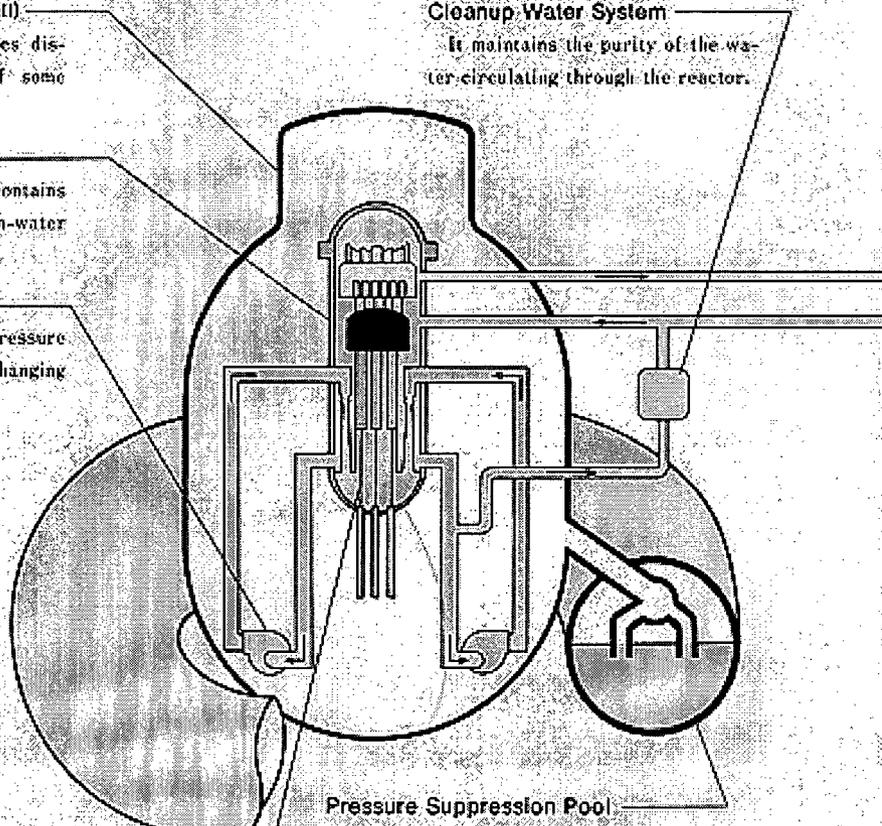
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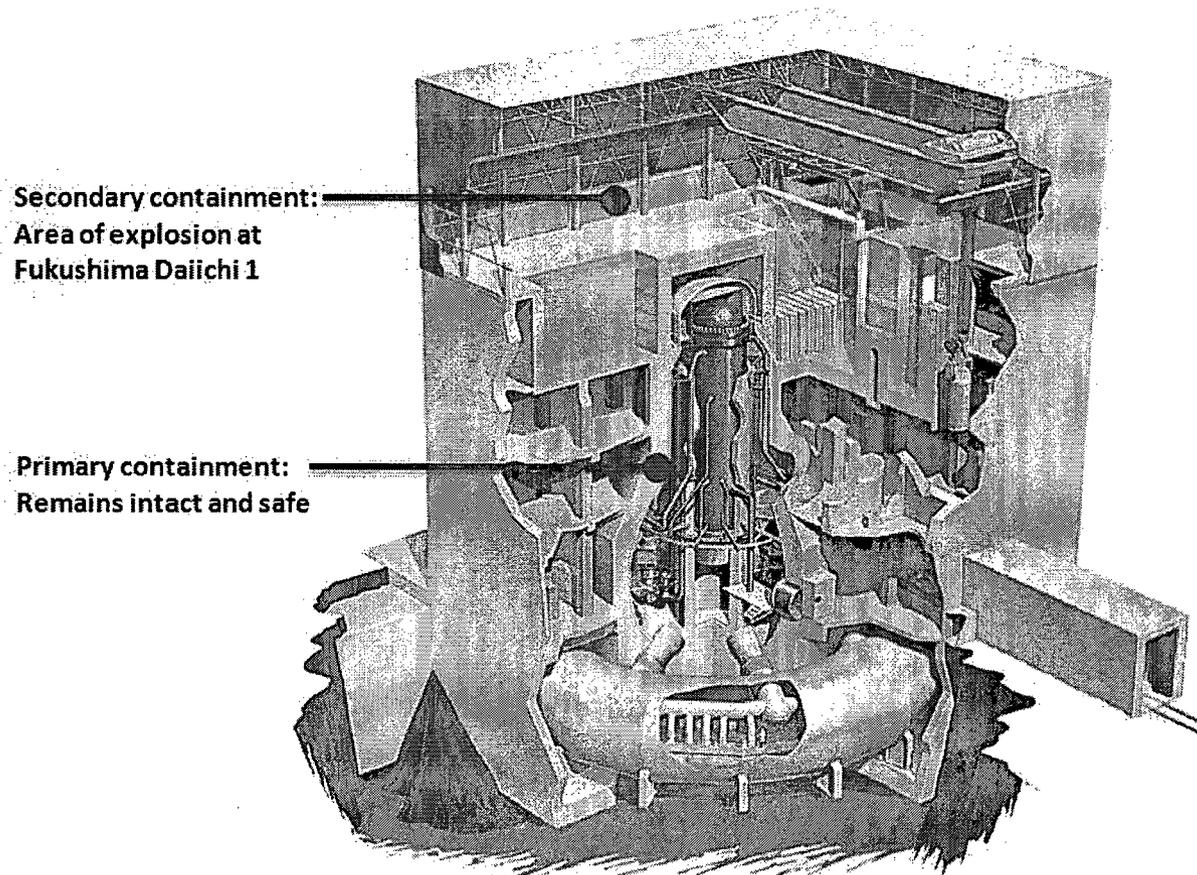
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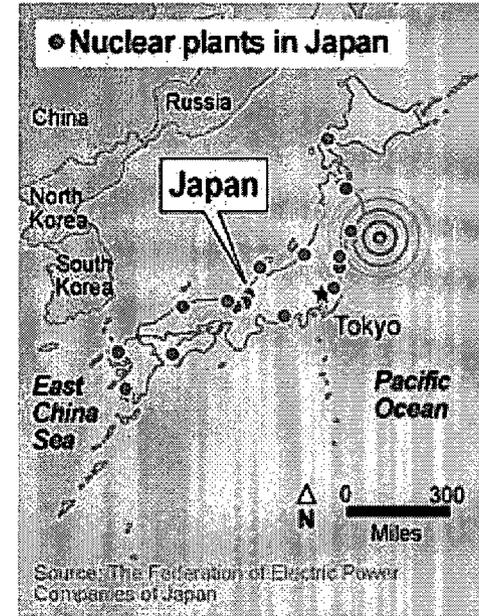
Fukushima Daiichi Unit 1



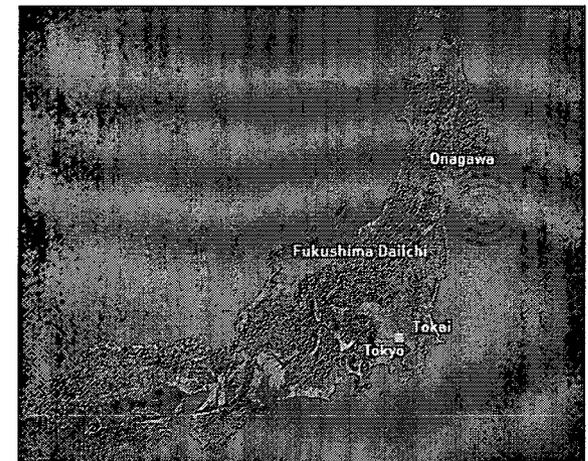
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By Janet Lohrke, USA TODAY



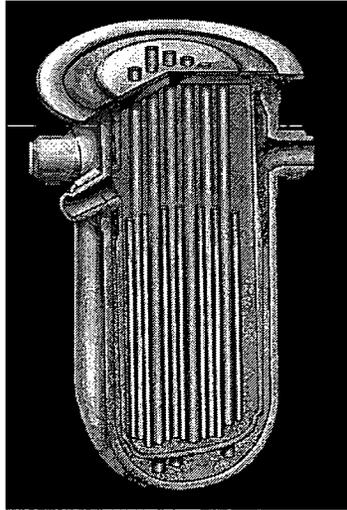
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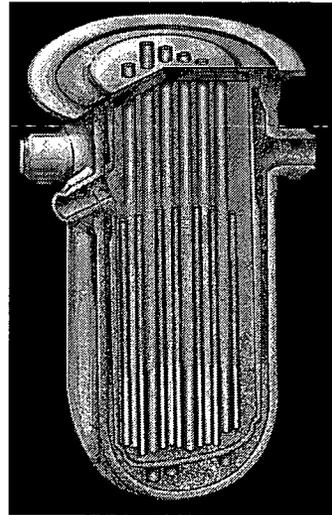
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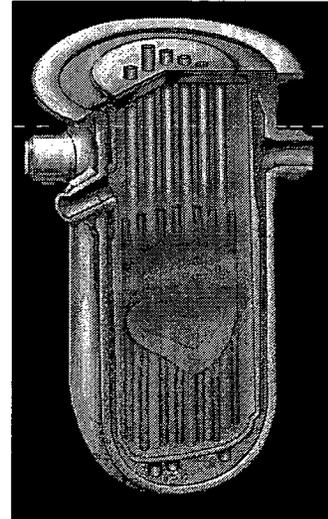
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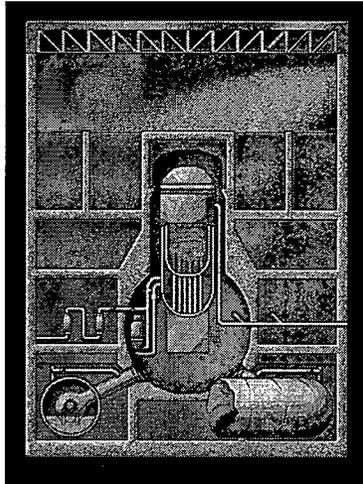
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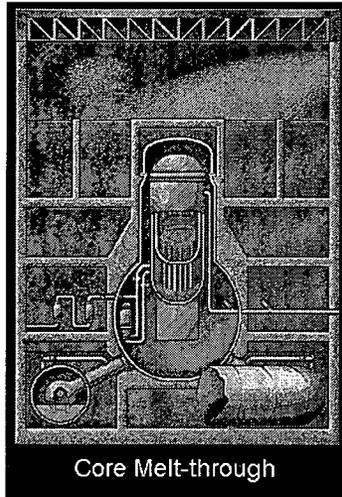
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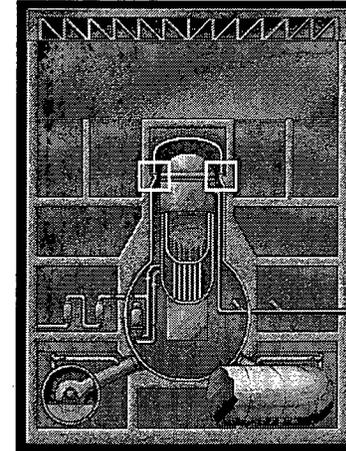


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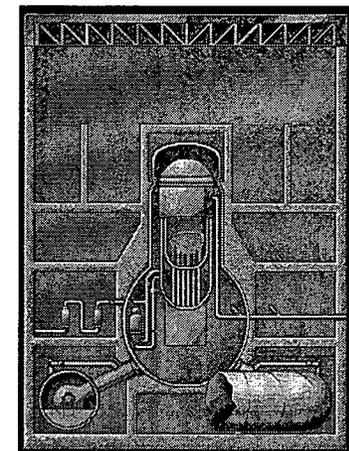


Core Melt-through

Some portions of core melt into lower RPV head

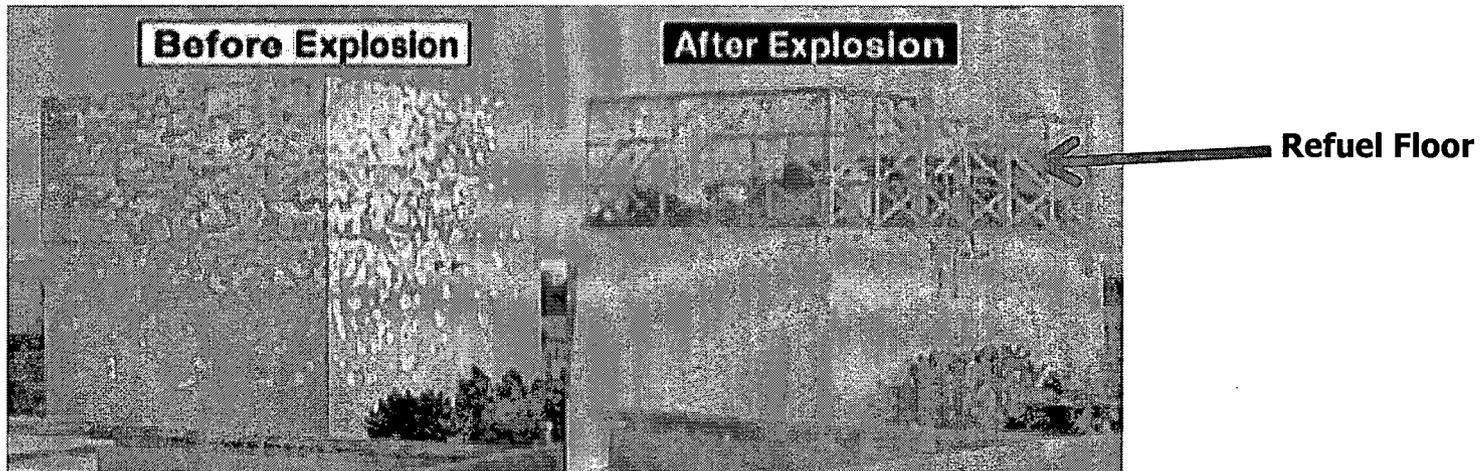
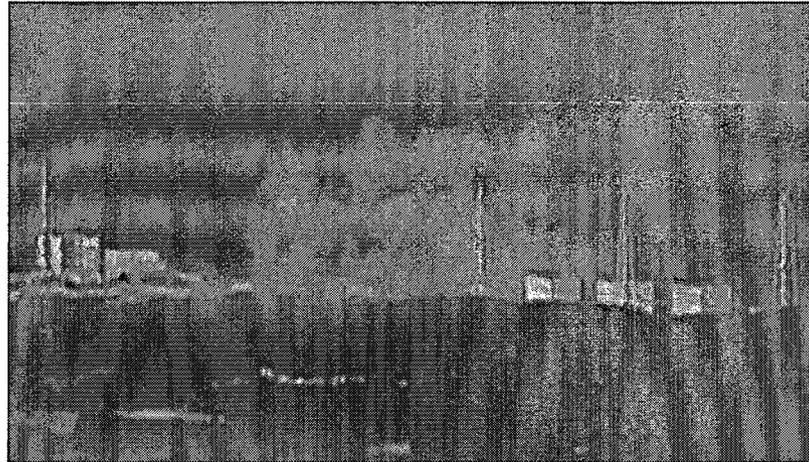


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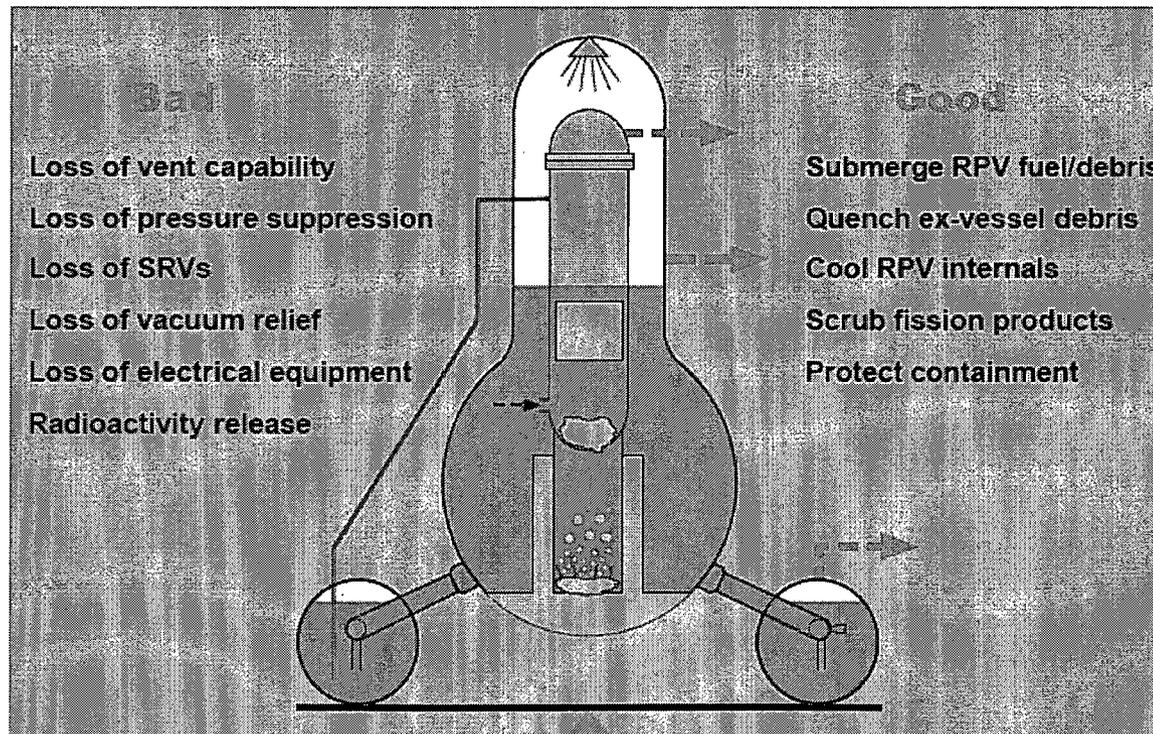


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Allen, Linda

no exemptions

From: Johnson, Timothy
Sent: Monday, April 11, 2011 4:33 PM
To: Allen, Linda
Subject: RE: Fukushima

This email is public information and can be released without an exemption applying.

