

Zorn, Jason

From: Zorn, Jason
Sent: Friday, March 11, 2011 9:19 AM
To: Ostendorff, William; Nieh, Ho; Warnick, Greg; Franovich, Mike; Kock, Andrea; Herr, Linda
Subject: FYI -- Hawaii Tsunami -- No damage reported

This was just reported in the Honolulu Advertiser. The first waves hit the Western-most island of Kauai and waves were measuring about 6 feet. Considering that waves were about 15-20 feet when I was there in January, this is pretty insubstantial.

http://www.staradvertiser.com/news/breaking/Hawaii_prepares_for_tsunami_from_massive_Japan_quake.html

WAR
From: Hopkins, Jon
To: Foggie, Kirk
Cc: Boger, Bruce; Regan, Christopher; Cullingford, Michael; Emche, Danielle; Astwood, Heather
Date: Friday, March 11, 2011 7:55:12 AM

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.

REL
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>

4/2

NAR

From: Hopkins, Jon
To: Boger, Bruce; McGinty, Tim; Brown, Frederick
Cc: Thomas, Eric; Regan, Christopher; Cullingford, Michael; Astwood, Heather; Quinones, Lauren; Schwartzman, Jennifer; Foggie, Kirk; Ramsey, Jack
Subject: INFO: Japan NPP - US supplies coolant
Date: Friday, March 11, 2011 2:53:06 PM

REV

"The US Air Force has delivered coolant to a Japanese nuclear plant which was jolted by the biggest earthquake in Japan's history, US Secretary of State Hillary Clinton said Friday. "We just had our Air Force assets in Japan transport some really important coolant to one of the nuclear plants," Clinton said in Washington.

"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," the chief US diplomat said."

http://www.industryweek.com/articles/u-s-delivers-coolant-to-japanese-nuclear-reactor_24111.aspx

43

NRP

From: Hopkins, Jon
To: Boger, Bruce; McGinty, Tim; Brown, Frederick
Cc: Thomas, Eric; Regan, Christopher; Cullingford, Michael; Astwood, Heather; Quinones, Lauren; Schwartzman, Jennifer; Foggie, Kirk; Ramsey, Jack
Subject: INFO: Japan NPP
Date: Friday, March 11, 2011 2:56:19 PM

REL

“The temperature in one reactor’s nuclear fuel rods has built up to 50% above normal levels since the six-reactor facility was shut down following the most powerful earthquake on record in the island nation, the Nuclear and Industrial Safety Agency reported.”

<http://www.chicagotribune.com/news/nationworld/la-fgw-japan-quake-nuclear-20110312,0,6581307.story>

2/4

NRR

From: Hopkins, Jon
To: Boger, Bruce
Cc: Regan, Christopher; Cullingford, Michael; Astwood, Heather; Quinones, Lauren; McGinty, Tim; Blount, Tom; Foggie, Kirk; Ramsey, Jack; Schwartzman, Jennifer; Brown, Frederick; Thomas, Eric; Burnell, Scott
Subject: INFO: UCS statement re Japan earthquake
Date: Friday, March 11, 2011 2:15:06 PM

Bruce,

FYI. Statement from UCS.

REL

"...scientists said they needed to do more to ensure that future quakes don't risk the kind of reactor impact that Japan is now grappling with. We do not believe the safety standards for U.S. nuclear reactors are enough to protect the public today," Edwin Lyman, senior scientist, global security programs, at the Union of Concerned Scientists, told Reuters...."

<http://www.comcast.net/articles/news-science/20110311/SCIENCE-US-JAPAN-QUAKE-USA-NUCLEAR/>

Jon

NRP
From: Astwood, Heather
To: Boger, Bruce; 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: INFO Japan: Radioactive Steam Could Be Released From Troubled Plant
Date: Friday, March 11, 2011 2:56:17 PM

FYI

NEL
From: Breskovic, Clarence *101P*
Sent: Friday, March 11, 2011 1:56 PM
To: Breskovic, Clarence
Subject: Japan: Radioactive Steam Could Be Released From Troubled Plant

Radioactive Steam Could Be Released From Troubled Plant

Tokyo Kyodo World Service 1819 GMT 11 Mar 11

Tokyo, March 12 Kyodo -- Japanese authorities are nearing a decision to release radioactive steam from a troubled nuclear reactor, industry minister Benri Kaieda said Saturday.

Kaieda was referring to the rising pressure inside the No. 1 reactor of the Fukushima No. 1 plant, which was hit by a powerful earthquake Friday.

NAR

From: Astwood, Heather
To: Leads, Eric; Boger, Bruce; McGinty, Tim; Valentine, Nicholee; Titus, Brett; Susco, Jeremy; Roquecruz, Carla; Nguven, 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
Date: Friday, March 11, 2011 8:27:48 AM

FYI

REL

From: Breskovic, Clarence *DIP*
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.

From: Foggie, Kirk, OIP
To: Hopkins, Jon
Cc: Boger, Bruce; Regan, Christopher; Cullingford, Michael; Emche, Danielle; Astwood, Heather; Ramsey, Jack; Abrams, Charlotte
Subject: Re:
Date: Friday, March 11, 2011 8:04:43 AM

John et al.,

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

Kirk
Sent from Blackberry.

From: Hopkins, Jon, NR
To: Foggie, Kirk
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

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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.

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

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

4/8

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

From: Astwood, Heather, *NHR*
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
Date: Friday, March 11, 2011 8:31:07 AM

FYI

From: Breskovic, Clarence, *OIP*
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".

NR

From: Leeds, Eric
To: Weber, Michael
Cc: Virillio, Martin; McDermott, Brian; Boger, Bruce; Grobe, Jack; Hiland, Patrick; McGinty, Tim; Ruland, William
Subject: FW: UPDATE: RTR Facilities- no immediate impact from Tsunami Warning
Date: Friday, March 11, 2011 12:41:23 PM
Importance: High

REL

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

NR

From: Quichocho, Jessie
Sent: Friday, March 11, 2011 11:40 AM
To: McGinty, Tim; Blount, Tom; Leeds, Eric; Boger, Bruce
Cc: Reed, Elizabeth; Sloan, Scott; Eads, Johnny; Adams, John; Ross-Lee, MaryJane; Tran, Linh; Isaac, Patrick
Subject: UPDATE: RTR Facilities- no immediate impact from Tsunami Warning
Importance: High

The facility that comes close to the coast line is UC- Irvine at about 4 miles or so at an elevation of 100 feet. All other facilities are much further inland and will not be impacted by a Tsunami.