From: Allen, Linda
Sent: Monday, April 11, 2011 3:03 PM
To: Johnson, Timothy
Subject: RE: Fukushima

There are 7 FOIA exemptions for you to choose from. You have to select from one of these exemptions for the document. I have a copy of the FOIA instructions if you need one.

From: Johnson, Timothy
Sent: Monday, April 11, 2011 1:37 PM
To: Allen, Linda
Subject: RE: Fukushima

Not sure what you mean by exemptions??

From: Allen, Linda
Sent: Monday, April 11, 2011 8:14 AM
To: Johnson, Timothy
Subject: RE: Fukushima

Hi. I need to know if there are exemptions.

From: Johnson, Timothy
Sent: Monday, April 11, 2011 8:14 AM
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Subject: FW: Fukushima

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From: Johnson, Timothy
Sent: Monday, March 14, 2011 4:19 PM
To: Smith, Brian; Tschiltz, Michael; Wescott, Rex
Subject: Fukushima

Attached is some stuff a friend of mine sent me.

App A

Freeman, Eric

From: Freeman, Eric
Sent: Monday, March 14, 2011 7:48 AM
To: Aguilar, Santiago; Ward, Steven; Ditto, David; Horn, Brian; Tuttle, Glenn; Grice, Thomas; Pham, Tom; Habighorst, Peter; Ani, Suzanne
Subject: Information from ANS on the Japanese Reactor Situation
Attachments: ANS Talking Points - 2011-03-13 R1_2.pdf; ANS Japan Backgrounder.pdf

Not sure if you guys are members of ANS, but they have sent around these two documents as information.

0/179

The predominance of ANS members reside in the U.S. As we interact with our family, neighbors and citizens in our communities many questions will come based on news coverage of the nuclear power plant situation in Japan. These talking points key on the theme 'could it happen in the U.S.?' *

ANS Member Talking Points

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- Nuclear power plants have proven their value to society in Japan, the United States and elsewhere. They provide large amounts of base load electricity on an around-the-clock basis, and they do so cost-effectively with the lowest electricity production costs of any large energy source. Both Japan and the United States have benefited greatly from nuclear energy; it has been instrumental in the nations' economic success over the past half century and their high standard of living.
- Our hallmark as a NS&T organization is to incorporate operating experience and lessons learned. When we fully understand the facts surrounding the event in Japan, we will share, document and use those insights to make NS&T even safer.
- Nuclear energy has been and will continue to be a key element in meeting America's energy needs. The nuclear industry sets the highest standards for safety and, through our focus on continuous learning; we will incorporate lessons learned from the events in Japan. The dominant factors determining technology used for new generation will be demand for new generation, the competitiveness of nuclear energy in comparison with other sources of electricity generation, and the continued safe operation of U.S. nuclear power plants.

- There has not been a rush to judgment on the part of U.S. policymakers during the first few days of this situation. We believe that is due in part to the recognition on their part that nuclear energy must continue to play a key role in a diversified energy portfolio that strengthens U.S. energy security and fuels economic growth.

* The genesis of this document is the NEI "Talking Points - Implications to U.S. nuclear energy program of the Japanese earthquake" dated March 13, 2011

American Nuclear Society Backgrounder: Japanese Earthquake/Tsunami; Problems with Nuclear Reactors

3/12/2011 5:22 PM EST

To begin, a sense of perspective is needed... right now, the Japanese earthquake/tsunami is clearly a catastrophe; the situation at impacted nuclear reactors is, in the words of IAEA, an "Accident with Local Consequences."

The Japanese earthquake and tsunami are natural catastrophes of historic proportions. The death toll is likely to be in the thousands. While the information is still not complete at this time, the tragic loss of life and destruction caused by the earthquake and tsunami will likely dwarf the damage caused by the problems associated with the impacted Japanese nuclear plants.

What happened?

Recognizing that information is still not complete due to the destruction of the communication infrastructure, producing reports that are conflicting, here is our best understanding of the sequence of events at the Fukushima I-1 power station.

- The plant was immediately shut down (scrammed) when the earthquake first hit. The automatic power system worked.
- All external power to the station was lost when the sea water swept away the power lines.
- Diesel generators started to provide backup electrical power to the plant's backup cooling system. The backup worked.
- The diesel generators ceased functioning after approximately one hour due to tsunami induced damage, reportedly to their fuel supply.
- An Isolation condenser was used to remove the decay heat from the shutdown reactor.
- Apparently the plant then experienced a small loss of coolant from the reactor.
- Reactor Core Isolation Cooling (RCIC) pumps, which operate on steam from the reactor, were used to replace reactor core water inventory, however, the battery-supplied control valves lost DC power after the prolonged use.
- DC power from batteries was consumed after approximately 8 hours.
- At that point, the plant experienced a complete blackout (no electric power at all).
- Hours passed as primary water inventory was lost and core degradation occurred (through some combination of zirconium oxidation and clad failure).

- Portable diesel generators were delivered to the plant site.
- AC power was restored allowing for a different backup pumping system to replace inventory in reactor pressure vessel (RPV).
- Pressure in the containment drywell rose as wetwell became hotter.
- The Drywell containment was vented to outside reactor building which surrounds the containment.
- Hydrogen produced from zirconium oxidation was vented from the containment into the reactor building.
- Hydrogen in reactor building exploded causing it to collapse around the containment.
- The containment around the reactor and RPV were reported to be intact.
- The decision was made to inject seawater into the RPV to continue to the cooling process, another backup system that was designed into the plant from inception.
- Radioactivity releases from operator initiated venting appear to be decreasing.

Can it happen here in the US?

- While there are risks associated with operating nuclear plants and other industrial facilities, the chances of an adverse event similar to what happened in Japan occurring in the US is small.
- Since September 11, 2001, additional safeguards and training have been put in place at US nuclear reactors which allow plant operators to cool the reactor core during an extended power outage and/or failure of backup generators – “blackout conditions.”

Is a nuclear reactor "meltdown" a catastrophic event?

- Not necessarily. Nuclear reactors are built with redundant safety systems. Even if the fuel in the reactor melts, the reactor's containment systems are designed to prevent the spread of radioactivity into the environment. Should an event like this occur, containing the radioactive materials could actually be considered a "success" given the scale of this natural disaster that had not been considered in the original design. The nuclear power industry will learn from this event, and redesign our facilities as needed to make them safer in the future.

What is the ANS doing?

ANS has reached out to The Atomic Energy Society of Japan (AESJ) to offer technical assistance.

ANS has established an incident communications response team.

This team has compiling relevant news reports and other publicly available information on the ANS blog, which can be found at ansnuclearcafe.org.

The team is also fielding media inquiries and providing reporters with background information and technical perspective as the events unfold.

Finally, the ANS is collecting information from publicly available sources, our sources in government agencies, and our sources on the ground in Japan, to better understand the extent and impact of the incident.

~~Grice, Thomas~~

From: Grice, Thomas
Sent: Monday, March 14, 2011 2:01 PM
To: Freeman, Eric; Aguilar, Santiago
Subject: RE: Some sensible comments...

Wouldn't want to bother mentioned how designs have progressed through the years. People might start asking when ours were designed and start to obstruct the renewal processes.

From: Freeman, Eric
Sent: Monday, March 14, 2011 1:23 PM
To: Aguilar, Santiago; Grice, Thomas
Subject: Some sensible comments...

Could be a lot worse :-p

“The president believes that meeting our energy needs means relying on a diverse set of energy sources that includes renewables like wind and solar, natural gas, clean coal and nuclear power,” said Clark Stevens, a White House spokesman. “Information is still coming in about the events unfolding in Japan, but the administration is committed to learning from them and ensuring that nuclear energy is produced safely and responsibly here in the U.S.”

B/80

App A

Grice, Thomas

From: Grice, Thomas
Sent: Monday, March 14, 2011 10:57 AM
To: Habighorst, Peter; Pham, Tom; Horn, Brian; Ward, Steven; Tuttle, Glenn; Aguilar, Santiago; Ani, Suzanne; Ditto, David; Freeman, Eric
Subject: RE: BRANCH CHIEF ACTION: PUBLIC MEETINGS IN THE NEXT 2 WEEKS

None.

From: Habighorst, Peter
Sent: Monday, March 14, 2011 10:03 AM
To: Pham, Tom; Grice, Thomas; Horn, Brian; Ward, Steven; Tuttle, Glenn; Aguilar, Santiago; Ani, Suzanne; Ditto, David; Freeman, Eric
Subject: FW: BRANCH CHIEF ACTION: PUBLIC MEETINGS IN THE NEXT 2 WEEKS
Importance: High

I am not aware of any public meetings between March 14 – March 31?? Please confirm ... thanks

From: Tschiltz, Michael
Sent: Monday, March 14, 2011 10:00 AM
To: Smith, Brian; Campbell, Larry; Habighorst, Peter; Hiltz, Thomas; Silva, Patricia; Johnson, Robert
Cc: Bailey, Marissa; Smith, James; Doolittle, Elizabeth
Subject: BRANCH CHIEF ACTION: PUBLIC MEETINGS IN THE NEXT 2 WEEKS
Importance: High

Branch Chiefs.. Please put together a list of all public meetings that you are scheduled to conduct in the next 2 weeks and provide to Jim Smith by noon today.

Please include purpose, location and people planned to participate in the meeting. This is to ensure that we make sure that the people involved in these interactions are in a position to appropriately respond to questions concerning the events in Japan.

Thanks, Mike

B/81

Murphy, Martin

From: Hall, Victor (NYO)
Sent: Monday, March 14, 2011 12:05 PM
To: Murphy, Martin
Subject: scary pics from japan

<http://www.nytimes.com/interactive/2011/03/13/world/asia/satellite-photos-japan-before-and-after-tsunami.html?hp>

B/82

From: Robles, Jesse *JNR*
Subject: New OpE Forum COMM Posting - Callaway - SIT Due To Loss of Lubrication to the Turbine Driven Auxiliary Feedwater Pump (TDAFWP) Bearing
Date: Monday, March 14, 2011 3:24:03 PM

This e-mail is being sent to notify recipients of a new posting on the [@Operating Experience Community Forum](#). Recipients are expected to review the posting for applicability to their areas of regulatory responsibility and consider appropriate actions. However, information contained in the posting is not tasking; therefore, no specific action or written response is required.

Information Security Reminder: this link is on NRC's Internal Web site and may contain sensitive information. Please check with the information owner before distributing outside the agency.

The posting may be reviewed at: <http://nrr10.nrc.gov/forum/forumtopic.cfm?selectedForum=03&forumId=AllComm&topicId=3239>.

It is being provided to the following groups and individuals: ***All Communications, Auxiliary Feedwater, ECCS, Emergency Diesel Generators, Human Performance, Inspection Programs, New Reactors, Pump and Valve Performance, Safety Culture, SIT/AIT***

To unsubscribe from this distribution list or to subscribe to a different list on the OpE Community, please visit <http://nrr10.nrc.gov/rps/dyn/subscription1.cfm>.

For more information on the Reactor OpE Program, please visit our OpE Gateway at: <http://nrr10.nrc.gov/ope-info-gateway/index.html>

Jesse E. Robles
U.S. Nuclear Regulatory Commission
Reactor Systems Engineer
NRR/DIRS/IOEB
301-415-2940
301-415-3061 (fax)
Jesse.Robles@nrc.gov

release

B/82

release

NRR

From: [King, Mark](#)
To: [Thorp, John](#); [Thomas, Eric](#); [Boger, Bruce](#); [Brown, Frederick](#)
Cc: [Burnell, Scott](#)
Subject: Earlier 2007 briefing material --Briefing on Effects of Japanese Earthquake -- from July 2007
Date: Monday, March 14, 2011 7:50:48 AM

CAUTION : The following info is from an **INTERNAL** NRC - NRR/ DIRS/IOEB (Operating Experience Branch) briefing given on the earlier Japanese earthquake back in **July 2007**.

From **slide 18** of 41 –

US Reactor Seismic Design

- Existing US reactors were designed based on calculation of site-specific Safe Shutdown Earthquakes (SSE) (Appendix A to 10 CFR Part 100), with additional requirements for a minimum amount of protection even for low hazard areas.

- Only 2 US nuclear plants with active faults located nearby. Both have automatic seismic trips.

- **Diablo Canyon** (CA) – fault 5 km away

- Fault identified after plant was licensed

- Plant retrofitted to withstand an earthquake with a magnitude of 7.5

- **San Onofre** (CA) – fault 8 km away (hypothesized fault) • Plant designed to withstand an earthquake with a magnitude of 7.0

- Other plants in the US have seismic instruments and requirements for manual shutdown at specified levels.

INTERNAL NRC BRIEFING INFORMATION LINK

<http://nrr10.nrc.gov/rorp/docs/effects-of-japanese-earthquake-distribution-mj-072407.pdf>

B/84

release

From: [Boger, Bruce](#) *NRR*
To: [Nguyen, Quynh](#); [Meighan, Sean](#)
Subject: FW: Earlier 2007 briefing material --Briefing on Effects of Japanese Earthquake -- from July 2007
Date: Tuesday, March 15, 2011 10:10:00 AM

Potential posting for the SharePoint site. It provides a historical perspective from the last quake in Japan that impacted NPPs.

From: King, Mark
Sent: Monday, March 14, 2011 7:51 AM
To: Thorp, John; Thomas, Eric; Boger, Bruce; Brown, Frederick
Cc: Burnell, Scott
Subject: Earlier 2007 briefing material --Briefing on Effects of Japanese Earthquake -- from July 2007

CAUTION : The following info is from an **INTERNAL** NRC - NRR/ DIRS/IOEB (Operating Experience Branch) briefing given on the earlier Japanese earthquake back in **July 2007**.

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- Other plants in the US have seismic instruments and requirements for manual shutdown at specified levels.

INTERNAL NRC BRIEFING INFORMATION LINK

<http://nrr10.nrc.gov/rorpd/docs/effects-of-japanese-earthquake-distribution-mj-072407.pdf>

B/85

release

From: [Haskell, Russell](#) *NRC*
Subject: New OpE Forum COMM Posting - DAVIS-BESSE - Radio Frequency Interference from Walkie Talkie Causes Licensee to Declare a Loss of Emergency Feedwater
Date: Friday, March 18, 2011 5:08:10 PM

This e-mail is being sent to notify recipients of a new posting on the [@Operating Experience Community Forum](#). Recipients are expected to review the posting for applicability to their areas of regulatory responsibility and consider appropriate actions. However, information contained in the posting is not tasking; therefore, no specific action or written response is required.

Information Security Reminder: this link is on NRC's Internal Web site and may contain sensitive information. Please check with the information owner before distributing outside the agency.

The posting may be reviewed at: <http://nrr10.nrc.gov/forum/forumtopic.cfm?selectedForum=03&forumId=SW&topicId=3265&CFID=86342&CFTOKEN=82223744>

It is being provided to the following groups and individuals: ***All Communications, Auxiliary Feedwater, Control Room Habitability, Cyber Security, ECCS, Electrical Power Systems, Emergency Diesel Generators, Fire Protection, Human Performance, HVAC, Instrumentation and Controls, Main Steam & Condensate/Feed Systems, Pump and Valve Performance, Safety Culture, Shutdown Risk, Station Service Water Systems & Ultimate Heat Sink***

To unsubscribe from this distribution list or to subscribe to a different list on the OpE Community, please visit <http://nrr10.nrc.gov/rps/dyn/subscription1.cfm>.

For more information on the Reactor OpE Program, please visit our OpE Gateway at: <http://nrr10.nrc.gov/ope-info-gateway/index.html>

Russell S. Haskell II

United States Nuclear Regulatory Commission (NRC)
Reactor Systems Engineer (NRR/DIRS/IOEB)
Russell.Haskell@nrc.gov | 301.415.1129 | O-7H23

B/186

From: [NRC Announcement](#)
To: [NRC Announcement](#)
Subject: Daily: 5 New Items from Monday, March 14, 2011
Date: Monday, March 14, 2011 10:02:37 PM

NRC Daily Announcements



Highlighted Information and Messages



Monday March 14, 2011 -- Headquarters Edition

[Employee Resources: Rotational Opportunity - NRO/NPLS, Team Leader for Design Center Support, GG-14/15](#)

[General Interest: Call for Veterans' Success Stories](#)

[Security/Safety: Japan Earthquake and Tsunami Disaster Fake Web Sites, E-mail Scams, Fake Antivirus and Phishing Attack Warning](#)

[Employee Resources: Do You Know Your EAP?](#)

[Employee Resources: Rotational Opportunity - RES/SPB, Management Analyst, GG-9/11/12 - Two Positions](#)

Employee Resources: Rotational Opportunity - NRO/NPLS, Team Leader for Design Center Support, GG-14/15

The **Office of New Reactors, Division of New Reactor Licensing, Planning and Scheduling Branch** has a 3- to 4-month rotational opportunity for **GG-14** or **GG-15** employees interested in an assignment as the **Team Leader for Design Center Support**:

Detailed information is available on the [NRC internal Web page](#).

If you have difficulty accessing a Web link in this announcement, contact the [NRC Announcement Coordinator](#), Beverly Martin, ADM/DAS, 301-492-3674.



(2011-03-14 00:00:00.0)

[View item in a new window](#)

General Interest: Call for Veterans' Success Stories

Attention NRC Military Veterans

Do you have an interesting story to tell about your conversion from military service to civilian service with the NRC? If so, please visit the [Office of Personnel Management Website](#) to learn more about how to submit your story to inspire others to continue or pursue a career in Federal service. Selected stories will be posted on the Website, and could be chosen for an upcoming video focusing on veterans in Federal service.

For assistance or more information, please contact [Len Carsley](#).



(2011-03-14 00:00:00.0)

[View item in a new window](#)

B/87

Security/Safety: Japan Earthquake and Tsunami Disaster Fake Web Sites, E-mail Scams, Fake Antivirus and Phishing Attack Warning

NRC has learned of incorrect information relating to the disaster in Japan being released to the public via Web sites using the NRC logo. Per the March 13th news release, 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](#) or [blog](#).