At 11:15am the NRC contacted the Facility Director, UC- Irvine and was informed that he was aware of the Tsunami warning, that the predictions in the area of the facility were small waves, and that he does not feel that the effects of a Tsunami would impact his facility. We discussed other indirect impacts such as loss of power and possible flooding. The licensee will contact the NRC if there should be any other developments resulting from the Tsunami Warning.

Questions, please feel free to contact Linh Tran or myself.

Jessie

4/10

From: ANS Broadcasts
To: Boger, Bruce, *NCR*
Subject: Go to ANSNUCLEARCAFE.ORG for Japan's Nuclear Plant Status
Date: Friday, March 11, 2011 6:51:35 PM

NEL

The ANS Nuclear Cafe blog is posting the latest links to information about the status of Japan's Nuclear Power Plants. Go to <http://ansnuclearcafe.org/> for a collection of sources covering Japan's earthquake and Tsunami.

4/11

From: Cullingford, Michael *W.R.N.*
To: Regan, Christopher; Hopkins, Jon; Astwood, Heather; Quinones, Lauren
Cc: Leeds, Eric; McGinty, Tim; Boger, Bruce; Grobe, Jack; Foggie, Kirk
Subject: FW: Seismic information
Date: Friday, March 11, 2011 4:29:56 PM
Attachments: News Releases No5.pdf

Fyi: Latest info.....mc

REL

From: Aono, Kenjiro [mailto:aono-kenjiro@jnes-usa.org]
Sent: Friday, March 11, 2011 4:20 PM
To: Cullingford, Michael
Cc: yamachika-hidehiko@jnes-usa.org; Aono Kenjiro
Subject: Seismic information

Dear Michael-san,

Thank you for taking time for our meeting. The meeting is very helpful for us.

Attached file is the Seismic information Mr. Nakagawa explained to you today.
I will e-mail you the latest information continuously.

Best Regards;
Kenjiro

4/12

March 11, 2011

Nuclear and Industrial Safety Agency

Seismic Damage Information (the 5th Release)
(As of 20:00 March 11, 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, and Fukushima Dai-ni NPSs, Tokyo Electric Power Co., Inc. and works at the Japan Nuclear Fuel, and electricity, gas, heat supply and complex as follows:

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, M8.8
- (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 18:45)

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

Report of fire: CO2 extinguishment started at 17:15

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.

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, Unit 3)

(*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)

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, Units 1,2 and 4)

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 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-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

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: Foggie, Kirk ^{101P}
To: Hopkins, Jon
Cc: Boger, Bruce; Regan, Christopher; Cullingford, Michael; Emche, Danielle; Astwood, Heather; Mamish, Nader; Abrams, Charlotte; Ramsey, Jack; Stahl, Eric
Subject: RE:
Date: Friday, March 11, 2011 8:35:28 AM
Attachments: News Releases No.2 IAEA.docx
110311 press release on earthquake1 (2).pdf
News Releases No4 IAEA.docx

REL
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 ^{101P}
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

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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>

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<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,
Fururu-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:

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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

From: Grobe, Jack - NRR
To: Brown, Frederick - NRR
Subject: Any updates on Japan?
Date: Friday, March 11, 2011 3:23:54 PM

Jack Grobe, Deputy Director, NRR

4/14

From: Leeds, Eric - NRR
To: Sheron, Brian; Weber, Michael; Virgilio, Martin
Cc: Grobe, Jack
Subject: RE: Japanese Earthquake
Date: Friday, March 11, 2011 7:43:35 AM

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 - RES
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

4/15

From: Rodriguez, Veronica - NRR
To: Skeen, David; Tappert, John; Grobe, Jack; Dehn, Jeff; Gibson, Lauren; Karwoski, Kenneth; McHale, John; NRD; RES; Quinones, Lauren; Regan, Christopher; Tabatabai, Omid; Tate, Travis
Subject: CNS News
Date: Friday, March 11, 2011 8:44:46 AM
Attachments: NPP Japan map2011.pdf

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.

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

2/16

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.

Nuclear Power Plant

 BWR (in operation)	 BWR (under construction)
 PWR (in operation)	 PWR (under construction)

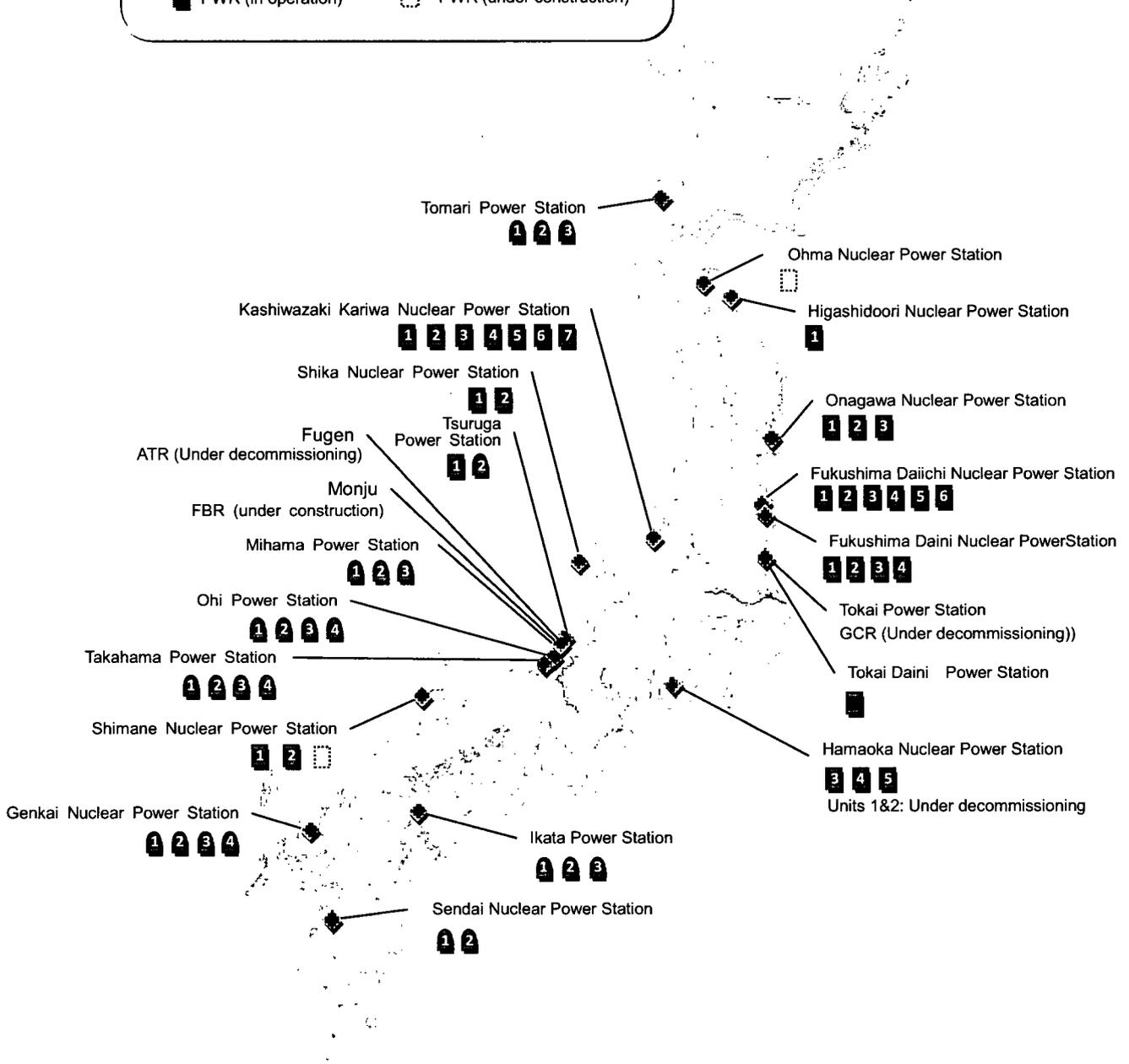


Fig. A-2 Locations of Nuclear Installations

From: Brown, Frederick - NRR
To: Grobe, Jack
Subject: FW: Any updates on Japan?
Date: Friday, March 11, 2011 3:32:49 PM

If you can't get to the TEMPCO website (far better than all official communications), press release from earlier this afternoon:

Unit 1 (shut down at 2:48PM on March 11th)

- Reactor is shut down and reactor water level is stable.
- Offsite power is available.
- Control rods are fully inserted (reactor is in subcritical status)
- Status of main steam isolation valve: closed
- At 6:08PM, we announced the increase in reactor containment vessel pressure, assumed to be due to leakage of reactor coolant. However, we do not believe there is leakage of reactor coolant in the containment vessel at this moment.

Unit 2 (shut down at 2:48PM on March 11th)

- Reactor is shut down and reactor water level is stable.
- Offsite power is available.
- Control rods are fully inserted (reactor is in subcritical status)
- Status of main steam isolation valve: closed
- We do not believe there is leakage of reactor coolant in the containment vessel.

Unit 3 (shut down at 2:48PM on March 11th)

- Reactor is shut down and reactor water level is stable.
- Offsite power is available.
- Control rods are fully inserted (reactor is in subcritical status)
- Status of main steam isolation valve: closed
- We do not believe there is leakage of reactor coolant in the containment vessel.

Unit 4 (shut down at 2:48PM on March 11th)

- Reactor is shut down and reactor water level is stable.
- Offsite power is available.
- Control rods are fully inserted (reactor is in subcritical status)
- Status of main steam isolation valve: closed
- We do not believe there is leakage of reactor coolant in the containment vessel.

Indication from monitoring posts installed at the site boundary did not show any difference from ordinary level.

No radiation impact to the external environment has been confirmed.

We will continue to monitor in detail the possibility of radioactive material being discharged from exhaust stack or discharge canal.

There is no missing person within the power station.

We are presently checking on the site situation of each plant while keeping the situation of aftershock and Tsunami in mind.

A seriously injured worker is still trapped in the crane operating console of the exhaust stack and his breathing and pulse cannot be confirmed.

A worker was lightly injured spraining his left ankle and cutting both knees when he fell while walking at the site. The worker is conscious

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

From: Brown, Frederick - NRR
Sent: Friday, March 11, 2011 3:29 PM

4/17

To: Grobe, Jack
Subject: RE: Any updates on Japan?

Pretty good update in today's OpE screening summary e-mail.

Four units on RCIC.

One unit without AC (portable EDG flown in already)

Different unit with active ECCS due to high containment temp (or pressure?).

Info confused and trickling in.

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

From: Grobe, Jack 
Sent: Friday, March 11, 2011 3:24 PM
To: Brown, Frederick
Subject: Any updates on Japan?

Jack Grobe, Deputy Director, NRR

From: Cunningham, Liza — *NRK*
To: Auluck, Rajender; Boyce, Tom (RES); Brock, Kathryn; Campbell, Stephen; Carlson, Robert; Casto, Greg; Chernoff, Harold; Cranston, Gregory; Dennig, Robert; Dozier, Jerry; Eads, Johnny; Elliott, Robert; Franovich, Rani; Gavrilas, Mirela; Harrison, Donnie; Helton, Shana; Howe, Allen; Imboden, Andy; James, Lois; Kemper, William; Khanna, Meena; Klein, Alex; Kobetz, Timothy; Kulesa, Gloria; Lupold, Timothy; Manoly, Kamal; Markley, Michael; McHale, John; McMurtray, Anthony; Mendiola, Anthony; Mitchell, Matthew; Murphy, Martin; Pascarelli, Robert; Pelton, David; Pham, Bo; Raghavan, Rags; Rosenberg, Stacey; Salgado, Nancy; Scott, Michael; Shoop, Undine; Simms, Sophonia; Tate, Travis; Taylor, Robert; Thatcher, Dale; Thorp, John; Wilson, George; Wrona, David; Zimmerman, Jacob; Boger, Bruce; Givvines, Mary; Grobe, Jack; Leeds, Eric; Bahadur, Sher; Blount, Tom; Brown, Frederick; Cheok, Michael; Cunningham, Mark; Evans, Michele; Ficks, Ben; Galloway, Melanie; Glitter, Joseph; Hiland, Patrick; Holian, Brian; Lee, Samson; Lubinski, John; Lund, Louise; McGinty, Tim; Nelson, Robert; Quay, Theodore; Ruland, William; Skeen, David
Cc: NRR DIRS IOEB Distribution
Subject: FW: Issued: PNO-IV-11-001, Diablo Canyon Power Plant Notification of Unusual Event
Date: Friday, March 11, 2011 2:24:37 PM
Attachments: PNO-IV-11-001 Diablo Canyon NOUE.docx

Attached is the PNO-IV-11-001: Diablo CANYON POWER PLANT NOTIFICATION OF UNUSUAL EVENT

Thanks,
Liza Cunningham

From: Owen, Lucy — *RLW*
Sent: Friday, March 11, 2011 2:21 PM
To: R4; PN_Distribution
Subject: Issued: PNO-IV-11-001, Diablo Canyon Power Plant Notification of Unusual Event

ML1100700503

4/18

March 11, 2011

PRELIMINARY NOTIFICATION OF EVENT OR UNUSUAL OCCURRENCE -- PNO-IV-11-001

This preliminary notification constitutes EARLY notice of events of POSSIBLE safety or public interest significance. The information is as initially received without verification or evaluation, and is basically all that is known by the Region IV staff on this date.