Also, US-CERT has warned users of potential email scams, fake antivirus scams, and phishing attacks that use the Japan earthquake and the tsunami disasters to potentially redirect users to malicious sites or otherwise target them. These e-mail scams may contain links or attachments which may direct users to phishing or malware-laden websites. Fake antivirus attacks may come in the form of pop-ups that flash security warnings and ask the user for credit card information. Phishing emails and bogus Websites requesting donations for charitable organizations commonly appear after these types of natural disasters.

The following recommendations are provided to assist users in avoiding these types of malicious attacks:

- Do not follow unsolicited web links or attachments in e-mail messages.
- Review the US-CERT [Recognizing Fake Antivirus](#) document for additional information on recognizing fake antivirus.
- Refer to the US-CERT [Avoiding Social Engineering and Phishing Attacks](#) document for additional information on social engineering attacks.
- Refer to the US-CERT [Recognizing and Avoiding E-mail Scams \(pdf\)](#) document for additional information on avoiding e-mail scams.
- Review the Federal Trade Commission's [Charity Checklist](#).
- Verify the legitimacy of the email by contacting the organization directly through a trusted contact number. Trusted contact information can be found on the Better Business Bureau [National Charity Report Index](#).

If you suspect that a Web site or e-mail is not legitimate or appears to be suspicious in nature, please **do not** open it, reply to it, or click on any links/files found. Instead, forward the information as an attachment to the [Computer Security Incident Response Team](#) for analysis or call 301-415-6666.



(2011-03-14 00:00:00.0)

[View item in a new window](#)

Employee Resources: Do You Know Your EAP?

Do you know your EAP?

Most employees and managers think that NRC's Employee Assistance Program (EAP) only provides counseling for personal problems. It does. However, when you ask these folks if they were aware of other services offered by the EAP such as legal, financial, childcare and eldercare assistance for both employees and their dependants, the majority answer a resounding no. Additionally, beside these highlighted services offered by your EAP, you may be unaware of others such as

management consultation, training, and coaching for employees and work groups.

Promoting Work/Life Balance through Training, Consultation and Coaching

The EAP staff want you to know that the EAP Program is part of NRC's work-life balance strategy to improve organizational effectiveness and to integrate work and personal life. By promoting such balance, the EAP helps make NRC "the best place to work" among all Federal Agencies, and has done so for several years. It does this by offering help in those areas that affect you both on-and-off-the job.

Accessing Services

By now you should have received a mailing of our EAP brochure and wallet card which highlights the many services offered by your EAP program. EAP Consultants, Inc. (EAPC) is NRC EAP contractor. You may also visit EAPC [Website](#). Go to member access and click on EAP Employee Orientation. The NRC passcode is "nuclear". You may call the EAP 24 hours a day, 7 days a week at 1-800-869-0276.

Future Events

Please look for upcoming articles and a listing of our lunch and learn discussion series on various work-life topics.



(2011-03-14 00:00:00.0)

[View item in a new window](#)

Employee Resources: Rotational Opportunity - RES/SPB, Management Analyst, GG-9/11/12 - Two Positions

The **Office of Nuclear Regulatory Research, Division of Systems Analysis, Special Projects Branch**, has two rotational opportunities for a **Management Analyst GG-09/11/12**. The primary SPB project requiring support is the State-of-the-Art Reactor Consequence Analyses conducted with two power plant licensees. Each rotation will last for 4-6 months, beginning in March 2011.

Detailed information is available on the [NRC internal Web page](#).

If you have difficulty accessing a Web link in this announcement, contact the [NRC Announcement Coordinator](#), Beverly Martin, ADM/DAS, 301-492-3674.



(2011-03-14 00:00:00.0)

[View item in a new window](#)

The latest Announcements are always on the [NRC@WORK Home Page](#).

[Announcements by Date](#) | [Announcements by Category](#)

Search Announcements:

Frequently Asked Questions About the NRC Daily Announcements Email

Miller, Geoffrey

From: Allen, Don
Sent: Monday, March 14, 2011 7:59 AM
To: Lantz, Ryan; Warnick, Greg; Reynoso, John; Micewski, Laura; Kennedy, Kriss; Pruett, Troy
Cc: Jayroe, Peter; Miller, Geoffrey; Deese, Rick
Subject: ANS Update on Japan Situation
Attachments: ANS Japan Backgrounder.pdf

The attached file has a better description of what (possibly) happened than anything I saw on the news.

Don

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

From: Joe Colvin [<mailto:president@ans.org>]
Sent: Saturday, March 12, 2011 5:39 PM
To: Allen, Don
Subject: Update on Japan Situation

Dear ANS Members:

I'm sure you are aware of the rapidly developing situation in Japan. The ANS is working on multiple fronts to collect credible information on the incident, and distribute that information through mainstream and social media outlets.

We have communicated with our counterparts at the Atomic Energy Society of Japan to offer any technical or other assistance which may be of help.

We have set up a special page on the ANS blog (<http://ansnuclearcafe.org>) to aggregate media reports and provide additional information when we consider it to be credible.

We are also working to organize television appearances and other media availabilities for our members so that some of the misinformation that has been presented by anti-nuclear groups can be rebutted with facts. Our goal is not necessarily to be the first on the air, but to be the most credible.

Attached you will find some talking points, along with our current analysis of the sequence of events at Fukushima I-1. I encourage you to talk to your social networks to ensure that people have the right facts and the proper perspective on this incident.

Let me know what other actions our Society should be taking during this nuclear incident.

My thoughts and prayers go out to the people of Japan.

Respectfully,

Joe Colvin

B/108

American Nuclear Society Backgrounder: Japanese Earthquake/Tsunami; Problems with Nuclear Reactors

3/12/2011 5:22 PM EST

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- An Isolation condenser was used to remove the decay heat from the shutdown reactor.
- Apparently the plant then experienced a small loss of coolant from the reactor.
- Reactor Core Isolation Cooling (RCIC) pumps, which operate on steam from the reactor, were used to replace reactor core water inventory, however, the battery-supplied control valves lost DC power after the prolonged use.
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Finally, the ANS is collecting information from publicly available sources, our sources in government agencies, and our sources on the ground in Japan, to better understand the extent and impact of the incident.

Howell, Art

From: Kennedy, Kriss
Sent: Monday, March 14, 2011 11:20 AM
To: Collins, Elmo; Howell, Art
Subject: FW: ANS Update on Japan Situation
Attachments: ANS Japan Backgrounder.pdf

FYI

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

From: Allen, Don
Sent: Monday, March 14, 2011 7:59 AM
To: Lantz, Ryan; Warnick, Greg; Reynoso, John; Micewski, Laura; Kennedy, Kriss; Pruett, Troy
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Let me know what other actions our Society should be taking during this nuclear incident.

My thoughts and prayers go out to the people of Japan.

Respectfully,

Joe Colvin

B/89

From: [NRR HIGNFY Resource](#)
To: [NRR Distribution](#)
Subject: Special Edition HIGNFY - Response to Recent Events in Japan - Maintain Effective Communication and Coordination
Date: Monday, March 14, 2011 6:01:03 PM

- March 14, 2011 -

*** SPECIAL EDITION *
Have I Got News For You!**

Office of Nuclear Reactor Regulation Mission Statement

NRR supports the NRC mission to protect public health, safety, and the environment by developing and implementing rulemaking, licensing, oversight, and incident response programs for reactors. We conduct these activities in a manner that develops trust and is consistent with the NRC organizational values.

**Response to Recent Events in Japan
Maintain Effective Communication and Coordination**

As you are all aware from the Agency wide e-mails, the NRC Operations Center is being manned 24 hours a day to support monitoring of the situation in Japan. Many of your NRR colleagues are involved with this effort.

Here in NRR, we can look forward in the coming days and months to many questions about the situation in Japan and the relevance to domestic nuclear facilities. The staff in the Operations Center has already been working on these types of questions and answers. It will be important to maintain effective communication and coordination between the work done in the Office, and the work done in the Operations Center.

In an effort to minimize disruption of Operations Center activities, NRR has designated Eric Thomas (eric.thomas@nrc.gov) in NRR's Operating Experience Branch to be the focused single point of contact for information requests that NRR staff may have for the Reactor Safety and Preventative Measures Teams in the Operations Center.

If you are assigned a task involving event questions and answers, please let Eric know so that he can coordinate with the Operations Center to ensure that we are providing consistent responses. If you are contacted directly by staff in the Operations Center, please respond to the request promptly, and provide an electronic copy of your response to Eric so that he can maintain the response for future use by others.

Thanks for your cooperation and assistance!

B190



NCR
From: [Hon. Andrew](#)
To: [NRR DPR PLPB Distribution](#)
Subject: press releases from our Japanese counterpart
Date: Monday, March 14, 2011 11:40:21 AM

While I was on the 7th floor, my next cube is a foreign assignee from the Japanese "NRC" NISA. Here is link to their website for press releases on the situation in Japan.
<http://www.nisa.meti.go.jp/english/index.html>

Andy

B/91

From: [Leeds, Eric](#)
To: [Johnson, Michael](#)
Cc: [Holahan, Gary](#); [Grobe, Jack](#); [Boger, Bruce](#); [Ruland, William](#)
Subject: RE: Recommendation for proactive action by NRC in light of Japan events
Date: Monday, March 14, 2011 5:52:52 PM

I like Gary's thought also. Now's the time. NRR's lead.

Eric J. Leeds, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
301-415-1270

From: Johnson, Michael
Sent: Monday, March 14, 2011 2:02 PM
To: Holahan, Gary
Cc: Leeds, Eric; Virgilio, Martin; Borchartt, Bill; Grobe, Jack; Boger, Bruce; Sheron, Brian; Williams, Donna; Wiggins, Jim
Subject: RE: Recommendation for proactive action by NRC in light of Japan events

Thanks Gary. NRR's lead of course. I like the idea using this as an opportunity to highlight the importance of previous requirements/actions as a proactive step. We will need to think about the correct vehicle. I also like having industry involved up front in whatever we decide to do.

From: Holahan, Gary
Sent: Monday, March 14, 2011 1:55 PM
To: Johnson, Michael
Cc: Leeds, Eric; Virgilio, Martin; Borchartt, Bill; Grobe, Jack; Boger, Bruce; Sheron, Brian; Williams, Donna; Wiggins, Jim
Subject: Recommendation for proactive action by NRC in light of Japan events

Mike,

The events in Japan reinforce the importance of preparedness for the unexpected. In that light, I suggest that NRC take some form of proactive step to reinforce both the Severe Accident Management Guidelines and the 50.54 (hh) (formerly B.5.b) protection for "Loss of Large Area of the plant from fires and explosions".

50.54 (hh) seems particularly relevant, stating "Each licensee shall develop and implement guidance and strategies intended to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities under the circumstances associated with loss of large areas of the plant due to explosions or fire..."

The NRC could issue Orders, Bulletins, or letters on an expedited basis (in the next few days) to require or encourage licensees to confirm their readiness to implement the severe accident management guidance and strategies under 50.54 (hh). This would not involve any new requirements, but would simply reinforce the existing requirements.

B/92

I recommend that we coordinate this activity with the industry to ensure their full and early cooperation. This would be similar to the level of cooperation we undertook for the security bulletins following 9/11.

Gary

Sharkey, Margaret

From: Sharkey, Margaret
Sent: Monday, March 14, 2011 11:25 AM
To: Raione, Richard
Subject: SOH Editors Corner
Attachments: Draft SOH Vol3 Iss1 March2011 (3).doc

Richard,

See the attached SOH draft with the start of an article about the Japanese earthquake and tsunami. Its very incomplete. I started a few sentences and didn't have many ideas about where to go. Let me know if you can amp it up.

Maggie

Margaret Sharkey
Student Engineer
NRO/DSER/RHEB
301-415-2858

B/192

Newsletter of the Subcommittee on Hydrology

available on-line at: <http://acwi.gov/hydrology/index.html>

In this Issue:

Welcome from the Chair 1

About the Subcommittee On Hydrology 2

Highlights from the October 2010 Meeting 2

Highlights from the January 2011 2

DOI's WaterSMART Implementation Plan 3

Work Group Contacts 3

News from Member Organizations 3

Upcoming Conferences and Calls for Papers 5

For your information 6

Student's Corner 7

Upcoming Meetings 8

Editor's Corner 8

Welcome from the Chair

2010 has been a somewhat difficult year for the SOH, particularly following the untimely death of Chair, Mary Greene, in June. In October, I took over the position of Chair to complete Mary's term which ends in October of 2011. When I stepped into this role it felt a little overwhelming and I felt quite unprepared. It is only with the help of all member representatives that I have been able to step into this role and I want to thank each and every one of you for your support and encouragement.

As we move into 2011, I look ahead to maintain SOH's focus on the work carried out by the SOH Work Groups:

- *Hydrologic Frequency Analysis Work Group.* The HFAWG continues to make progress in its update of Bulletin 17B. However the importance of this activity is becoming more important as all Federal agencies work to address stationarity and climate change in planning and design.
- *Extreme Storm Event Work Group.* Updated precipitation frequency data, including probable maximum precipitation data essential. The Extreme Storm Event Work Group has been working on a proposal to how the PMP studies could efficiently be updated. The design SOH looks forward to hearing from the Extreme Storm Event Work Group with their recommendations.
- *Water Data Work Group.* While not yet an officially established Work Group, members continue their great efforts at coordinating with the Hydrology Domain Working Group a

Joint Working Group of the World Meteorological Organisation (WMO) and the Open Geospatial Consortium (OGC).

- *Hydrologic Modeling Work Group.* The members of the Hydrologic Modeling Work Group are taking a short break this year as they celebrate the success of the 2010 Joint Federal Interagency Conference. They won't be resting on their laurels for long; however, as planning for the 2014 conference begins later in 2011.
- *Hydrologic and Hydraulic GIS Applications Work Group.* The H&H GIS Work Group is working on a summary report summarizing their activities in helping with the creation of a hydrologic modeling inventory web-site hosted by Texas A&M University. They will also include recommendations on future Work Group activities.
- *Satellite Telemetry Interagency Work Group.* The STIWG continues to work to advise managers of the Satellite Data Collection System on matters concerning satellite relay user requirements related to hydrologic, meteorologic, oceanic, and other environmental data. In recent years, SOH has not had much contact with STIWG and looks to better facilitate communications with the Work Group in order that SOH can better support their activities.

I look forward to serving out the remainder of my term as Chair and

...continued on page 2

working with the Work Group Chairs and all member representatives of the Subcommittee as we work to accomplish the goals and objectives of SOH as set out

in our terms of reference. Again, thank you all for your encouragement and support.

Claudia C. Hoeft
Chair, SOH

[Back to Contents](#)

About the Subcommittee on Hydrology

The Purpose of the Subcommittee on Hydrology is "To improve the availability and reliability of surface-water quantity information needed for hazard mitigation, water supply and demand management, and environmental protection." All members who join the SOH share in and support this common purpose as a network to fulfill our mission as defined in the Terms of Reference.

The subcommittee Vice-chair and current contact is Claudia Hoeft of the Natural Resources Conservation Service. Claudia can be reached by phone at 202-720-0772 or by e-mail at: claudia.hoeft@wdc.usda.gov

Detailed information about the subcommittee can be found at: <http://acwi.gov/hydrology/>

The Subcommittee on Hydrology reports to the Advisory Committee on Water Information that operates under the Federal Advisory Committee Act.

[Back to Contents](#)

Highlights from October 2010 Meeting

A major topic of discussion at the October 2010 meeting was membership and during this meeting, one new member representative and one new member organization were welcomed to the SOH

Brian Beucler announced that he will serve as the primary representative to SOH for the Federal Highway Administration and that Joe Krolak will serve as the alternate. Previously, Joe served as primary and Brian as alternate.

GEC operated for over 20 years as the Urban Forest Center which was part of

the American Forests national non-profit organization. This past year American Forests reorganized and dissolved the Urban Forest Center. The GEC formed and the staff from the Urban Forest Center transferred to the new organization. GEC nominated Don Woodward and Kenneth Kay as their primary and alternate representatives, both of whom represented the Urban Forest Center previously.

Minutes from the October 2010 meeting of SOH are available on the SOH web-site at: <http://acwi.gov/hydrology/index.html>

[Back to Contents](#)

Highlights from January 2010 Meeting

The January 2011 meeting focused on business of the SOH especially related to issues of membership and terms of reference. Additional discussion items focused primarily on follow-ups to

previous discussions on items such as the Hydrological Operational Multipurpose System (HOMS) and Risk Based Assessment and Event Severity classifications.

[Back to Contents](#)

DOI's WaterSMART Program News

The Department of Interior WaterSMART Program (Sustain and Manage America's Resources for Tomorrow) has issued a preliminary outline on their Strategic Implementation Plan. The plan will establish the framework to provide federal leadership and assistance on efficient use of water, focus on the integration of water and energy policies for sustainable natural resources use, and coordinate water conservation activities across federal agencies.

The DOI is coordinating with the Fish and Wildlife Service, the Bureau of Indian Affairs, the Bureau of Land Management, the National Park Service, the Bureau of Reclamation, and the U.S. Geological Survey. Each agency has offered unique and independent goals to study the current water usage with the best available science and implement their own "Water Footprint Reduction Plan."

In addition, the DOI has launched the

SOH Work Group Contacts

Extreme Storm Events Work Group

<http://acwi.gov/hydrology/extreme-storm/index.html>

Information on the activities of the Extreme Storm Events Work Group can be obtained from Tom Nicholson. He can be reached by email at: Thomas.Nicholson@nrc.gov.

Hydrologic Frequency Analysis Work Group

<http://acwi.gov/hydrology/Frequency/index.html>

Information on the activities of the Work Group can be obtained from Will Thomas. He can be reached by e-mail at: WTHOMAS@imbakercorp.com.

Satellite Telemetry Interagency Work Group

<http://acwi.gov/hydrology/stiwtg/index.html>

Meeting minutes and information on the activities of this Work Group can be obtained from Richard T Engstrom. He can be reached by phone at: (309) 794-5408 or by e-mail at: richard.t.engstrom@usace.army.mil

Hydrologic and Hydraulic GIS Applications Work Group

<http://acwi.gov/hydrology/h2gisa/>

For information on the Work Group or to become a member please contact Bill Merkel by phone at (301)-504-3956 or by e-mail at: william.merkel@wdc.usda.gov.