<u>Facility</u>	<u>Licensee Emergency Classification</u>
Pacific Gas and Electric Company	<input checked="" type="checkbox"/> Notification of Unusual Event
Diablo Canyon Nuclear Plant Units 1 and 2	<input type="checkbox"/> Alert
Avila Beach, CA.	<input type="checkbox"/> Site Area Emergency
Docket: 50-275, 50-323	<input type="checkbox"/> General Emergency
License: DPR-80, DPR-82	<input type="checkbox"/> Not Applicable

SUBJECT: DIABLO CANYON POWER PLANT NOTIFICATION OF UNUSUAL EVENT

DESCRIPTION:

The agency entered Monitoring Mode at 9:46 a.m. EST, on March 11, 2011, in response to a tsunami warning at Diablo Canyon Power Plant, located near San Luis Obispo, California, as a result of the magnitude 8.9 earthquake in Japan. Diablo Canyon declared a Notification of Unusual Event at 4:23 a.m. EST, based on receipt of a tsunami warning from West California Emergency Management. Diablo Canyon anticipates a wave surge of approximately 3 feet at the intake structure. Diablo Canyon is designed to withstand tsunamis to a wave height of 35 feet. The licensee intends to keep both units at full power through the event. The NRC resident inspectors are on site and monitoring plant conditions and licensee actions from the control room.

The effects of the tsunami at San Onofre Nuclear Generating Station are expected to be less severe than at Diablo Canyon. San Onofre is under a tsunami advisory and has not reached any emergency action levels. Both units continue to operate.

The NRC is contacting Program Directors for states impacted by the tsunami. There are no known tsunami impacts to nuclear materials licensees in the affected states or U.S. territories. The NRC is also monitoring the Humboldt Bay spent fuel storage facility. The agency will continue to monitor the situation.

The State of California has been informed. This information has been discussed with licensee management and is current as of 12:19 p.m. EST.

This preliminary notification is issued for information only, and will be updated as more information becomes available.

ADAMS ACCESSION NUMBER: ML110700503

CONTACTS:	Lara Uselding	Geoffrey Miller
	(817)917-0321	(817)917-1212
	Lara.Uselding@nrc.gov	Geoffrey.Miller@nrc.gov

public

From: Cullingford, Michael - NRK
To: Regan, Christopher; Hopkins, Jon; Astwood, Heather; Quinones, Lauren
Cc: Leeds, Eric; McGinty, Tim; Boger, Bruce; Grobe, Jack; Foggie, Kirk
Subject: FW: Seismic information
Date: Friday, March 11, 2011 4:29:56 PM
Attachments: News Releases No5.pdf

Fyi: Latest info.....mc

From: Aono, Kenjiro [mailto:aono-kenjiro@jnes-usa.org]
Sent: Friday, March 11, 2011 4:20 PM
To: Cullingford, Michael
Cc: yamachika-hidehiko@jnes-usa.org; Aono Kenjiro
Subject: Seismic information

Dear Michael-san,

Thank you for taking time for our meeting. The meeting is very helpful for us.

Attached file is the Seismic information Mr. Nakagawa explained to you today.
I will e-mail you the latest information continuously.

Best Regards;
Kenjiro

4/19

March 11, 2011
Nuclear and Industrial Safety Agency

Seismic Damage Information (the 5th Release)
(As of 20:00 March 11, 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, and Fukushima Dai-ni NPSs, Tokyo Electric Power Co., Inc. and works at the Japan Nuclear Fuel, and electricity, gas, heat supply and complex as follows:

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, M8.8
- (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 18:45)

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

Report of fire: CO2 extinguishment started at 17:15

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.

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, Unit 3)

(*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)

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, Units 1,2 and 4)

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 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-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

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: Leeds, Eric - NRK
To: Weber, Michael OEDO
Cc: Virgilio, Martin; McDermott, Brian; Boger, Bruce; Grobe, Jack; Hiland, Patrick; McGinty, Tim; Ruland, William
Subject: FW: UPDATE: RTR Facilities- no immediate impact from Tsunami Warning
Date: Friday, March 11, 2011 12:41:23 PM
Importance: High

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

From: Quichocho, Jessie - NRK
Sent: Friday, March 11, 2011 11:40 AM
To: McGinty, Tim; Blount, Tom; Leeds, Eric; Boger, Bruce
Cc: Reed, Elizabeth; Sloan, Scott; Eads, Johnny; Adams, John; Ross-Lee, MaryJane; Tran, Linh; Isaac, Patrick
Subject: UPDATE: RTR Facilities- no immediate impact from Tsunami Warning
Importance: High

The facility that comes close to the coast line is UC- Irvine at about 4 miles or so at an elevation of 100 feet. All other facilities are much further inland and will not be impacted by a Tsunami.

At 11:15am the NRC contacted the Facility Director, UC- Irvine and was informed that he was aware of the Tsunami warning, that the predictions in the area of the facility were small waves, and that he does not feel that the effects of a Tsunami would impact his facility. We discussed other indirect impacts such as loss of power and possible flooding. The licensee will contact the NRC if there should be any other developments resulting from the Tsunami Warning.

Questions, please feel free to contact Linh Tran or myself.

Jessie

4/20

From: ANS Broadcasts
To: Grobe, Jack
Subject: Go to ANSNUCLEARCAFE.ORG for Japan's Nuclear Plant Status
Date: Friday, March 11, 2011 7:46:50 PM

The ANS Nuclear Cafe blog is posting the latest links to information about the status of Japan's Nuclear Power Plants. Go to <http://ansnuclearcafe.org/> for a collection of sources covering Japan's earthquake and Tsunami.

4/21

From: Brown, Frederick - NRR
To: Grobe, Jack - NRR
Subject: RE: Any updates on Japan?
Date: Friday, March 11, 2011 3:29:29 PM

Pretty good update in today's OpE screening summary e-mail.

Four units on RCIC.

One unit without AC (portable EDG flown in already)

Different unit with active ECCS due to high containment temp (or pressure?).

Info confused and trickling in.

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

From: Grobe, Jack - NRR
Sent: Friday, March 11, 2011 3:24 PM
To: Brown, Frederick
Subject: Any updates on Japan?

Jack Grobe, Deputy Director, NRR

4/22

From: Grobe, Jack *inRR*
To: Brenner, Eliot
Cc: Jaczko, Gregory; Borchardt, Bill; Virgilio, Martin; Weber, Michael; Leeds, Eric
Subject: Fw: Update on Japan Situation
Date: Saturday, March 12, 2011 10:18:57 PM
Attachments: [ANS Japan Backgrounder.pdf](#)

Eliot,

Not sure if you have seen this. Thought you would be interested in what the ANS is saying.

Jack
Jack Grobe, Deputy Director, NRR

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

From: Joe Colvin <president@ans.org>
To: Grobe, Jack
Sent: Sat Mar 12 19:31:59 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

4/23

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.

Kock, Andrea

From: Franovich, Mike
Sent: Saturday, March 12, 2011 4:58 PM
To: Ostendorff, William
Cc: Nieh, Ho; Warnick, Greg; Kock, Andrea; Zorn, Jason
Subject: NEI Posted Information
Attachments: ines.pdf

The IAEA event scale is attached for reference.

Latest Updates



UPDATE AS OF 12:30 P.M. EST, SATURDAY, MARCH 12:

The incident at Fukushima Daiichi has received a level 4 rating on the International Atomic Energy Agency's (IAEA) International Nuclear and Radiological Event Scale (INES), lower than both the 1986 Chernobyl disaster (rated 7 on the 7-point scale) and the 1979 Three Mile Island accident (rated 5).

Japanese authorities did not give radiation measurements in their INES report to the IAEA, but plant operator Tokyo Electric Power Co., reported that radiation levels next to the Unit 1 machine building had increased from 0.007 rem per hour to 0.67 rem per hour.

TEPCO confirmed it has successfully vented the containment of Unit 1 and was preparing to vent units 2 and 3. Venting reduces pressure in the containment. Boric acid and sea water are being used to cool the plant's Unit 1 reactor.

A government official attributed an explosion earlier today to accumulated hydrogen combined with oxygen in the space between the containment and the outer structure. The primary containment was not damaged, he said.

2/24

Kock, Andrea

From: Franovich, Mike
Sent: Saturday, March 12, 2011 3:45 AM
To: Ostendorff, William
Cc: Nieh, Ho; Warnick, Greg
Subject: SkyNews report video on F - Daiichi and Daini

Sir,

The following report says the Japanese PM visit Fukushima Daiichi. Also shows aerial footage of flood waters around the plants.

[http://news.sky.com/skynews/Home/World-News/Video-Nuclear-Power-Plant-Emergencies-After-Japan-Earthquake-And-Tsunami/Article/201002215950844?lpos=World News Top Stories Header 0&lid=ARTICLE 15950844 Video%3A Nuclear Power Plant Emergencies After Japan Earthquake And Tsunami](http://news.sky.com/skynews/Home/World-News/Video-Nuclear-Power-Plant-Emergencies-After-Japan-Earthquake-And-Tsunami/Article/201002215950844?lpos=World%20News%20Top%20Stories%20Header%200&lid=ARTICLE%2015950844%20Video%3A%20Nuclear%20Power%20Plant%20Emergencies%20After%20Japan%20Earthquake%20And%20Tsunami)

Mike

†
↓ **Franovich, Mike**

From: Franovich, Mike
Sent: Saturday, March 12, 2011 3:47 AM
To: Franovich, Rani
Subject: FW: SkyNews report video on F - Daiichi and Daini

FYI

Report of Japanese PM visit to Fukushima Daiichi. Also shows aerial footage of flood waters around the plants.

[http://news.sky.com/skynews/Home/World-News/Video-Nuclear-Power-Plant-Emergencies-After-Japan-Earthquake-And-Tsunami/Article/201002215950844?lpos=World News Top Stories Header 0&lid=ARTICLE 15950844 Video%3A Nuclear Power Plant Emergencies After Japan Earthquake And Tsunami](http://news.sky.com/skynews/Home/World-News/Video-Nuclear-Power-Plant-Emergencies-After-Japan-Earthquake-And-Tsunami/Article/201002215950844?lpos=World%20News%20Top%20Stories%20Header%200&lid=ARTICLE%2015950844)

Tracking:

4/26

Zorn, Jason

From: Zorn, Jason
Sent: Saturday, March 12, 2011 7:25 AM
To: Franovich, Mike
Subject: Re: Latest Talking Points and Q&A

Thanks for keeping me on distro, Mike.

From: Franovich, Mike
To: Ostendorff, William
Cc: Nieh, Ho; Warnick, Greg; Kock, Andrea; Zorn, Jason
Sent: Sat Mar 12 07:17:37 2011
Subject: FW: Latest Talking Points and Q&A

Good morning Sir,

Unfortunately this is the best we have at the moment. The attachment in the ET/liaison team report this morning simply stated possible core damage on Fukushima Daiichi unit 1.

The TEPCO site disclosed that some workers at the unit were injured and one was contaminated near 100 mRem.

Some images of an explosion at Unit 1 are on the web.

Mike

From: Burnell, Scott
Sent: Saturday, March 12, 2011 7:05 AM
To: Franovich, Mike; Orders, William; Snodderly, Michael; Castleman, Patrick
Cc: Brenner, Eliot
Subject: Latest Talking Points and Q&A

Gentlemen;

Current guidance is that all media requests go through OPA and all intergovernmental inquiries go through the Chairman's office. Thank you.

Scott

Ostendorff, William

From: Ostendorff, William
Sent: Saturday, March 12, 2011 9:00 AM
To: Franovich, Mike
Cc: Nieh, Ho; Warnick, Greg; Kock, Andrea; Zorn, Jason
Subject: Re: Hardened Vent Path for U.S. BWR/Mark I Containments