Hydrologic Modeling Work Group

<http://acwi.gov/hydrology/Hydro-Modeling/index.html>

Teleconference minutes and additional information on the activities of the Work Group can be obtained from Jerry Webb. He can be reached by phone at (202) 761-0673 or by e-mail at: jerry.w.webb@usace.army.mil

[Back to Contents](#)

News from Member Organizations

NASA – Water Resources

NASA Sponsoring 2 Water Management Workshops

- I. **Evapotranspiration: An Essential Observation for Climate Understanding and Efficient Water Management Workshop.** Hilton Washington DC/Silver Spring, 5-7 April 2011.

Workshop Objectives:

1. Define the needs and requirements for evapotranspiration (ET) data in

2. weather and climate studies, in natural and agro-ecosystem monitoring, and in water resource management.
3. To review the methods used to measure and model ET.
4. To assess surface and satellite observation systems required to support ET measurement, modeling and evaluation.
5. To assess the feasibility of developing a proposal for a task on ET for the

...continued on page 4

WaterSMART Clearinghouse, a forum ACWI members can “contribute case studies, best practices, conservation activities and other information.”

[Back to Contents](#)

...continued from page 3

2012-2015 GEO Work Plan.

6. To explore the level of support and consensus for developing a strategy for establishing ET as an Essential Climate Variable (CV) within the Global Climate Observing System (GCOS) framework.

II. Global Drought Monitoring Workshop, Hilton Washington DC/Silver Spring, 11-12 April, 2011.

Workshop Objectives:

1. To review the uses of drought monitoring products on regional and global scales.
2. To assess the specific requirements for monitoring agricultural and hydrological droughts and the capabilities of the current suite of NASA data products to provide that information.
3. To develop a set of actions that would enable NASA assets either separately or in collaboration with other agencies

such as NOAA, USGS, USAID, or USDA to be used for drought monitoring at regional and global scales.

4. To explore ways in which NASA assets can be used more effectively to inform drought planning at national, regional and local scales.

For more information, including workshop overview, registration information and logistics, please go to the workshops link (<http://watercycleforum.com/workshops.html>).

Please feel free to distribute to others who may be interested in attending. The workshops include a mix of invited and unsolicited papers along with several discussion sessions. Also, please consider submitting an abstract for a possible poster or oral presentation. Workshop agendas will be available soon.

*Submitted by:
?, NASA-Water Resources*

[Back to Contents](#)

Upcoming Conferences and Calls for Papers



IAEA
International Atomic Energy Agency

International Atomic
Energy Agency
(IAEA) Water
Resources Programme

International Symposium on Isotopes in Hydrology, Marine Ecosystems, and Climate Change Studies

Oceanographic Museum
Monaco

27 March–1 April 2011

<http://www->

[pub.iaea.org/mtcd/meetings/Announcements.asp?ConfID=38297](http://www-pub.iaea.org/mtcd/meetings/Announcements.asp?ConfID=38297)

Abstract submission closed (15 December, 2010)



BOKU - University of
Natural Resources and Life
Sciences, Vienna

International Conference on the Status and Future of the World's Large Rivers

Vienna, Austria

11 - 14 April 2011

<http://worldslargerivers.boku.ac.at/wlr/>

Accepting abstracts



2011 Georgia Water Resources Conference

- Sustaining Georgia's Water Resources -

The University of Georgia

Athens, Georgia

April 11 - 13, 2011

<http://www.gawrc.org/>

Abstract submission closed (December 15, 2010)



National Hydrologic Warning Council 2011 Training Conference and Exposition

Hilton San Diego at Mission Bay

San Diego, California

May 9-12, 2011

http://www.hydrologicwarning.org/content.aspx?page_id=22&club_id=617218&module_id=77729

Abstract submission closed (November 15, 2010)



Wessex Institute of
Technology, UK

6th International Conference on River Basin Management including all aspects of Hydrology, Ecology, Environmental Management, Flood Plains and Wetlands

Riverside, California, USA

25 - 27 May 2011

<http://www.wessex.ac.uk/11-conferences/riverbasinmanagement-2011.html>

Accepting abstracts

*Please submit information regarding
upcoming conferences and/or calls for
papers to Richard Raione or Joseph
Giacinto.*

Back to Contents

For your information

Modeling Summit 2011 Advancing the Science of Modeling

March 29-31, 2011 Denver,
Colorado
Denver Renaissance Hotel
www.swcs.org/modelingsummit

This meeting will provide a forum to exchange information, discuss opportunities for collaboration, and learn about the advantages and limitations of available data sets for inclusion in current and future models. The target audience for the meeting is modelers and data stewards from federal and state agencies, non-profit organizations, industry, private consulting firms and universities.

Overarching goal: To get model practitioners together to talk about the best way to utilize and integrate available models and data sets to address specific customer conservation/conservation benefit needs. One of the primary concerns of our customers is estimating the site-specific benefits of conservation practices. Modelers must consider the level of precision that is needed for the intended use which may include general conservation planning, program payment support, credit trading support, reports to congress, inside and outside of USDA requests, and policy formulation/regulation.

The meeting will be held at the Denver Renaissance Hotel, which provides complementary transportation to and from DIA. SWCS has arranged a special rate and hotel room block: \$129/night (plus local taxes)

Meeting agenda and additional information online at
www.swcs.org/

When: Tuesday, March 29, 2011 1:00 PM
- Thursday, March 31, 2011 12:00 PM

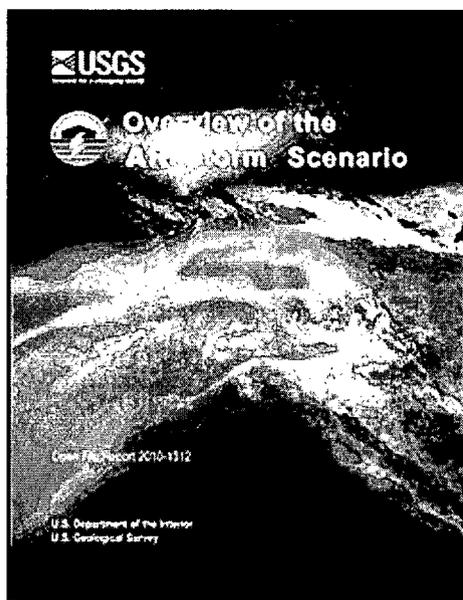
Registration Fees:

\$125.00 on or before March 1, \$175.00 after

Student (Full Time) - includes 12-mo. SWCS Student Membership \$125.00, RSVP by Tuesday, March 22.

Courtesy of David Wells, EPA

USGS – Overview of ARkStorm Scenario



USGS Multi Hazards

Demonstration Project (MHDP) has published its latest research on a hypothetical mega-storm to hit the West Coast that could leave the region crippled. The storm is named Atmospheric River 1000 (ARkStorm) for the typical weather system that delivers major winter storms to the region. The only

previous storm of similar magnitude occurred in 1861 and 1860 and “left the central valley of California impassable.” The postulated ARkStorm would be statewide disaster and economic catastrophe.

The research, a collaborative project from more than 100 scientists and experts, examines the meteorology, flooding, and wind speed of the ARkStorm, and the resulting coastal inundation and landslide potential. To estimate the damage of the theoretical storm, MHDP investigated the impacts to the California highway system, power grid, water collection and distribution system and telecommunications. However, the economic effects of the storm would also include business interruption costs and agricultural losses. The report estimates that the disaster could ultimately cost \$725 billion

The report concludes that ARkStorm is “plausible, and perhaps inevitable.” By understanding the potential risk, California may have the ability to update their flood protection and emergency planning structure.

To see the full report, visit:

<http://pubs.usgs.gov/of/2010/1312/>

Also, check out the blog:

“Maximum probable flood considerations for California”?

http://news.yahoo.com/s/yblog_thelookout/20110117/us_yblog_thelookout/scientists-warn-california-could-be-struck-by-winter-superstorm

Back to Contents

Student's Corner

University of Maryland-College Park

Water and Energy in Maryland 2010 Symposium

October 28, 2010

University of Maryland, College Park

The Water and Energy in Maryland Symposium addressed the inherent link between our energy production and use and water consumption. The symposium consisted of numerous regional presenters from private and public industry

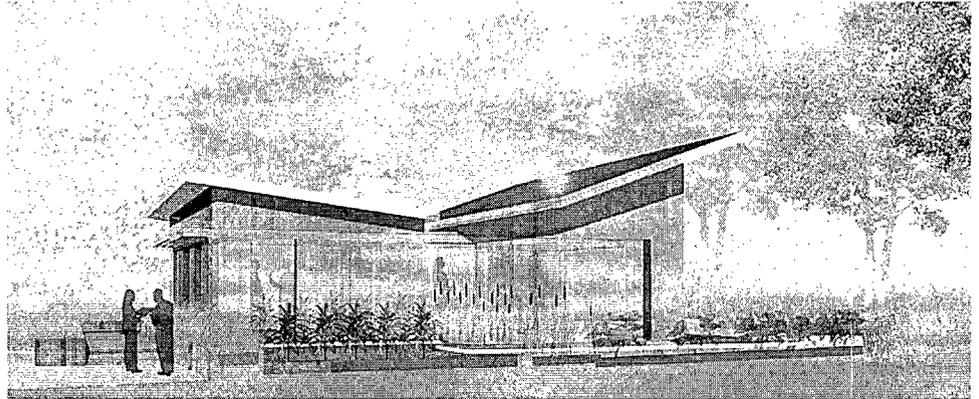
Presenters touched on problems of using energy for water treatment and distribution and also using water for energy generation and cooling. For future practices, best management practices (BMPs) are offered.

Maryland users are going further for lower quality water while the regulatory requirements are also increasing. BMPs suggested include the reuse of biogas and biosolids, solar panel installation at treatment sites, and a better leak detection system.

Conversely, the increased energy demand has increased the need for water for generation and cooling purposes. The water sources are dwindling for steam engines, hydroelectric dams, and more recently, biomass. BMPs suggested include the use of dry cooling, wastewater reuse for cooling purposes, and the use of non-irrigated crops for biomass.

(source:

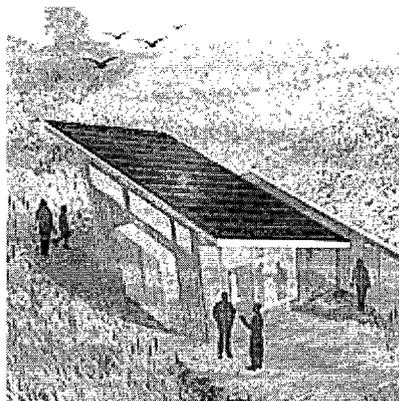
<http://www.waterresources.umd.edu/>)



U.S. Department of Energy Solar Decathlon 2011

“WaterShed, the University of Maryland’s entry in the U.S. Department of Energy Solar Decathlon 2011, is a solar-powered house inspired by the rich, complex ecosystems of the Chesapeake Bay watershed, which stretches over 64,000 square miles of Maryland, Delaware, New York, Pennsylvania, Virginia, and West Virginia.”

This year, 300 UMD students and faculty will begin building the solar powered home. One of the key design elements is the butterfly



roof, one half a solar roof and the other half a green roof. The roof will collect rainwater, filter it, and disperse it to the surrounding constructed wetlands and garden. Another design element is the edible green wall. The wall will have some specialized fruit, such as grapes or kiwi, and will function as a water storage and filtration system while reducing runoff.

The house’s design is meant to focus attention on threats to the water quality and ecosystems of the Chesapeake Bay. The UMD team would like to use WaterShed as a model for regional homes. If more homes had similar functions, urban sprawl and inadequate storm water management would have less impact on the Bay.

*Submitted by Margaret Sharkey, senior in
Civil and Environmental Engineering*

(source: <http://2011.solardecathlon.org/>)

Back to Contents

Upcoming Meetings

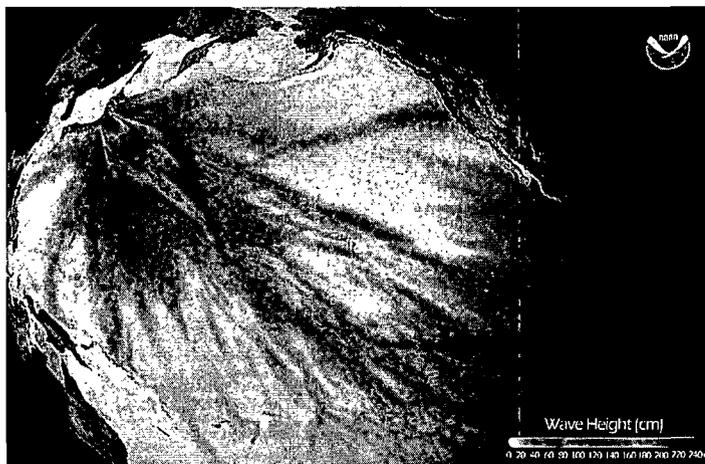
Subcommittee on Hydrology:

April 21, 2011
9am-noon

USDA – South Building
1400 Independence Ave, SW
Room 5140-S
Washington, DC 20250

[Back to Contents](#)

Editor's Corner



Japanese Earthquake and Tsunami

The recent events in Japan have highlighted the importance for us, as hydrologists, to communicate with our fellow scientists in the geological, atmospheric, and oceanic sciences.

Since the 2004 Indian Ocean earthquake and tsunami, the international and regional tsunami warning system has improved vastly, yet a warning can only do so much if people have but a few minutes to evacuate.

If earth scientists are networked sufficiently, we should be near the age of predicting catastrophic events, within a reasonable time frame..

To submit items for the newsletter, please contact either or Richard Raione or Joseph Giacinto.

Chief Editor:
Richard Raione - NRC
richard.raione@nrc.gov
(301) 415-7190

Associate Editor:
Joseph Giacinto - NRC
joseph.giacinto@nrc.gov
(301) 415-0714

[Back to Contents](#)

40

Manoly, Kamal

From: Couret, Ivonne *OPA*
Sent: Tuesday, March 15, 2011 12:33 PM
To: Manoly, Kamal; Hiland, Patrick
Subject: RE: Clarifying Questions on the Table

Provide in one document the complete responses then I will have Scott Burnell/Eliot Brenner review to make sure we are in sync. Ivonne

From: Manoly, Kamal *NER*
Sent: Tuesday, March 15, 2011 11:37 AM
To: Hiland, Patrick
Cc: Couret, Ivonne
Subject: RE: Clarifying Questions on the Table

release

I will bounce off Ivonne on CC, to see if public affair is comfortable with our responses.

From: Hiland, Patrick *NER*
Sent: Tuesday, March 15, 2011 10:55 AM
To: Manoly, Kamal
Subject: RE: Clarifying Questions on the Table

release

I have no doubt the MMI scale is defined correctly. You seem to miss the point, how many people in congress will recognize MMI? Now think how many will recognize Richter? When we answer questions we need to think of the audience. Perhaps we need to get Public Affairs to review our responses? I know that there is not a one-for-one equivalent.

From: Manoly, Kamal *NER*
Sent: Tuesday, March 15, 2011 10:18 AM
To: Hiland, Patrick
Cc: Skeen, David; Wilson, George; Scales, Kerby
Subject: RE: Clarifying Questions on the Table

release

Pat,
The definition Annie provided is quite accurate. MMI is a measure of observed/reported damage and severity of shaking. You may add, at a specific location. The magnitude of an earthquake that is typically cited in the media, is a measure of the total energy release from an earthquake. There is no mathematical correlation between the two. As you know, in the world of design, we refer to peak ground acceleration, Zero Period Acceleration (ZPA) and more important, the shape of the ground response spectrum.
Kamal

From: Hiland, Patrick *NER*
Sent: Tuesday, March 15, 2011 8:57 AM
To: Manoly, Kamal
Cc: Skeen, David; Wilson, George; Scales, Kerby
Subject: FW: Clarifying Questions on the Table

release

Not sure the MMI scale is useful to lay-people. The Chairman needs something that can be easily understood.

From: Kammerer, Annie *RES*
Sent: Tuesday, March 15, 2011 12:16 AM

Bl 94

To: Giitter, Joseph; Rihm, Roger
Cc: Howe, Allen; Nelson, Robert; Hiland, Patrick; Stutzke, Martin
Subject: RE: Clarifying Questions on the Table

Here is a table that we already have available which may be a good starting point. Jon Ake, Cliff Munson and I prepared this today for inclusion in the Q&As we are doing.

We do have the old deterministic earthquake that each of the plants are designed for (i.e. the assumed earthquake that translates to the ground motions used for each plant). Perhaps that is what is meant by the reference level earthquake. However, I don't think we want to put that out. Frankly, it is not a good story for us. Some are very low magnitude and the ground motions for the scenario earthquakes are extremely low if you compare with modern relationships.

Yes, please provide the information about the combined seismic/tsunami design basis. I thought that the loads were considered separately. I would be interested to know.

Annie

From: Giitter, Joseph *NJR*
Sent: Monday, March 14, 2011 9:47 PM
To: Rihm, Roger
Cc: Howe, Allen; Nelson, Robert; Hiland, Patrick; Kammerer, Annie; Stutzke, Martin
Subject: Clarifying Questions on the Table

release

I cc'd you on an earlier e-mail. I wasn't sure what you meant by reference level earthquake. Did you mean review level earthquake? Also, I wondered how the Chairman was planning to use this information. The design basis is usually expressed in terms of ground acceleration (horizontal) with a more complete description in terms of a curve showing acceleration versus frequency. However, you wouldn't be able to infer what level earthquake (for example, on the Richter Scale) the plant would handle without the soil characteristics, etc. Sorry if I'm being pedantic--I just want to make sure we give you what you're looking for.

Also, I could anticipate that the Chairman might get a question about whether the NRC licensed coastal plants are designed for a design basis earthquake in combination with a maximum probable tsunami. Let me know if you need that information.

Raione, Richard

From: Jones, Henry
Sent: Monday, March 14, 2011 11:51 AM
To: Lynett, Patrick
Cc: Raione, Richard; Eric
Subject: RE: Tsunami survey on nuke plant sites

5/9/11

Pat,

I figured out a way it can be done - need your itinerary. For example, when are you arriving in California, what sites (e.g., Diablo Canyon, etc) do you wish to visit, dates you wish to visit, how long, scope, etc? I already mentioned to NRR you desire to visit Diablo Canyon. If you wish to visit some other sites, please let me know ASAP.