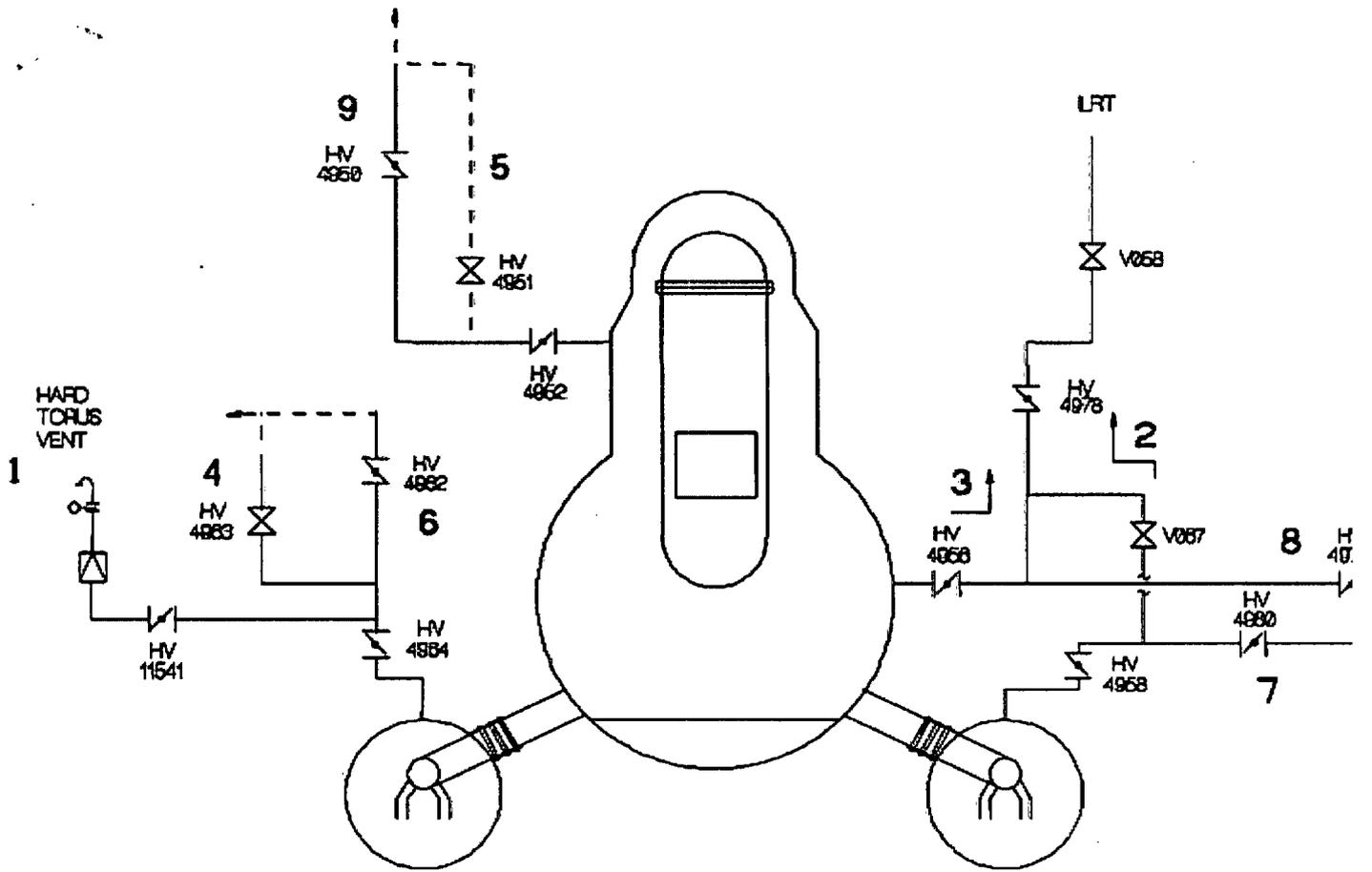
Thanks Mike-this is very helpful.

From: Franovich, Mike
To: Ostendorff, William
Cc: Nieh, Ho; Warnick, Greg; Kock, Andrea; Zorn, Jason
Sent: Sat Mar 12 08:55:58 2011
Subject: Hardened Vent Path for U.S. BWR/Mark I Containments

Sir,

If the Fukushima Daiichi Unit 1 explosion is the scenario in my previous e-mail, I put together a brief explanation of what US plants have to prevent such an explosion. Without a hardened vent, venting the primary containment shown below would have used soft ducting and other paths to the secondary containment (secondary containment is not shown). Based on severe accident risk studies of containments, the NRC took action in 1989 to retrofit BWR Mark I plants with a hardened wetwell vent path. Licensees also improved reactor pressure vessel depressurization system reliability, an alternative water supply to the reactor vessel and drywell sprays, and updated emergency procedures and training. Today I believe all U.S. plants have this feature. I say I believe all BWR/Mark I plants hav this feature because there were a few licensee's who refused to implement a change and I can't recall how those were resolved.

Below is a cutaway and on your left is the hardened vent of the torus (steam suppression pool). This is the arrangement for the Hope Creek plant as an example. The operator would use this pathway if necessary and the containment pressure was above 35 psig. The flow goes through a rupture disk. If there is no DC power or loss of pneumatics (local nitrogen bottle supply) the pathway valves may be throttled manually.



From: Joe Colvin
To: Boger, Bruce
Subject: Update on Japan Situation
Date: Saturday, March 12, 2011 7:00:49 PM
Attachments: ANS Japan Backgrounder.pdf

Dear ANS Members:

REU
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

4/29

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: Brenner, Eliot - OPA
To: Grobe, Jack - NRR
Subject: RE: Update on Japan Situation
Date: Saturday, March 12, 2011 10:21:12 PM

Thanks. Parallels some talking points they gave Klein.

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

From: Grobe, Jack - NRR
Sent: Saturday, March 12, 2011 10:19 PM
To: Brenner, Eliot - OPA
Cc: Jaczko, Gregory; Borhardt, Bill; Virgilio, Martin; Weber, Michael; Leeds, Eric
Subject: Fw: Update on Japan Situation

Eliot,

Not sure if you have seen this. Thought you would be interested in what the ANS is saying.

Jack
Jack Grobe, Deputy Director, NRR

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

From: Joe Colvin <president@ans.org>
To: Grobe, Jack - NRR
Sent: Sat Mar 12 19:31:59 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.

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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

2/30

From: Cullingford, Michael - *NRK*
To: Leeds, Eric; Grobe, Jack; Boger, Bruce; McGinty, Tim; Regan, Christopher; Astwood, Heather; Hopkins, Jon; Quinones, Lauren; Brown, Frederick; Cheek, Michael; Lubinski, John; Ruland, William; Gitter, Joseph; Holian, Brian
Subject: FW: Fukushima I Unit 2
Date: Monday, March 14, 2011 8:31:54 AM

fyi

From: Hidehiko Yamachika [mailto:yamachika-hidehiko@jnes-usa.org]
Sent: Monday, March 14, 2011 7:17 AM
To: 'Hidehiko Yamachika'; Emche, Danielle; Foggie, Kirk; Cullingford, Michael - *NRK*
Cc: aono-kenjiro@jnes-usa.org; Michael W. Chinworth
Subject: RE: Fukushima I Unit 2

I came back.

TEPCO said that they started injection of sea water to unit 2 at 5:20am in EDT, but the injection does not work well. All of fuels seem to be uncovered.

From: Hidehiko Yamachika [mailto:yamachika-hidehiko@jnes-usa.org]
Sent: Sunday, March 13, 2011 11:09 PM
To: 'Hidehiko Yamachika'; 'Emche, Danielle'; Foggie, Kirk; Cullingford, Michael - *NRK*
Cc: aono-kenjiro@jnes-usa.org; Michael W. Chinworth
Subject: RE: Fukushima I Unit 3

Staff of TEPCO Fukushima 1 Office announced that parameters show that the containment vessel is sound (fine), but detail is under investigation.

From: Hidehiko Yamachika [mailto:yamachika-hidehiko@jnes-usa.org]
Sent: Sunday, March 13, 2011 10:49 PM
To: 'Hidehiko Yamachika'; 'Emche, Danielle'; Foggie, Kirk; Cullingford, Michael - *NRK*
Cc: aono-kenjiro@jnes-usa.org; Michael W. Chinworth
Subject: RE: Fukushima I Unit 3

A Chief Cabinet Secretary, Edano, announced at 10:45pm in EDT that explosion at Unit 3 seems to be same as that of Unit 1, and that a chief of NISA office at Fukushima 1 said that containment vessel seems to be sound.

@yamachika

From: Hidehiko Yamachika [mailto:yamachika-hidehiko@jnes-usa.org]
Sent: Sunday, March 13, 2011 10:27 PM
To: 'Hidehiko Yamachika'; 'Emche, Danielle'; Foggie, Kirk; Cullingford, Michael - *NRK*
Cc: aono-kenjiro@jnes-usa.org; Michael W. Chinworth
Subject: RE: Fukushima I Unit 3

According to NHK, Japanese TV media at 10:20 pm in EDT, NISA announced there is an hydrogen explosion on unit 3 of Fukushima I at 10:01 pm in EDT.
Steam like white smoke and brown smoke are recognized in the TV.

@yamachika

2/31

From: Nichols, Craig (GE Power & Water)
To: ~~Grobe, Jack; Crowthers, Michael H. (GE Infra, Energy, Non-GE); Schiffley, Frederick (GE Infra, Energy, Non-GE)~~
Subject: FW: TEPCO Earthquake Information Update as of March 14, 0200(JST) - Fukushima Daini Unit 1 is now under cold shutdown
Date: Sunday, March 13, 2011 3:45:34 PM

Just got this from TEPCO.

Thank you, Craig

From: 松尾 建次 [mailto:matsuo.kenji@wash.tepco.com] **On Behalf Of** matsuo.kenji@tepco.co.jp
Sent: Sunday, March 13, 2011 3:48 PM
To: matsuo.kenji@tepco.co.jp
Subject: TEPCO Earthquake Information Update as of March 14, 0200(JST) - Fukushima Daini Unit 1 is now under cold shutdown

Dear Friends,

Please find TEPCO's Fukushima-Daini NPS update as of 2:00am , March 14.
At Unit 1, the reactor is now under cold shutdown. This has been completed and cooling of the reactor has been commenced at 1:24 am, Mar 14th.

Contacts:
TEPCO Washington Office 202-457-0790
Kenji Matsuo, General Manager
Yuichi Nagano, Deputy General Manager,
Masayuki Yamamoto, Manager, Nuclear Power Programs

=====
Press Release (Mar 14,2011)
Plant Status of Fukushima Daini Nuclear Power Station (as of 2:00 am March 14th)

Unit 1 (shut down at 2:48pm on March 11th)
- Reactor is shut down and reactor water level is stable.
- Offsite power is available.
- At 8:19am, Mar 12th, there was an alarm indicating that one of the control rods was not properly inserted, however, at 10:43am, Mar 12th the alarm was spontaneously called off. Other control rods has been confirmed that they are fully inserted (reactor is in subcritical status)
- Status of main steam isolation valve: closed
- Injection of water into the reactor is done by Make-up Water Condensate System.
- We do not believe there is leakage of reactor coolant in the containment vessel at this moment.
- At 5:22am, Mar 12th, the temperature of the suppression chamber exceeded 100 degrees. As the reactor pressure suppression function was lost, at 5:22am, Mar 12th, it was determined that a specific incident stipulated in article 15, clause 1 has occurred.

- We decided to prepare implementing measures to reduce the pressure of the reactor containment vessel (partial discharge of air containing radioactive materials) in order to fully secure safety. This preparation work started at around 9:43am, Mar 12th and finished at 6:30pm, Mar 12th.
- Restoration work in reactor cooling function that was conducted to achieve reactor cold

2/32

shutdown has been completed and cooling of the reactor has been commenced at 1:24 am, Mar 14th.

Unit 2 (shut down at 2:48pm on March 11th)

- Reactor is shut down and reactor water level is stable.
- Offsite power is available.
- Control rods are fully inserted (reactor is in subcritical status)
- Status of main steam isolation valve: closed
- Injection of water into the reactor is done by Make-up Water Condensate System.
- We do not believe there is leakage of reactor coolant in the containment vessel.
- At 5:32am, Mar 12th, the temperature of the suppression chamber exceeded 100 degrees. As the reactor pressure suppression function was lost, at 5:32am, Mar 12th, it was determined that a specific incident stipulated in article 15, clause 1 has occurred.
- We decided to prepare implementing measures to reduce the pressure of the reactor containment vessel (partial discharge of air containing radioactive materials) in order to fully secure safety. This preparation work started at around 10:33am, Mar 12th and finished at 10:58pm, Mar 12th.
- Restoration work in reactor cooling function is in progress to achieve reactor cold shutdown.

Unit 3 (shut down at 2:48pm on March 11th)

- Reactor is shut down and reactor water level is stable.
- Offsite power is available.
- Control rods are fully inserted (reactor is in subcritical status)
- Status of main steam isolation valve: closed
- We do not believe there is leakage of reactor coolant in the containment vessel.
- We decided to prepare implementing measures to reduce the pressure of the reactor containment vessel (partial discharge of air containing radioactive materials) in order to fully secure safety. The preparation work started at around 12:08pm, Mar 12th and finished at 12:13pm, Mar 12th.
- Reactor cold shutdown at 12:15pm, Mar 12th

Unit 4 (shut down at 2:48pm on March 11th)

- Reactor is shut down and reactor water level is stable.
- Offsite power is available.
- At 0:43PM, there was a signal indicating that one of the control rods may have not properly inserted. However, we confirmed that it was inserted completely by another signal. We will inspect the reason of this.
- Status of main steam isolation valve: closed
- Injection of water into the reactor is done by Make-up Water Condensate System.
- We do not believe there is leakage of reactor coolant in the containment vessel.
- In order to cool down the reactor, injection of water into the reactor had been done by the Reactor Core Isolation Cooling System, however, At 6:07am, Mar 12th, the temperature of the suppression chamber exceeded 100 degrees. As the reactor pressure suppression function was lost, at 6:07am, Mar 12th, it was determined that a specific incident stipulated in article 15, clause 1 has occurred.
- We decided to prepare implementing measures to reduce the pressure of the reactor containment vessel (partial discharge of air containing radioactive materials) in order to fully secure safety. The preparation work started at around 11:44am, Mar 12th and finished at around 11:52am, Mar 12th.
- Restoration work in reactor cooling function is in progress to achieve reactor cold shutdown.