Henry

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

From: Lynett, Patrick [<mailto:plynett@tamu.edu>]
Sent: Saturday, March 12, 2011 5:51 PM
To: Jones, Henry
Cc: Eric Geist
Subject: Tsunami survey on nuke plant sites

Hi Henry

I am heading out to California to survey some of the damage in ports and marinas. Probably impossible, but would it be possible to try to get access through the NRC to the coastal areas of the Cali sites, like Diablo Canyon? I assume not, but I figured I'd ask to see if the NRC had any pull in such a request.

Pat

Patrick J. Lynett
Associate Professor
<http://ceprofs.tamu.edu/plynett>

Martin, Robert

From: Manoly, Kamal *NRK*
Sent: Tuesday, March 15, 2011 1:29 PM
To: Nguyen, Quynh
Cc: Martin, Robert; Thomas, Eric; Meighan, Sean; Boger, Bruce; Grobe, Jack
Subject: RE: Earthquake

Quynh,
I am not sure what you mean by "How" the plants are built? Are you referring to boilers vs. pressurized reactors in terms of structural configuration?
Kamal

release

From: Nguyen, Quynh *NRK*
Sent: Tuesday, March 15, 2011 12:05 PM
To: Manoly, Kamal
Cc: Martin, Robert; Thomas, Eric; Meighan, Sean; Boger, Bruce; Grobe, Jack
Subject: FW: Earthquake

release

Kamal,
We are working on earthquake question responses. Maybe you want to start thinking about responding with how the plants are built?

From: Kammerer, Annie *RES*
Sent: Tuesday, March 15, 2011 11:04 AM
To: Ake, Jon; Munson, Clifford
Cc: Meighan, Sean; Nguyen, Quynh
Subject: RE: Earthquake

Jon/Cliff: another request, but something we can do later today. Quynh and Sean preparing a response to the questions, "what if an 8.9 happened at one of our plants." This is an obvious question from the public who doesn't understand tectonics and one that we are going to be asked over and over.

I'm suggesting the approach to developing the response:

- 1) Explain that an 8.9 can't happen at the plants
- 2) Explain that plants are designed to ground motions and not magnitudes
- 3) Figure out the distance from the plane to the plants in Japan. Try to determine rough estimates of the ground motions at the plants (note, we have some numbers on the shakemap, but they are too low based on the recording of 0.58g at onagawa) (Jon do you have a subduction model at your fingertips?)
- 4) use that estimate to compare to the ground motions and to say "this ground motion is only expected every XX years on average at this plant. However an 8.9 can't occur because it requires a subduction zone...."

This needs to be written up so that the public can understand.

Again, this is not the top of the list, but something to do today when we get a breather.

Sean/Quynh: we'll do our best.

Annie

B/96

From: Kammerer, Annie
Sent: Tuesday, March 15, 2011 10:34 AM
To: Nguyen, Quynh
Cc: Meighan, Sean
Subject: RE: Earthquake

From: Nguyen, Quynh
Sent: Tuesday, March 15, 2011 10:33 AM
To: Kammerer, Annie
Cc: Meighan, Sean
Subject: Earthquake

Candelario, Luisette

From: Candelario, Luisette
Sent: Monday, March 14, 2011 1:21 PM
To: Vega, Frankie; Cruz, Zahira
Subject: RE: FYI

Si mano =s

From: Vega, Frankie
Sent: Monday, March 14, 2011 1:20 PM
To: Cruz, Zahira; Candelario, Luisette
Subject: RE: FYI

Si escuche que los vecinos estaban hablando de eso. La cosa esta mas seria cada vez!

From: Cruz, Zahira
Sent: Monday, March 14, 2011 1:13 PM
To: Candelario, Luisette; Vega, Frankie
Subject: FYI

Ya Japon pidio asistencia de USA.

<http://www.nrc.gov/reading-rm/doc-collections/news/2011/11-047.pdf>

B197

Candelario, Luisette

From: Vega, Frankie
Sent: Monday, March 14, 2011 1:22 PM
To: Cruz, Zahira; Candelario, Luisette
Subject: RE: FYI

Follow Up Flag: Follow up
Flag Status: Flagged

Haha estan algaretas

From: Cruz, Zahira
Sent: Monday, March 14, 2011 1:21 PM
To: Vega, Frankie; Candelario, Luisette
Subject: RE: FYI

OK, no lean endi.com jejeje dice q exploto el reactor...

From: Vega, Frankie
Sent: Monday, March 14, 2011 1:20 PM
To: Cruz, Zahira; Candelario, Luisette
Subject: RE: FYI

Si escuche que los vecinos estaban hablando de eso. La cosa esta mas seria cada vez!

From: Cruz, Zahira
Sent: Monday, March 14, 2011 1:13 PM
To: Candelario, Luisette; Vega, Frankie
Subject: FYI

Ya Japon pidio asistencia de USA.

<http://www.nrc.gov/reading-rm/doc-collections/news/2011/11-047.pdf>

Cruz, Zahira

From: Betancourt, Luis
Sent: Monday, March 14, 2011 1:58 PM
To: Cruz, Zahira
Subject: RE: HEPAC: Calendar - Availability of Subcommittee members

<http://www.cnn.com/video/#/video/world/2011/03/14/dnt.japan.reactor.explainer.nhk?hpt=C2>

LUIS BETANCOURT DIGITAL I&C ENGINEER (EIT)
RES/DE/DICB | 301-251-7409 | MS C-2A07M | Luis.Betancourt@nrc.gov

U.S. Nuclear Regulatory Commission

 Please consider the environment before printing this e-mail

From: Cruz, Zahira
Sent: Monday, March 14, 2011 1:39 PM
To: Ramirez, Annie; Marcano, Jonathan; Tilton, Caroline; Jimenez, Jose; Rivera-Lugo, Richard
Cc: Betancourt, Luis; Diaz, Marilyn; Cruz, Luis
Subject: HEPAC: Calendar - Availability of Subcommittee members
Importance: High

Hi Everyone,

During a Board meeting this morning we discussed different options for capturing the availability of the subcommittee members. Some suggestions were made and we think that is better if each subcommittee has a calendar in their individual folders where all the subcommittee members can put in when they will be out of the office (for accountability).

Attached is an example that you can use. This folder will be accessible only to HEPAC members. It is the responsibility of the leads to ask the members to update the calendar on a regular basis.

Let me know if you have any questions.

Thanks,

Zahira

B/99

Raione, Richard

From: Jones, Henry
Sent: Monday, March 14, 2011 4:31 PM
To: Lynett, Patrick
Cc: Raione, Richard; Polickoski, James
Subject: RE: Tsunami survey on nuke plant sites

2011/3

Pat,

After speaking with NRR, I will probably have no problem getting you access to the site. You are currently working for NRC through the USGS, Menlo Park. However, NRR may have difficulty with Jose Borrero and someone from the California Geological Survey. Do you have a number where I can reach you?

Henry

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

From: Lynett, Patrick [<mailto:plynett@tamu.edu>]
Sent: Monday, March 14, 2011 3:49 PM
To: Jones, Henry
Subject: Re: Tsunami survey on nuke plant sites

Henry

Can we try to visit Diablo Canyon this Wednesday? We would plan to be there at 3 pm, and stay for two hours or less. In the group will be me, Jose Borrero, and possibly someone from the California Geological Survey.

Thanks for all your help with this. Visiting that site might provide some nice info. Let me know if there is anything I need to do.

Pat

Sent from my iPhone

On Mar 14, 2011, at 8:50 AM, "Jones, Henry" <Henry.Jones@nrc.gov> wrote:

> Pat,

>

> I figured out a way it can be done - need your itinerary. For example, when are you arriving in California, what sites (e.g., Diablo Canyon, etc) do you wish to visit, dates you wish to visit, how long, scope, etc? I already mentioned to NRR you desire to visit Diablo Canyon. If you wish to visit some other sites, please let me know ASAP.

>
> Henry
>
> -----Original Message-----
> From: Lynett, Patrick [<mailto:plynett@tamu.edu>]
> Sent: Saturday, March 12, 2011 5:51 PM
> To: Jones, Henry
> Cc: Eric Geist
> Subject: Tsunami survey on nuke plant sites
>
> Hi Henry
>
> I am heading out to California to survey some of the damage in ports and marinas. Probably impossible, but would it be possible to try to get access through the NRC to the coastal areas of the Cali sites, like Diablo Canyon? I assume not, but I figured I'd ask to see if the NRC had any pull in such a request.
>
> Pat
>
> Patrick J. Lynett
> Associate Professor
> <http://ceprofs.tamu.edu/plynett>

10/10

Raione, Richard

From: Jones, Henry
Sent: Monday, March 14, 2011 6:13 PM
To: Polickoski, James
Cc: Raione, Richard; Eric; Lynett, Patrick; Flanders, Scott; Chokshi, Nilesh
Subject: USGS TSUNAMI DIABLO CANYON SITE VISIT

James,

Dr. Patrick Lynett (USGS/Texas A&M) is currently in California and would like to visit the Diablo Canyon site this Wednesday, 16 March 2011. He would arrive at 3 pm and stay for two hours or less. Dr. Lynett is Professor of Civil Engineering at Texas A&M and works for NRC/DSER/RHEB through USGS in Menlo Park, CA. He is responsible for Section 2.4.6 (tsunami modeling) of the Safety Evaluation Report (SER) for Calvert Cliffs, Levy County, South Texas, Victoria County, Turkey Point and PSEG. Dr. Lynett is also being funded by NRC/RES to write a tsunami modeling NUREG that will also form the basis for a new NRC tsunami regulatory guide.

On the site visit, Dr. Lynett would like to include Jose Borrero and possibly someone from the California Geological Survey. If this presents a problem, please arrange for an independent visit for Dr. Lynett.

Please feel free to contact Dr. Lynett directly. Thanks again for your assistance.

Henry

Henry Jones, Ph.D.
Hydrologist
Hydrologic Engineering Branch, Office of New Reactors
U.S. Nuclear Regulatory Commission
Mail Stop: T-7E18
11545 Rockville Pike, Rockville, MD 20852
Tel: (301) 415-1463
E-mail: Henry.Jones@nrc.gov (NEW)

Hawkins, Kimberly

From: Hawkins, Kimberly
Sent: Monday, March 14, 2011 4:56 PM
To: Li, Yong
Subject: RE: quick Summary of the Hongshu earthquake in Japan

Thanks

From: Li, Yong
Sent: Friday, March 11, 2011 12:16 PM
To: Manoly, Kamal; Hawkins, Kimberly
Subject: FW: quick Summary of the Hongshu earthquake in Japan

Some updates

The following is based on the telephone call between the JNES staff and his office in Japan, and still they are considered preliminary information.

Onagawa Nuclear power plant had a fire in the basement. Ground motion recorded at the site is around 0.5 g. Fukushima Unit 1 had a cooling system failure and residents within 2 or 5 (I forgot) km radius were asked to evacuate.

You can find the location of the plants in the attached map.

Besides, US Diablo Canyon power plant in CA was expecting a 1 meter tsunami at 10:30 AM.

From: Li, Yong
Sent: Friday, March 11, 2011 8:22 AM
To: Chokshi, Nilesh; Munson, Clifford
Cc: Cook, Christopher; Karas, Rebecca
Subject: quick Summary of the Hongshu earthquake in Japan

B/102

McCann, Edward

From: McCann, Edward
Sent: Monday, March 14, 2011 2:55 PM
To: Qualls, Phil
Subject: Japanese Officials: Nuclear Fuel Rods Appear to be Melting in 3 Reactors

What do you think?

<http://www.freerepublic.com/focus/f-news/2688626/posts>

B/103

From: [Sprogeris, Patricia](#)
To: [Johnson, Michael](#)
Subject: RE: Mentoring
Date: Monday, March 14, 2011 10:45:43 AM

Good Morning,

With everything going on with Japan and budgets right now, I am going to have to push you back to April. Will you be in the office?

-----Original Appointment-----

From: Chidichimo, Gabriele **On Behalf Of** Johnson, Michael
Sent: Monday, March 14, 2011 10:45 AM
To: Sprogeris, Patricia
Subject: FW: Mentoring
When: Thursday, March 24, 2011 10:00 AM-10:30 AM (GMT-05:00) Eastern Time (US & Canada).
Where: T-6F18

Thank you Patty,

I am sorry that our meeting has been cancelled.

Would you have an alternative date for me, please?

Thank you for all your help, I hope you and your family are doing well!!

Miss you all over there. ☺

Thanks,

Gaby

-----Original Appointment-----

From: Johnson, Michael
Sent: Tuesday, February 15, 2011 11:09 AM
To: Johnson, Michael; Chidichimo, Gabriele
Subject: Canceled: Mentoring
When: Thursday, March 24, 2011 10:00 AM-10:30 AM (GMT-05:00) Eastern Time (US & Canada).
Where: T-6F18
Importance: High

When: Thursday, March 24, 2011 10:00 AM-10:30 AM (GMT-05:00) Eastern Time (US & Canada).

Where: T-6F18

Note: The GMT offset above does not reflect daylight saving time adjustments.

~~*~*~*~*~*~*~*~*

Scheduled by Psprogeris 2/15/2011

B/1104

From: Johnson, Michael
To: Virgilio, Martin; Leeds, Eric
Subject: RE: Preparation for House Hearing on March 16th
Date: Monday, March 14, 2011 5:49:00 PM

Ok. Will do.

From: Virgilio, Martin
Sent: Monday, March 14, 2011 5:28 PM
To: Johnson, Michael; Leeds, Eric
Subject: FW: Preparation for House Hearing on March 16th

Eric/Mike

I am relying on you to lead the discussion on the budget issues. That said, this is going to be a hearing about our assessment and response to the earthquake in Japan.

Marty

From: Jacobs-Baynard, Elizabeth
Sent: Monday, March 14, 2011 5:00 PM
To: Borchardt, Bill; Haney, Catherine; Miller, Charles; Johnson, Michael; Leeds, Eric; Dyer, Jim
Cc: Weber, Michael; Virgilio, Martin; Muesle, Mary; Moore, Scott; Golder, Jennifer; Andersen, James; Smolik, George; Allwein, Russell; Deegan, George; Kasputys, Clare; Jacobs-Baynard, Elizabeth; Taylor, Renee; Cianci, Sandra; Hudson, Sharon; Casby, Marcia; Schwarz, Sherry; Sprogeris, Patricia
Subject: Preparation for House Hearing on March 16th

Attached are the charts for use at the briefing with the Chairman (Chairman's Conference Room) scheduled for March 15, 2011.

Reactor Safety – 9:00am-9:30am

- New Reactors
- Operating Reactors

Materials and Waste Safety- 9:30am-10am

- Fuel Facilities
- Nuclear Materials Users
- Spent Fuel Storage and Transportation
- Decommissioning and Low Level Waste
- High-Level Waste Repository

(**Marcia:** Fifteen (15) copies should be made of the charts for Materials and Waste Safety for use at the Chairman's Meeting)

(**Sherry:** You made copies of the New Reactors and Operating Reactors chart this morning. Please provide the copies to Eric for the meeting)

Please let me know if you have any questions. Thanks,

B1105

Liz
415-8709

From: [Johnson, Michael](#)
To: [Holahan, Gary](#)
Subject: Fw: Confirmation of names for Japan
Date: Monday, March 14, 2011 1:35:58 PM

Here
From my blackberry.

From: Leeds, Eric
To: Collins, Elmo; Satorius, Mark; McCree, Victor; Dean, Bill; Sheron, Brian; Tracy, Glenn; Hudson, Jody; Johnson, Michael; Miller, Charles; Haney, Catherine; Zimmerman, Roy; Stewart, Sharon; Virgilio, Martin; Weber, Michael; Borchardt, Bill; Mamish, Nader; Doane, Margaret; Muessle, Mary
Cc: Boger, Bruce; Grobe, Jack; Ruland, William; Meighan, Sean
Sent: Mon Mar 14 13:11:15 2011
Subject: Confirmation of names for Japan

Folks –

Thanks so much for your help – we have a strong database of names/expertise to support the Japanese. For this first wave, we are sending Chuck Casto, John Monninger, Tony Nakanishi, Tim Kolb, Jack Foster and Richard Devercelly. I believe that Bruce Boger has contacted all those going to join Tony Ulsis and Jim Trapp in Japan.

I imagine that at some point we may need to send a second wave of responders to relieve our first wave. We will let you know as soon as we know if this needs to be done. We are also sensitive not to over-burden any one office.

Thanks again for your support!

Eric J. Leeds, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
301-415-1270

B/106

From: [Cullingford, Michael](#)
To: [Leeds, Eric](#); [Boger, Bruce](#); [Grobe, Jack](#); [McGinty, Tim](#); [Regan, Christopher](#); [Hopkins, Jon](#); [Astwood, Heather](#)
Cc: [Quinones, Lauren](#); [Brown, Frederick](#); [Giitter, Joseph](#); [Cheok, Michael](#); [Hiland, Patrick](#); [Blount, Tom](#); [Ruland, William](#); [Holian, Brian](#); [Lubinski, John](#)
Subject: FW: Status of Nuclear Power Stations in Japan
Date: Monday, March 14, 2011 7:56:52 AM
Attachments: [Summary of the News Releases on the earthquake No22.docx](#)

Latest information received.....mc

From: Hidehiko Yamachika [mailto:yamachika-hidehiko@jnes-usa.org]
Sent: Monday, March 14, 2011 7:32 AM
To: Emche, Danielle; Foggie, Kirk; Cullingford, Michael
Cc: Michael W. Chinworth; aono-kenjiro@jnes-usa.org
Subject: Status of Nuclear Power Stations in Japan

FYI
Latest Press Release of NISA.

B/1107

March 14, 2011
Nuclear and Industrial Safety Agency

Seismic Damage Information(the 22th Release)
(As of 07:30 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 by a monitoring car confirmed the increase in the radioactivity compared to the radioactivity at 19:00, March 13.

MP1 (Monitoring at North End of Site Boundary) :
26 microSv/h(18:30 March 13)
→ (Move to MP2)

MP2 (Monitoring at north- northwest of Unit1 and northwest of the
End of Site Boundary for Unit 1) :

450 microSv/h(20:10 March 13)

→680 microSv/h(3:50 March 14)

MP4 (Monitoring Car at North West Site Boundary for Unit 1)

44.0 microSv/h(19:33 March 13)

→56.4 microSv/h(04:08 March 14)

(Surveyed by MP2 as MP1 is in the top of the cliff)

MP6 (Monitoring at the Main Gate)

5.2microSv/h(19:00 March 13)

→66.3 microSv/h(02:50 March 14)

(3) Wind direction/wind speed (as of 00:01, March 14)

Wind direction: North North West

Wind Speed: 0.3 m/s

(4) 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 3: Fresh water is being injected to the PCV via Fire Extinguishing System Line (FESL) (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)
- 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
 - Unit2 (1,100MWe): automatic shutdown
 - 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)
 - 0.036 microSv/h(19:00 March 13)
 - 0.038 microSv/h(05:00 March 14)
 - MP3 (Monitoring at the North/West End of site boundary)
 - 0.038microSv/h(19:00 March 13)
 - 0.037 microSv/h(05:00 March 14)
 - MP4 (Monitoring at the North/West End of Site Boundary)
 - 0.036microSv/h(19:00 March 13)
 - 0.038 microSv/h(05:00 March 14)
 - MP5 (Monitoring at the West End of Site Boundary)
 - 0.04 microSv/h(19:00 March 13)
 - 0.042 microSv/h(05:00 March 14)
- (3) Direction and velocity of wind (As of 05:00, 14 March)
- Direction: South-southwest

Velocity: 0.9 m /s

(4) 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 March13)

→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-ni 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

(March 12)

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 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 from 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-ichi 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 Mayors 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.

<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 Evacuation (As of 04:30 March 14)>

Ookuma-machi: Evacuation of subject evacuees (about 11,000 persons) completed. (Area of Refuge: Tamura Comprehensive Gymnasium, etc.)

(Contact Person)

Mr. Toshihiro Bannai

Director, International Affairs Office,
NISA/METI

Phone:+81-(0)3-3501-1087

From: [Hiland, Patrick](#) *NRR*
To: [McDermott, Brian](#)
Subject: Co-ordination
Date: Monday, March 14, 2011 8:27:00 AM

Brian, is there a central location we can continue to update Q's and A's? When I left yesterday, we had started four "topical" groups of Q's and A's: 1) Chairman's 15; 2) RST Technical; 3) PMT Technical; and 4) Seismic/Tsunami. I've a couple of questions from the team that will require effort by NRR to answer in a broad sense, e.g. Status of Station Blackout in U.S., Flooding reviews in U.S., etc. Who do we want to control the Q's and the A's? I'll discuss at NRR's LT meeting this morning.

B1108

From: [Cullingford, Michael](#) *in ER*
To: [Leeds, Eric](#); [Boger, Bruce](#); [Grobe, Jack](#); [Grobe, Jack](#); [McGinty, Tim](#); [Ruland, William](#); [Lubinski, John](#); [Cheok, Michael](#); [Holian, Brian](#); [Brown, Frederick](#); [Giitter, Joseph](#); [Hiland, Patrick](#)
Subject: FW: Seismic Damage Information News Release in English
Date: Monday, March 14, 2011 8:35:56 AM
Importance: High

fyi

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

From: tomita-kazuhide@jnes.go.jp [<mailto:tomita-kazuhide@jnes.go.jp>]
Sent: Monday, March 14, 2011 12:58 AM
To: tomita-kazuhide@jnes.go.jp
Subject: Seismic Damage Information News Release in English
Importance: High

Dear All

Please find the NISA News Release in English from the NISA HP web as shown below.

<http://www.nisa.meti.go.jp/english/index.html>

This is the best way you could obtain the quick official release on the Seismic Damage Information from Japan.

Sincerely Yours,

Kazuhide TOMITA (Mr.)
Assistant Director-General
Office of International Programs
Japan Nuclear Energy Safety Organization (JNES)
3-17-1, Toranomon, Minato-ku, Tokyo, 105-0001, JAPAN
Tel: +81-3-4511-1910
Fax: +81-3-4511-1998
E-mail: tomita-kazuhide@jnes.go.jp

B/109

From: [Hiland, Patrick](#) *INR*
To: [Thomas, Eric](#)
Cc: [Brown, Frederick](#)
Subject: FW: Potential Hill Qs
Date: Monday, March 14, 2011 9:21:00 AM
Attachments: [Potential hearing Qs form Hill.docx](#)

Eric, found this in my email this morning. Please assure it has been collected and evaluated for worth.

From: Powell, Amy *OCA*
Sent: Sunday, March 13, 2011 1:53 PM
To: Hiland, Patrick
Subject: Potential Hill Qs

Pat -

In between the raindrops today, I came up with the attached questions that could be put to the Chairman at Wed's hearing. The existing lists seemed to capture a number of the technical ones that would be expected.

Amy

B/110

There is a known faultline near the Diablo Canyon nuclear power plant and another potential one that USGS, NRC and the State of California have been working to characterize for at least two years. How will the events in Japan with their nuclear power plants impact the NRC's consideration of Diablo Canyon's relicensing?

Are US nuclear plants built to withstand an earthquake and tsunami of the magnitude experienced last week in Japan?

What do we need to do in the US to safeguard our plants for a natural disaster of this magnitude?

What level earthquake can the plants in California withstand? What height tsunami wave?

From: [Murphy, Martin](#) *MMR*
To: [Hiland, Patrick](#)
Subject: Japan Support
Date: Monday, March 14, 2011 9:39:23 AM

Martin Murphy (no BWR experience)

Navy Nuke program – GE / Knolls Atomic Power Laboratory employee – 6 years operating prototype

Calvert Cliffs nuclear power plant – 12 years system engineering (ECCS & containment spray) senior material engineer

US NRC
materials engineer
licensing experience
project engineering – special projects

B/111

From: [Wilson, George](#) *in ER*
To: [Hiland, Patrick](#)
Subject: japan bullets
Date: Monday, March 14, 2011 9:41:57 AM

I was a Reactor Operator in the NAVY. I also was an instructor at the moored training ship at Charleston and taught students how to operate the plant and actions necessary to be performed during events and transients.

I worked at the Watts Bar Nuclear Plant and performed several emergency response drills as a Technical Advisor, which focused on mitigation of the issues associated with the plant, in the Emergency Operating Facilities. I was also a Shift Technical Advisor on shift and have addressed events and causalities both on the plant and in simulator training. Specifically, I focused on the evaluation of normal and alternate methods on how to mitigate problems at the plant.

I was the Resident Inspector at the LaSalle Nuclear Plant and evaluated and participated in emergency drills and scenario's while there. I also lead inspections as the overall lead evaluator.

I was the Senior Resident Inspector at the Duane Arnold Energy Center and evaluated emergency drills and scenarios while there. I was the overall lead evaluator on several event follow-ups such as the Quad Cities stuck open relief valves. I also participated in the RATTI inspections for DC COOK and Davis Besse.

I helped evaluate the Forsmark event in Sweden for the NRC.

George Wilson
USNRC
EICB Branch Chief, Division of Engineering
Mail Stop O12H2
301-415-1711

B/11/2

From: [Hiland, Patrick](#) *mark*
To: [Nguyen, Quynh](#)
Cc: [Leeds, Eric](#); [Boger, Bruce](#)
Subject: Japanese Support Names from DE
Date: Monday, March 14, 2011 9:50:00 AM

- (1) George Wilson – Chief, I&C Branch (20011)
BS Nuclear/Electrical Engineering
 - Navy ET/Reactor Operator
 - TVA I&C Supervisor
 - STA at Watts Bar
 - NRC License Examiner
 - RI/SRI at BWR 4/5 Mark 2s
 - Electrical Branch Chief 2005-2011
 - Evaluated Forsmark event in Sweden

- (2) Martin Murphy (no BWR experience)
 - Navy Nuke program – GE / Knolls Atomic Power Laboratory employee – 6 years operating prototype
 - Calvert Cliffs nuclear power plant – 12 years system engineering (ECCS & containment spray), senior material engineer
 - US NRC materials engineer licensing experience project engineering – special projects

- (3) Roy Mathews - Electrical Engineer
 - thirty years nuclear power plant experience in the areas of design, maintenance and operation
 - Expert in power plant electrical engineering design and operation
 - Participated in the NRC, IIT, AITs and Team Inspections and a qualified NRC inspector
 - Participated in international electrical design standards

B/11/2

From: [Mathew, Roy](#) *MR*
To: [Hiland, Patrick](#)
Subject: Qualification
Date: Monday, March 14, 2011 9:46:59 AM

Degree in Electrical Engineering and thirty years nuclear power plant experience in the areas of design, maintenance and operation.

Participated in the NRC , IIT, AITs and Team Inspections and a qualified NRC inspector

NRC technical training in BWR technology and plant operations

Participated in international electrical design standards.

Expert in power plant electrical engineering design and operation

B/114

From: [Nguyen, Quynh](#) *NR*
To: [Hiland, Patrick](#)
Subject: REMINDER: OpsCenter Roll Call and Schedule for Eric. Thanks! (eom)
Date: Monday, March 14, 2011 10:17:43 AM

B1115

Caponiti, Kathleen

From: Taylor, Robert *NRK*
Sent: Tuesday, March 15, 2011 2:44 PM
To: Harrington, Holly
Subject: RE: Questions from NJ

I believe that the recommendation down here has been to forward these questions to DHS/TSA. *PLEASE*

From: Harrington, Holly *OPA*
Sent: Tuesday, March 15, 2011 2:42 PM
To: Taylor, Robert
Subject: FW: Questions from NJ

Add to public Q&A?

From: LIA04 Hoc *NSR*
Sent: Tuesday, March 15, 2011 2:39 PM
To: Nguyen, Quynh
Cc: McNamara, Nancy; McIntyre, David; Harrington, Holly; Flannery, Cindy; Lukes, Kim; Noonan, Amanda; Rautzen, William; Rivera, Alison; Ryan, Michelle; Turtill, Richard; Virgilio, Rosetta
Subject: FW: Questions from NJ

Quynh – note Q below from NJ

DHS/TSA would be the contact for these: National Operations Center Senior Watch Officer: 202-282-8100
NOC.SWO@dhs.gov

From: McNamara, Nancy *RA*
Sent: Tuesday, March 15, 2011 2:19 PM
To: LIA04 Hoc
Cc: Tiffit, Doug
Subject: Questions from NJ

Will the US be monitoring people coming into the country from Japan or those that travel through Japan. If so, who will be responsible for the monitoring? What are the thresholds and what is the plan if excessive contamination is found?

Has there been any "just in time" training for folks that carry rad devices to be alerted that it is possible that they encounter contaminated individuals?

Is Japan monitoring people exiting the evacuation areas? Has decontamination of the general population been necessary?

From: [Hiland, Patrick](#) *NRR*
To: [NRR DE Distribution](#)
Subject: FW: TAC # for Japan Earthquake and Tsunami Drill
Date: Monday, March 14, 2011 12:30:00 PM

If you are asked to review questions concerning the Japan earthquake, below is the appropriate TAC. You should only work on answers at direction of your supervisor.

If you have participated in the "Japan Earthquake and Tsunami Drill" that began today (Friday March 11, 2011), please be sure to apply your time spent on this activity to the TAC Number listed below:

D92374 – Incident Response: Japan Earthquake and Tsunami Drill

B/1117

From: [Hiland, Patrick](#) *NRK*
To: [Brown, Frederick](#); [Ruland, William](#); [McGinty, Tim](#); [Skeen, David](#); [Thomas, Eric](#); [Thorp, John](#); [Giitter, Joseph](#)
Cc: [Boger, Bruce](#)
Subject: RE:
Date: Monday, March 14, 2011 1:17:00 PM

Looks good; be sure to include other offices that are working on this effort (e.g. RES has drafted a section on seismic and continue to brainstorm questions). I'm assuming that Eric will act as filter, as best he can, to avoid duplication.

From: Brown, Frederick *NRK*
Sent: Monday, March 14, 2011 1:11 PM
To: Hiland, Patrick; Ruland, William; McGinty, Tim; Skeen, David; Thomas, Eric; Thorp, John; Giitter, Joseph
Cc: Boger, Bruce
Subject:
Importance: High

Drafted the message below for Eric to send to all NRR staff. Does this look like a reasonable scope?

As you are all aware from the Agency wide e-mails, the NRC Operations Center is being manned 24 hours a day to support monitoring of the situation in Japan. Many of your NRR colleagues are involved with this effort.

Here in NRR, we can look forward in the coming days and months to many questions about the situation in Japan and the relevance to domestic nuclear facilities. The staff in the Operations Center has already been working on these types of questions and answers. It will be important to maintain effective communication and coordination between the work done in the Office, and the work done in the Operations Center.

In an effort to minimize disruption of Operations Center activities, NRR has designated Eric Thomas (eric.thomas@nrc.gov) in NRR's Operating Experience Branch to be the focused single point of contact for information requests that NRR staff may have for the Reactor Safety and Preventative Measures Teams in the Operations Center.

If you are assigned a task involving event questions and answers, please let Eric know so that he can coordinate with the Operations Center to ensure that we are providing consistent responses. If you are contacted directly by staff in the Operations Center, please respond to the request promptly, and provide an electronic copy of your response to Eric so that he can maintain the response for future use by others.

B/11/8

From: [NRR_HIGNFY_Resource](#), *NRR*
To: [NRR_Distribution](#)
Subject: Special Edition HIGNFY - Response to Recent Events in Japan - Maintain Effective Communication and Coordination
Date: Monday, March 14, 2011 6:01:32 PM

- March 14, 2011 -

*** SPECIAL EDITION *
Have I Got News For You!**

Office of Nuclear Reactor Regulation Mission Statement

NRR supports the NRC mission to protect public health, safety, and the environment by developing and implementing rulemaking, licensing, oversight, and incident response programs for reactors. We conduct these activities in a manner that develops trust and is consistent with the NRC organizational values.

**Response to Recent Events in Japan
Maintain Effective Communication and Coordination**

As you are all aware from the Agency wide e-mails, the NRC Operations Center is being manned 24 hours a day to support monitoring of the situation in Japan. Many of your NRR colleagues are involved with this effort.

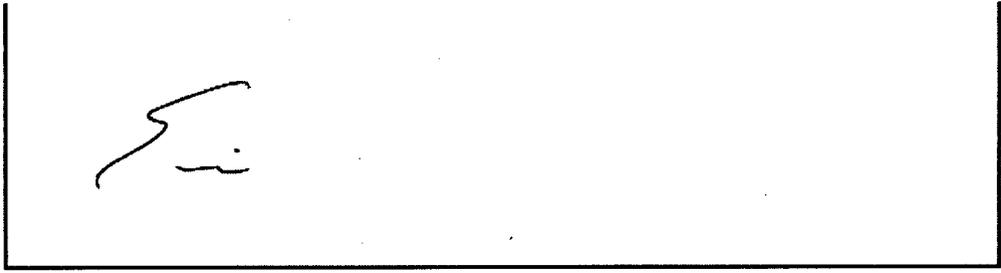
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If you are assigned a task involving event questions and answers, please let Eric know so that he can coordinate with the Operations Center to ensure that we are providing consistent responses. If you are contacted directly by staff in the Operations Center, please respond to the request promptly, and provide an electronic copy of your response to Eric so that he can maintain the response for future use by others.

Thanks for your cooperation and assistance!

B1119



Holahan, Gary

From: Ader, Charles
Sent: Monday, March 14, 2011 9:21 AM
To: Johnson, Michael; Holahan, Gary
Subject: Fw: Update on Japan Situation
Attachments: ANS Japan Backgrounder.pdf

Charles Ader
Sent from my Blackberry.

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

From: Joe Colvin <president@ans.org>
To: Ader, Charles
Sent: Sat Mar 12 19:37:57 2011
Subject: Update on Japan Situation

Dear ANS Members:

I'm sure you are aware of the rapidly developing situation in Japan. The ANS is working on multiple fronts to collect credible information on the incident, and distribute that information through mainstream and social media outlets.

We have communicated with our counterparts at the Atomic Energy Society of Japan to offer any technical or other assistance which may be of help.

We have set up a special page on the ANS blog (<http://ansnuclearcafe.org>) to aggregate media reports and provide additional information when we consider it to be credible.

We are also working to organize television appearances and other media availabilities for our members so that some of the misinformation that has been presented by anti-nuclear groups can be rebutted with facts. Our goal is not necessarily to be the first on the air, but to be the most credible.

Attached you will find some talking points, along with our current analysis of the sequence of events at Fukushima I-1. I encourage you to talk to your social networks to ensure that people have the right facts and the proper perspective on this incident.

Let me know what other actions our Society should be taking during this nuclear incident.

My thoughts and prayers go out to the people of Japan.

Respectfully,

Joe Colvin

B/120

American Nuclear Society Backgrounder: Japanese Earthquake/Tsunami; Problems with Nuclear Reactors

3/12/2011 5:22 PM EST

To begin, a sense of perspective is needed... right now, the Japanese earthquake/tsunami is clearly a catastrophe; the situation at impacted nuclear reactors is, in the words of IAEA, an "Accident with Local Consequences."

The Japanese earthquake and tsunami are natural catastrophes of historic proportions. The death toll is likely to be in the thousands. While the information is still not complete at this time, the tragic loss of life and destruction caused by the earthquake and tsunami will likely dwarf the damage caused by the problems associated with the impacted Japanese nuclear plants.

What happened?

Recognizing that information is still not complete due to the destruction of the communication infrastructure, producing reports that are conflicting, here is our best understanding of the sequence of events at the Fukushima I-1 power station.

- The plant was immediately shut down (scrammed) when the earthquake first hit. The automatic power system worked.
- All external power to the station was lost when the sea water swept away the power lines.
- Diesel generators started to provide backup electrical power to the plant's backup cooling system. The backup worked.
- The diesel generators ceased functioning after approximately one hour due to tsunami induced damage, reportedly to their fuel supply.
- An Isolation condenser was used to remove the decay heat from the shutdown reactor.
- Apparently the plant then experienced a small loss of coolant from the reactor.
- Reactor Core Isolation Cooling (RCIC) pumps, which operate on steam from the reactor, were used to replace reactor core water inventory, however, the battery-supplied control valves lost DC power after the prolonged use.
- DC power from batteries was consumed after approximately 8 hours.
- At that point, the plant experienced a complete blackout (no electric power at all).
- Hours passed as primary water inventory was lost and core degradation occurred (through some combination of zirconium oxidation and clad failure).

- Portable diesel generators were delivered to the plant site.
- AC power was restored allowing for a different backup pumping system to replace inventory in reactor pressure vessel (RPV).
- Pressure in the containment drywell rose as wetwell became hotter.
- The Drywell containment was vented to outside reactor building which surrounds the containment.
- Hydrogen produced from zirconium oxidation was vented from the containment into the reactor building.
- Hydrogen in reactor building exploded causing it to collapse around the containment.
- The containment around the reactor and RPV were reported to be intact.
- The decision was made to inject seawater into the RPV to continue to the cooling process, another backup system that was designed into the plant from inception.
- Radioactivity releases from operator initiated venting appear to be decreasing.

Can it happen here in the US?

- While there are risks associated with operating nuclear plants and other industrial facilities, the chances of an adverse event similar to what happened in Japan occurring in the US is small.
- Since September 11, 2001, additional safeguards and training have been put in place at US nuclear reactors which allow plant operators to cool the reactor core during an extended power outage and/or failure of backup generators – “blackout conditions.”

Is a nuclear reactor "meltdown" a catastrophic event?

- Not necessarily. Nuclear reactors are built with redundant safety systems. Even if the fuel in the reactor melts, the reactor's containment systems are designed to prevent the spread of radioactivity into the environment. Should an event like this occur, containing the radioactive materials could actually be considered a "success" given the scale of this natural disaster that had not been considered in the original design. The nuclear power industry will learn from this event, and redesign our facilities as needed to make them safer in the future.

What is the ANS doing?

ANS has reached out to The Atomic Energy Society of Japan (AESJ) to offer technical assistance.

ANS has established an incident communications response team.

This team has compiling relevant news reports and other publicly available information on the ANS blog, which can be found at ansnuclearcafe.org.

The team is also fielding media inquiries and providing reporters with background information and technical perspective as the events unfold.

Finally, the ANS is collecting information from publicly available sources, our sources in government agencies, and our sources on the ground in Japan, to better understand the extent and impact of the incident.

From: [Holahan, Gary](#)
To: [Johnson, Michael](#)
Cc: [Leeds, Eric](#); [Virgilio, Martin](#); [Borchardt, Bill](#); [Grobe, Jack](#); [Boger, Bruce](#); [Sheron, Brian](#); [Williams, Donna](#); [Wiggins, Jim](#)
Subject: Recommendation for proactive action by NRC in light of Japan events
Date: Monday, March 14, 2011 1:55:37 PM

Mike,

The events in Japan reinforce the importance of preparedness for the unexpected. In that light, I suggest that NRC take some form of proactive step to reinforce both the Severe Accident Management Guidelines and the 50.54 (hh) (formerly B.5.b) protection for "Loss of Large Area of the plant from fires and explosions".

50.54 (hh) seems particularly relevant, stating "Each licensee shall develop and implement guidance and strategies intended to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities under the circumstances associated with loss of large areas of the plant due to explosions or fire..."

The NRC could issue Orders, Bulletins, or letters on an expedited basis (in the next few days) to require or encourage licensees to confirm their readiness to implement the severe accident management guidance and strategies under 50.54 (hh). This would not involve any new requirements, but would simply reinforce the existing requirements.

I recommend that we coordinate this activity with the industry to ensure their full and early cooperation. This would be similar to the level of cooperation we undertook for the security bulletins following 9/11.

Gary

B/1/21

Rosales-Cooper, Cindy

From: Foggie, Kirk
Sent: Monday, March 14, 2011 4:16 PM
To: Rosales-Cooper, Cindy
Subject: Re: Are you going to Japan?

Yes.
Sent from Blackberry.

From: Rosales-Cooper, Cindy
To: Foggie, Kirk
Sent: Mon Mar 14 16:01:45 2011
Subject: Are you going to Japan?

Cindy E. Rosales-Cooper
Technical Assistant for International Activities
Office of New Reactors
(301) 415-1168

B1#22

Freeman, Eric

From: Freeman, Eric
Sent: Monday, March 14, 2011 7:48 AM
To: Aguilar, Santiago; Ward, Steven; Ditto, David; Horn, Brian; Tuttle, Glenn; Grice, Thomas; Pham, Tom; Habighorst, Peter; Ani, Suzanne
Subject: Information from ANS on the Japanese Reactor Situation
Attachments: ANS Talking Points - 2011-03-13 R1_2.pdf; ANS Japan Backgrounder.pdf

Not sure if you guys are members of ANS, but they have sent around these two documents as information.

B/123

The predominance of ANS members reside in the U.S. As we interact with our family, neighbors and citizens in our communities many questions will come based on news coverage of the nuclear power plant situation in Japan. These talking points key on the theme 'could it happen in the U.S.?' *

ANS Member Talking Points

Implications to U.S. nuclear energy program from the Japanese earthquake

It is premature for the technical community to draw conclusions from the earthquake and tsunami tragedy in Japan with regard to the U.S. nuclear energy program. Many opposed to nuclear power will try to use this event to call for changes in the U.S. Japan is facing beyond a "worst case" disaster since we, the technical community, did not hypothesize an event of this magnitude. Thus far, even the most seriously damaged of Japan's 54 reactors have not released radiation at levels that would harm the public. That is testament to the way professionals in our profession operate: our philosophy of defense in-depth, excellent designs, high standards of construction, conduct of operations, and most important the effectiveness of employees in following emergency preparedness planning.

The Nuclear Science and Technology (NS&T) community takes very seriously our commitment to safe operation of any nuclear facility and will incorporate lessons learned based on this experience into our safety and operating procedures. The ANS will facilitate the sharing of technical information so that these lessons receive wide distribution and be archived for future stewards of this technology. Some points to remember from this week:

- Nuclear power plants have proven their value to society in Japan, the United States and elsewhere. They provide large amounts of base load electricity on an around-the-clock basis, and they do so cost-effectively with the lowest electricity production costs of any large energy source. Both Japan and the United States have benefited greatly from nuclear energy; it has been instrumental in the nations' economic success over the past half century and their high standard of living.
- Our hallmark as a NS&T organization is to incorporate operating experience and lessons learned. When we fully understand the facts surrounding the event in Japan, we will share, document and use those insights to make NS&T even safer.
- Nuclear energy has been and will continue to be a key element in meeting America's energy needs. The nuclear industry sets the highest standards for safety and, through our focus on continuous learning; we will incorporate lessons learned from the events in Japan. The dominant factors determining technology used for new generation will be demand for new generation, the competitiveness of nuclear energy in comparison with other sources of electricity generation, and the continued safe operation of U.S. nuclear power plants.

- There has not been a rush to judgment on the part of U.S. policymakers during the first few days of this situation. We believe that is due in part to the recognition on their part that nuclear energy must continue to play a key role in a diversified energy portfolio that strengthens U.S. energy security and fuels economic growth.

* The genesis of this document is the NEI "Talking Points - Implications to U.S. nuclear energy program of the Japanese earthquake" dated March 13, 2011

American Nuclear Society Backgrounder: Japanese Earthquake/Tsunami; Problems with Nuclear Reactors

3/12/2011 5:22 PM EST

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Finally, the ANS is collecting information from publicly available sources, our sources in government agencies, and our sources on the ground in Japan, to better understand the extent and impact of the incident.

App A

Grice, Thomas

From: Grice, Thomas
Sent: Monday, March 14, 2011 2:01 PM
To: Freeman, Eric; Aguilar, Santiago
Subject: RE: Some sensible comments...

Wouldn't want to bother mentioned how designs have progressed through the years. People might start asking when ours were designed and start to obstruct the renewal processes.

From: Freeman, Eric
Sent: Monday, March 14, 2011 1:23 PM
To: Aguilar, Santiago; Grice, Thomas
Subject: Some sensible comments...

Could be a lot worse :-p

“The president believes that meeting our energy needs means relying on a diverse set of energy sources that includes renewables like wind and solar, natural gas, clean coal and nuclear power,” said Clark Stevens, a White House spokesman. “Information is still coming in about the events unfolding in Japan, but the administration is committed to learning from them and ensuring that nuclear energy is produced safely and responsibly here in the U.S.”

B/124



Return To School With A Grant? See If You Qualify.

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 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74

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Wind legend

- = North
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- = Northeast
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Wind statistic Wind report Forecast Local forecasts

Sendai Airport/Shinko (SENDAI)

Time zone: UTC +9.0 | Sunrise: 05:50 Sunset: 17:41 | Last update: 01:29 local time - Initial Time: 12:00 UTC

Print Version Forecast Map Google Map

Local date	Tuesday, Mar 15										Wednesday, Mar 16					
Local time	00h	03h	06h	09h	12h	15h	18h	21h	00h	03h	06h	09h	12h	15h	18h	21h
<u>Wind direction</u>												18	19	15	17	21
<u>Wind speed</u> (Knots)	12	10	8	5	8	10	12	10	9	9	3					
<u>Wind gusts</u> (Knots)	14	13	10	5	8	10	15	14	11	10	6	36	32	22	25	31
Wave direction [WW3]																
Wave height (m) [WW3]	0.9	1.0	0.9	0.8	0.8	0.7	0.7	0.8	0.9	1.0	1.1	1.1	1.1	1.0	1.2	1.2
Wave period (s) [WW3]	6	6	6	6	6	6	6	3	3	4	4	5	5	5	3	4
Cloud cover	0	0	0	0	0	0	1	2	6	4	1	0	0	0	0	0
Precipitation (mm/3h)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Air pressure (hPa)	1014	1012	1013	1013	1011	1007	1005	1002	1000	997	997	995	997	997	1002	1007
Air temperature (°C)	6	5	4	6	7	6	5	5	4	3	3	4	5	5	3	1
Local date	Thursday, Mar 17										Friday, Mar 18					
Local time	00h	03h	06h	09h	12h	15h	18h	21h	00h	03h	06h	09h	12h	15h	18h	21h
<u>Wind direction</u>	18	16	14	17	19	21	13	10	6	7	14	12	8	6	4	4
<u>Wind speed</u> (Knots)	30	29	26	29	28	30	19	13	6	9	23	16	9	7	4	4
<u>Wind gusts</u> (Knots)																
Wave direction [WW3]																
Wave height (m) [WW3]	1.4	1.3	1.4	1.5	1.8	1.8	1.9	1.9	1.8	1.6	1.6	1.4	1.2	0.9	0.8	0.6
Wave period (s) [WW3]	4	4	4	4	4	5	5	5	5	5	5	4	4	4	8	8
Cloud cover	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Precipitation (mm/3h)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Air pressure (hPa)	1008	1008	1010	1011	1011	1011	1014	1017	1019	1019	1024	1026	1026	1026	1027	1027
Air temperature (°C)	0	-1	-1	1	2	3	2	1	0	0	0	1	3	5	2	2
Local date	Saturday, Mar 19										Sunday, Mar 20					
Local time	00h	03h	06h	09h	12h	15h	18h	21h	00h	03h	06h	09h	12h	15h	18h	21h
<u>Wind direction</u>	7	8	7	5	5	7	5	8	8	6	4	3	9	10	10	12
<u>Wind speed</u> (Knots)	10	10	7	6	9	15	6	9	8	7	4	5	12	14	20	27
<u>Wind gusts</u> (Knots)																
Wave direction [WW3]																
Wave height (m) [WW3]	0.5	0.8	0.8	0.9	0.9	1.0	1.0	1.0	1.1	1.0	1.0	1.0	0.9	0.9	1.0	1.3
Wave period (s) [WW3]	8	3	3	4	4	13	13	12	12	12	12	12	12	12	11	5
Cloud cover	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Precipitation (mm/3h)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Air pressure (hPa)	1025	1024	1024	1024	1022	1021	1022	1023	1022	1021	1021	1020	1016	1011	1008	1004
Air temperature (°C)	2	2	2	5	10	11	7	5	4	4	4	8	11	12	10	10
Local date	Monday, Mar 21															
Local time	00h	03h	06h	09h	12h	15h	18h	21h	00h	03h						
<u>Wind direction</u>					27	27										
<u>Wind speed</u> (Knots)					13	9	8									
<u>Wind gusts</u> (Knots)																
Wave direction [WW3]																
Wave height (m) [WW3]	1.9	2.3	2.4	2.5	2.8	3.1	2.7	2.2	1.8	0.0						
Wave period (s) [WW3]	6	7	7	8	8	5	5	6	5							
Cloud cover	0	0	0	0	0	0	0	0	0	0						
Precipitation (mm/3h)	0	0	0	0	0	0	0	0	0	0						
Air pressure (hPa)	1001	999	1002	1002	1006	1010	1015	1017	1017	1018						
Air temperature (°C)	10	9	8	9	6	4	1	1	1	1						

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Fukushima, Japan Weather Save This Location

Updated: Mar 15, 2011, 12am Local Time

Overview Hourly Tomorrow Weekend 5-Day 10-Day Month Map

Right Now

N/A

N/A

33°F

Feels Like: 33° Get FREE weather on your desktop

Past 24-hr precip is only available for the contiguous U.S.

Wind: From NNW at 3mph

Hourly Text Forecast Video

Next 36 Hours

Today



Mostly Cloudy

37°

High

Snowfall: 0 in

Chance of Precip: 20%

Wind: W at 9 mph

Hourly Graph

Tonight



Rain / Snow

30°

Low

Snowfall: 1-2 in Snow accumulating 1 to 2 inches.

Chance of Precip: 70%

Wind: NNE at 7 mph

Tomorrow



Snow

31°

High

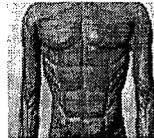
Snowfall: 1-2 in Snow accumulating 1 to 2 inches.

Chance of Snow: 70%

Wind: NNW at 16 mph

10-Day Forecast

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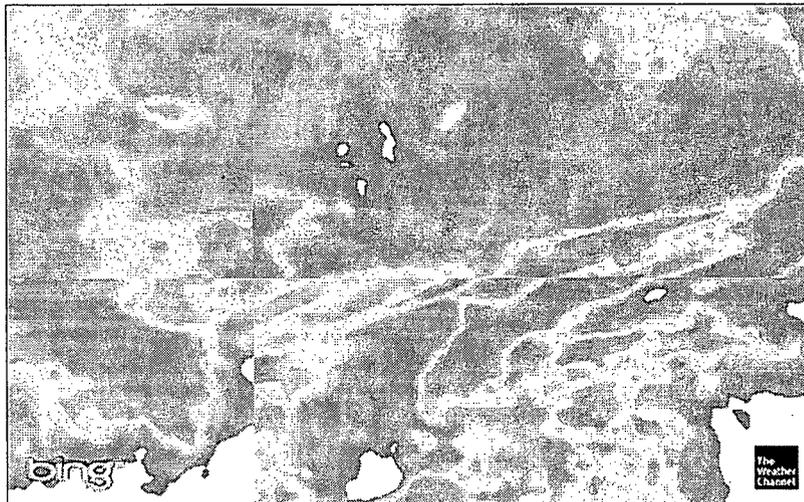
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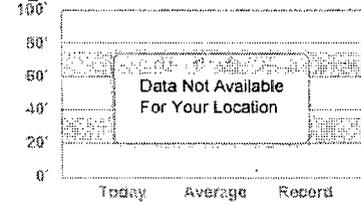
South America Satellite Map

Africa Satellite Map

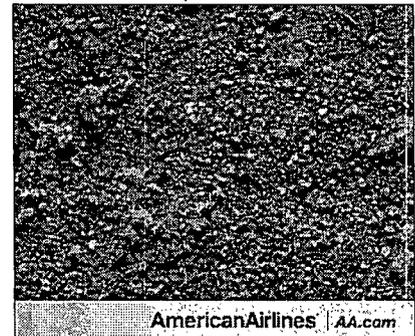
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Today's Averages & Records

Highs | Lows



HISTORICAL DATA



On This Date

March 15

In 1993, 69 daily low temperature records were broken over the eastern U.S. as cold air persisted behind the "Blizzard of '93." Fort Myers, Florida shivered at 39° F.

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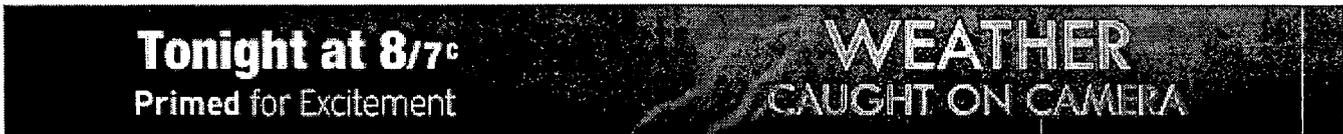
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Local Text Forecast for
Fukushima, Japan

Mar 15 Today

Mainly cloudy. Temps nearly steady in the mid 30s. Winds W at 5 to 10 mph.

Mar 15 Tonight

Rain and snow this evening, becoming all snow overnight. Low near 30F. Winds NNE at 5 to 10 mph. Chance of precip 70%. Snow accumulating 1 to 2 inches.

Mar 16 Tomorrow

Snow during the morning will give way to lingering snow showers during the afternoon. Temps nearly steady around 30. Winds NNW at 10 to 20 mph. Chance of snow 70%. Snow accumulating 1 to 2 inches.

Mar 16 Tomorrow night

Considerable clouds early. Some decrease in clouds late. Low near 25F. Winds WNW at 10 to 20 mph.

Mar 17 Thursday

Snow showers. Highs in the low 30s and lows in the mid 20s.

Mar 18 Friday

Mortgage



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Today's Top

- Southern snow
- Quake, tsunami
- Video: World
- Video: Tsunami
- How do hyt

Partly cloudy. Highs in the low 30s and lows in the mid 20s.

Mar 19 Saturday

Times of sun and clouds. Highs in the low 40s and lows in the low 30s.

Mar 20 Sunday

Showers. Highs in the low 40s and lows in the mid 30s.

Mar 21 Monday

Mix of rain and snow. Highs in the mid 30s and lows in the upper 20s.

Mar 22 Tuesday

Times of sun and clouds. Highs in the low 30s and lows in the upper 20s.

Mar 23 Wednesday

Mix of rain and snow showers. Highs in the mid 30s and lows in the upper 20s.

Mar 24 Thursday

Times of sun and clouds. Highs in the upper 30s and lows in the upper 20s.

Details	Video	Text	Averages
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Overview **Hourly** Tomorrow Weekend 5-Day 10-Day Month Map

Hour-by-Hour Weather Forecast for Fukushima, Japan ° F | ° C

Overview Details Weather Related to...

Time	Condition	Feels Like	Chance Precip	Humidity	Wind
Tuesday, March 15					
3 pm	37°F Cloudy	30°F	20%	62%	From WNW 9 mph
4 pm	37°F Cloudy	30°F	20%	62%	From NW 9 mph
5 pm	36°F Cloudy	30°F	20%	64%	From NW 8 mph
Sunset 5:45 pm					
6 pm	36°F Cloudy	30°F	20%	64%	From NNW 8 mph
7 pm	35°F Rain / Snow	29°F	50%	64%	From N 7 mph
8 pm	35°F Rain / Snow	30°F	50%	64%	From N 6 mph
9 pm	34°F Rain / Snow	29°F	60%	67%	From NNE 6 mph
10 pm	34°F Rain / Snow	29°F	70%	67%	From NNE 6 mph
11 pm	33°F Rain / Snow	27°F	70%	69%	From NNE 6 mph
Wednesday, March 16					

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Channel9Investigates.com

12 am	 33°F Rain / Snow	27°F	70%	69%	From NE 6 mph
1 am	 32°F Snow	26°F	70%	67%	From NE 6 mph
2 am	 32°F Snow	26°F	70%	67%	From NE 6 mph

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Hour-by-Hour Weather Forecast for Fukushima, Japan

° F | ° C

Overview

Details

Weather Related to...

Time	Condition	Feels Like	Chance Precip	Humidity	Wind
Tuesday, March 15					
1 am	34°F Mostly Cloudy	29°F	20%	70%	From WNW 6 mph
2 am	34°F Mostly Cloudy	29°F	20%	67%	From WNW 6 mph
3 am	34°F Mostly Cloudy	29°F	20%	67%	From WNW 5 mph
4 am	34°F Mostly Cloudy	29°F	20%	67%	From WNW 5 mph
5 am	29°F	20%	64%		

1

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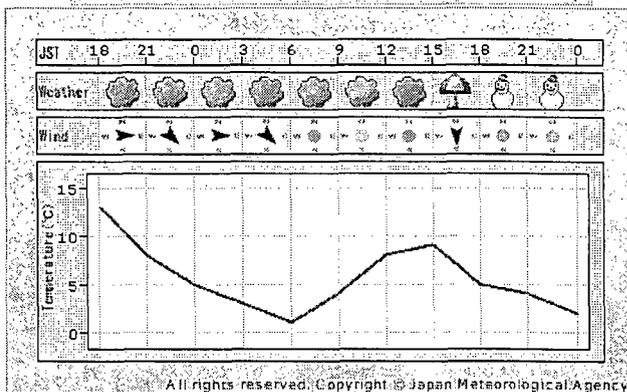
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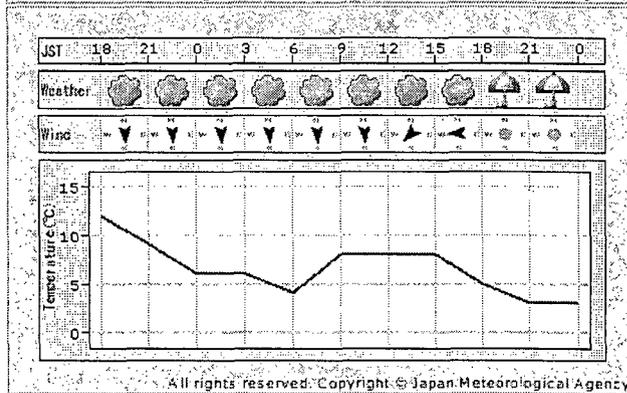
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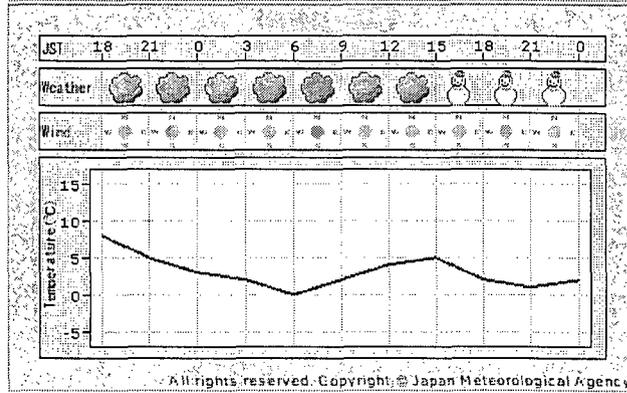
**Nakadori
 (Temperature at Fukushima)**



**Hamadori
 (Temperature at Onahama)**



**Aizu
 (Temperature at Wakamatsu)**



 34°F Mostly Cloudy From W 5 mph						
☀ Sunrise 5:52 am						
6 am		34°F Mostly Cloudy	29°F	20%	64%	From W 6 mph
7 am		34°F Mostly Cloudy	29°F	20%	64%	From WSW 6 mph
8 am		35°F Mostly Cloudy	30°F	10%	62%	From WSW 6 mph
9 am		35°F Mostly Cloudy	30°F	10%	62%	From WSW 6 mph
10 am		35°F Mostly Cloudy	29°F	10%	62%	From WSW 7 mph
11 am		36°F Mostly Cloudy	30°F	10%	62%	From WSW 7 mph
12 pm		36°F Mostly Cloudy	30°F	10%	62%	From W 8 mph
Next ▶						
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Right Now

Next 36 Hours

N/A

N/A

45°F

Feels Like: 39°

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Wind:
From N at 12mph

Today



PM Showers

44°

High

Chance of Rain:
30%

Wind:
ENE at 9 mph

Tonight



Rain

36°

Low

Chance of Rain:
90%

Wind:
NNE at 8 mph

Tomorrow



Rain

39°

High

Chance of Rain:
80%

Wind:
NNW at 19 mph

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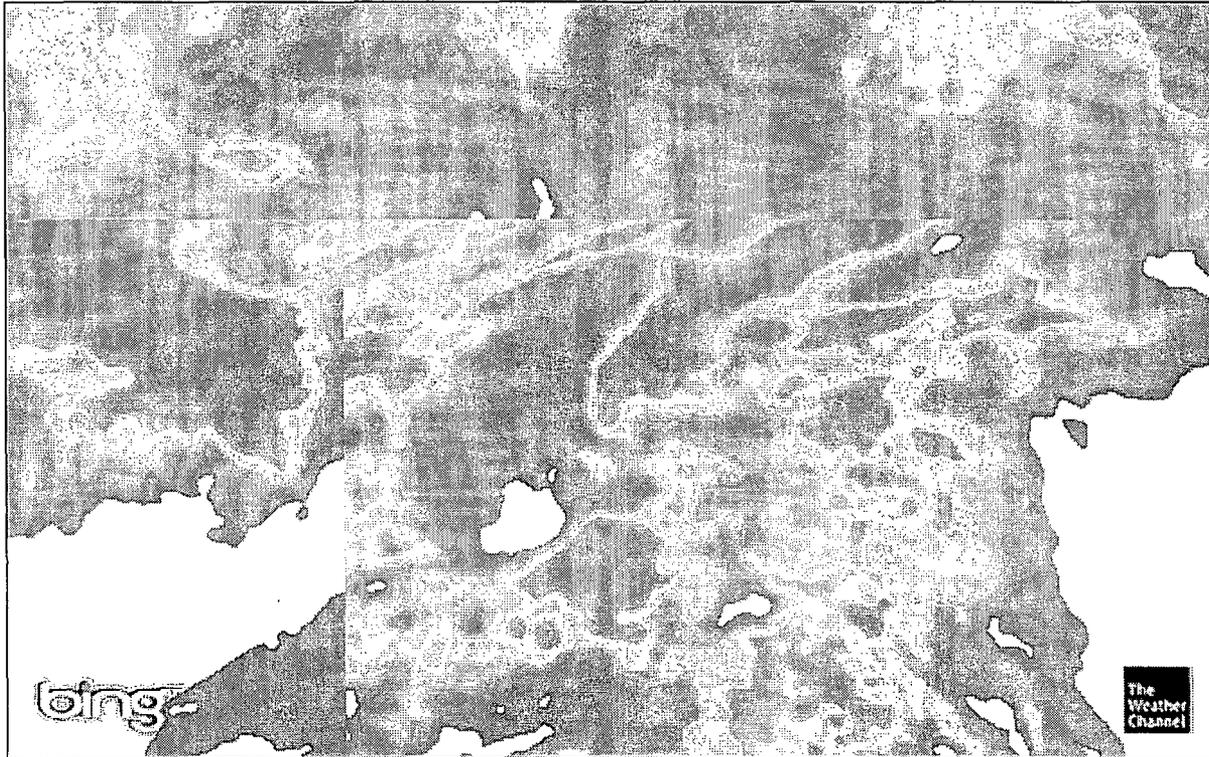
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Local Text Forecast for Sendai, Japan

Mar 15 Today

Mostly cloudy skies with a few showers this afternoon. High 44F. Winds ENE at 5 to 10 mph. Chance of rain 30%.

Mar 15 Tonight

Periods of rain. Low 36F. Winds NNE at 5 to 10 mph. Chance of rain 90%. Rainfall around a half an inch.

Mar 16 Tomorrow

Periods of rain. Temps nearly steady in the mid to upper 30s. Winds NNW at 15 to 25 mph. Chance of rain 80%. Rainfall around a quarter of an inch.

Mar 16 Tomorrow night

Snow showers before midnight. Becoming partly cloudy later. Low 28F. Winds NW at 10 to 20 mph. Chance of snow 50%. Snow accumulations less than one inch.

Mar 17 Thursday

Times of sun and clouds. Highs in the upper 30s and lows in the upper 20s.

Mar 18 Friday

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- Southern s
- Quake, tsur
- Video: Worl
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- How do hyb

More sun than clouds. Highs in the low 40s and lows in the upper 20s.

Mar 19 Saturday

Times of sun and clouds. Highs in the low 50s and lows in the low 30s.

Mar 20 Sunday

Showers. Highs in the mid 50s and lows in the upper 30s.

Mar 21 Monday

Showers possible. Highs in the mid 40s and lows in the low 30s.

Mar 22 Tuesday

Partly cloudy. Highs in the mid 40s and lows in the low 30s.

Mar 23 Wednesday

Occasional showers possible. Highs in the upper 40s and lows in the mid 30s.

Mar 24 Thursday

Times of sun and clouds. Highs in the low 50s and lows in the mid 30s.

Details	Video	Text	Averages
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Overview	Hourly	Tomorrow	Weekend	5-Day	10-Day	Month
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Overview	Hourly	Tomorrow	Weekend	5-Day	10-Day	Month	Map
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Hour-by-Hour Weather Forecast for Sendai, Japan ° F | ° C

Overview Details [Weather Related to...](#)

Time	Condition	Feels Like	Chance Precip	Humidity	Wind
Tuesday, March 15					
4 am	40°F Showers	36°F	40%	76%	From N 6 mph
5 am	41°F Showers	37°F	40%	70%	From N 6 mph
☀ Sunrise 5:49 am					
6 am	41°F Showers	38°F	40%	68%	From NNE 5 mph
7 am	42°F Mostly Cloudy	39°F	20%	62%	From NNE 5 mph
8 am	42°F Mostly Cloudy	39°F	20%	60%	From NE 5 mph
9 am	43°F Mostly Cloudy	41°F	20%	55%	From NE 4 mph
10 am	44°F Mostly Cloudy	41°F	20%	53%	From ENE 5 mph
11 am	44°F Mostly Cloudy	41°F	10%	53%	From ENE 6 mph
12 pm	44°F Mostly Cloudy	40°F	20%	53%	From ENE 7 mph
1 pm	44°F Few Showers	39°F	30%	53%	From ENE 8 mph
2 pm	39°F	30%	53%		

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	44°F Few Showers	From E 8 mph				
3 pm		44°F Few Showers	39°F	30%	56%	From E 9 mph
						Next ▶
Updated Tue, Mar 15, 1:36 am Local Time						

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Tomorrow	Weekend	5-Day	10-Day	Month	Map	Overview	Hourly
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Overview **Hourly** Tomorrow Weekend 5-Day 10-

Hour-by-Hour Weather Forecast for Sendai, Japan

° F | ° C

Overview

Details

Weather Related to...

Time	Condition	Feels Like	Chance Precip	Humidity	Wind
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☀ Sunrise 5:49 am					
6 am	 41°F Showers	38°F	40%	68%	From NNE 5 mph
7 am	 42°F Mostly Cloudy	39°F	20%	62%	From NNE 5 mph
8 am	 42°F Mostly Cloudy	39°F	20%	60%	From NE 5 mph

Open

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9 am		43°F Mostly Cloudy	41°F	20%	55%	From NE 4 mph
10 am		44°F Mostly Cloudy	41°F	20%	53%	From ENE 5 mph
11 am		44°F Mostly Cloudy	41°F	10%	53%	From ENE 6 mph
12 pm		44°F Mostly Cloudy	40°F	20%	53%	From ENE 7 mph
1 pm		44°F Few Showers	39°F	30%	53%	From ENE 8 mph
2 pm		44°F Few Showers	39°F	30%	53%	From E 8 mph
3 pm		44°F Few Showers	39°F	30%	56%	From E 9 mph

Next ▶

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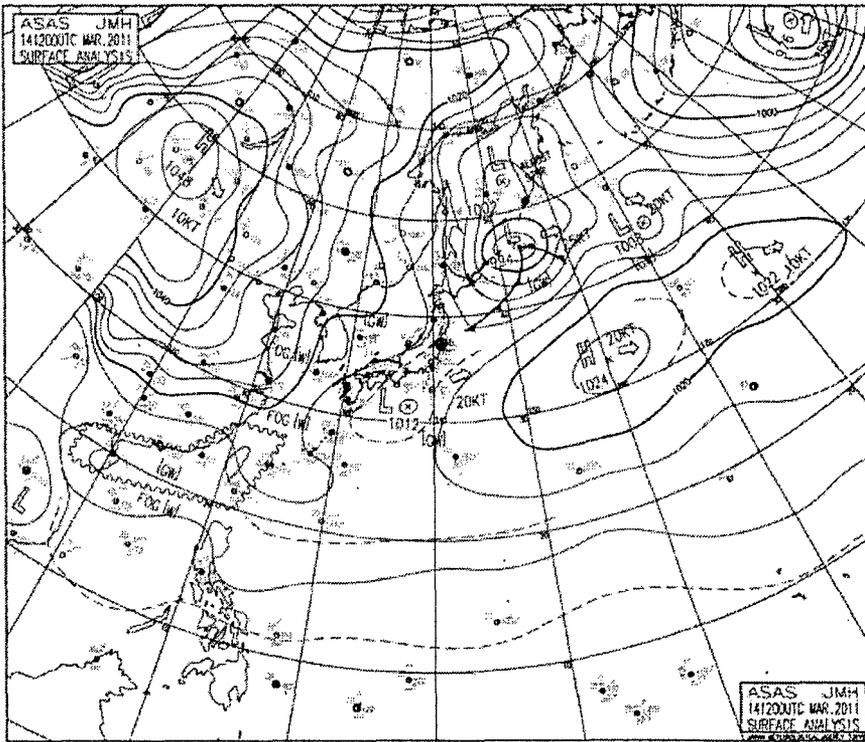
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Analysis Chart



Daily Forecasts:

Fukushima

Updated at 17:00 JST, 14 March 2011

(/: to, |: occasionally or partly)

Nakadori		Three-hourly Forecasts	Probability of Precipitation	Temperature Forecast		
Tonight 14 March 	FINE BECOMING CLOUDY		00-06 --% 06-12 --% 12-18 --% 18-24 10%			
Tomorrow 15 March 	CLOUDY BECOMING SNOW		00-06 10% 06-12 10% 12-18 50% 18-24 70%	Morning Daytime		
				Low	High	
				Fukushima 1°C	9°C	
				Koriyama 0°C	7°C	
				Shirakawa 0°C	8°C	
Day after tomorrow 16 March 	SNOW AT TIMES	One-week Forecasts				
Hamadori		Three-hourly Forecasts	Probability of Precipitation	Temperature Forecast		
Tonight 14 March 	FINE BECOMING CLOUDY		00-06 --% 06-12 --% 12-18 --% 18-24 10%			
Tomorrow 15 March 	CLOUDY BECOMING RAIN		00-06 10% 06-12 10% 12-18 30% 18-24 70%	Morning Daytime		
				Low	High	
				Onahama 3°C	9°C	
				Soma 2°C	7°C	
Day after tomorrow 16 March 	SNOW AT TIMES	One-week Forecasts				
Aizu		Three-hourly Forecasts	Probability of Precipitation	Temperature Forecast		
Tonight 14 March 	CLOUDY		00-06 --% 06-12 --% 12-18 --% 18-24 20%			
Tomorrow 15 March 	CLOUDY BECOMING SNOW		00-06 10% 06-12 10% 12-18 60% 18-24 80%	Morning Daytime		
				Low	High	
				Wakamatsu 0°C	5°C	
				Tajima -2°C	6°C	
Day after tomorrow 16 March 	SNOW	One-week Forecasts				

Inland West



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Wind Forecast in Hamadori (Fukushima Prefecture)

issued: 0600JST, 16 March

	near surface	1,000m above
16 March	Northerly 2~5m/s, later, North-westerly 5~12 m/s	North-westerly 5~10m/s, later, 15~20m/s
17 March	Westerly 5~9m/s	North-westerly 15~20m/s

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