Indication from monitoring posts installed at the site boundary did not show any difference from ordinary level.

No radiation impact to the external environment has been confirmed. We will continue to monitor in detail the possibility of radioactive material being discharged from exhaust stack or discharge canal.

NR
From: Grobe, Jack
To: Leeds, Eric; Borchardt, Bill; Virgilio, Martin; Weber, Michael
Subject: Fw: TEPCO Earthquake Information Update as of March 14, 0200(JST) - Fukushima Daini Unit 1 is now under cold shutdown
Date: Sunday, March 13, 2011 3:59:43 PM

FYI - Info from GEH - about 2 hours old.
Jack Grobe, Deputy Director, NRR

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

Nick
From: Nichols, Craig (GE Power & Water) <craig.nichols@ge.com>
To: Grobe, Jack; Crowthers, Michael H. (GE Infra, Energy, Non-GE) <mhcrowthers@pplweb.com>; Schiffley, Frederick (GE Infra, Energy, Non-GE) <frederick.schiffley@exeloncorp.com>
Sent: Sun Mar 13 15:45:32 2011
Subject: FW: TEPCO Earthquake Information Update as of March 14, 0200(JST) - Fukushima Daini Unit 1 is now under cold shutdown

Just got this from TEPCO.

Thank you, Craig

From: 松尾 建次 [mailto:matsuo.kenji@wash.tepco.com] On Behalf Of matsuo.kenji@tepco.co.jp
Sent: Sunday, March 13, 2011 3:48 PM
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Contacts:

TEPCO Washington Office 202-457-0790

Kenji Matsuo, General Manager

Yuichi Nagano, Deputy General Manager,

Masayuki Yamamoto, Manager, Nuclear Power Programs

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Press Release (Mar 14,2011)

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Unit 1 (shut down at 2:48pm on March 11th)

- Reactor is shut down and reactor water level is stable.
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- At 8:19am, Mar 12th, there was an alarm indicating that one of the control rods was not properly inserted, however, at 10:43am, Mar 12th the alarm was spontaneously called off. Other control rods has been confirmed that they are fully inserted (reactor is in subcritical status)
- Status of main steam isolation valve: closed
- Injection of water into the reactor is done by Make-up Water Condensate System.
- We do not believe there is leakage of reactor coolant in the containment vessel at this moment.
- At 5:22am, Mar 12th, the temperature of the suppression chamber exceeded 100 degrees. As the reactor pressure suppression function was lost, at 5:22am, Mar 12th, it was determined that a specific incident stipulated in article 15, clause 1 has occurred.
- We decided to prepare implementing measures to reduce the pressure of the reactor containment vessel (partial discharge of air containing radioactive materials) in order to fully secure safety. This preparation work started at around 9:43am, Mar 12th and finished at 6:30pm, Mar 12th.
- Restoration work in reactor cooling function that was conducted to achieve reactor cold shutdown has been completed and cooling of the reactor has been commenced at 1:24 am, Mar 14th.

Unit 2 (shut down at 2:48pm on March 11th)

- Reactor is shut down and reactor water level is stable.
- Offsite power is available.
- Control rods are fully inserted (reactor is in subcritical status)
- Status of main steam isolation valve: closed
- Injection of water into the reactor is done by Make-up Water Condensate System.
- We do not believe there is leakage of reactor coolant in the containment vessel.
- At 5:32am, Mar 12th, the temperature of the suppression chamber exceeded 100 degrees. As the reactor pressure suppression function was lost, at 5:32am, Mar 12th, it was determined that a specific incident stipulated in article 15, clause 1 has occurred.
- We decided to prepare implementing measures to reduce the pressure of the reactor containment vessel (partial discharge of air containing radioactive materials) in order to fully secure safety. This preparation work started at around 10:33am, Mar 12th and finished at 10:58pm, Mar 12th.
- Restoration work in reactor cooling function is in progress to achieve reactor cold shutdown.

Unit 3 (shut down at 2:48pm on March 11th)

- Reactor is shut down and reactor water level is stable.
- Offsite power is available.
- Control rods are fully inserted (reactor is in subcritical status)
- Status of main steam isolation valve: closed
- We do not believe there is leakage of reactor coolant in the containment vessel.
- We decided to prepare implementing measures to reduce the pressure of the reactor containment vessel (partial discharge of air containing radioactive materials) in order to fully secure safety. The preparation work started at around 12:08pm, Mar 12th and finished at 12:13pm, Mar 12th.
- Reactor cold shutdown at 12:15pm, Mar 12th

Unit 4 (shut down at 2:48pm on March 11th)

- Reactor is shut down and reactor water level is stable.
- Offsite power is available.
- At 0:43PM, there was a signal indicating that one of the control rods may have not properly inserted. However, we confirmed that it was inserted completely by another signal. We will inspect the reason of this.
- Status of main steam isolation valve: closed
- Injection of water into the reactor is done by Make-up Water Condensate System.
- We do not believe there is leakage of reactor coolant in the containment vessel.
- In order to cool down the reactor, injection of water into the reactor had been done by the Reactor Core Isolation Cooling System, however, At 6:07am, Mar 12th, the temperature of the suppression chamber exceeded 100 degrees. As the reactor pressure suppression function was lost, at 6:07am, Mar 12th, it was determined that a specific incident stipulated in article 15, clause 1 has occurred.
- We decided to prepare implementing measures to reduce the pressure of the reactor containment vessel (partial discharge of air containing radioactive materials) in order to fully secure safety. The preparation work started at around 11:44am, Mar 12th and finished at around 11:52am, Mar 12th.
- Restoration work in reactor cooling function is in progress to achieve reactor cold shutdown.

Indication from monitoring posts installed at the site boundary did not show any difference from ordinary level.

No radiation impact to the external environment has been confirmed. We will continue to monitor in detail the possibility of radioactive material being discharged from exhaust stack or discharge canal.

Kock, Andrea

From: Franovich, Mike
Sent: Sunday, March 13, 2011 3:07 PM
To: Ostendorff, William
Cc: Nieh, Ho; Warnick, Greg; Kock, Andrea; Zorn, Jason
Subject: Supplemental Info on Daiichi Events
Attachments: BoilingWaterReactorDesign_3.jpg

- The link below provides a simple converter for sievert/rem. Reports on Japan go back and forth using micro and milli sievert.

<http://hptech.org/nuclear/convert/sievert.html>

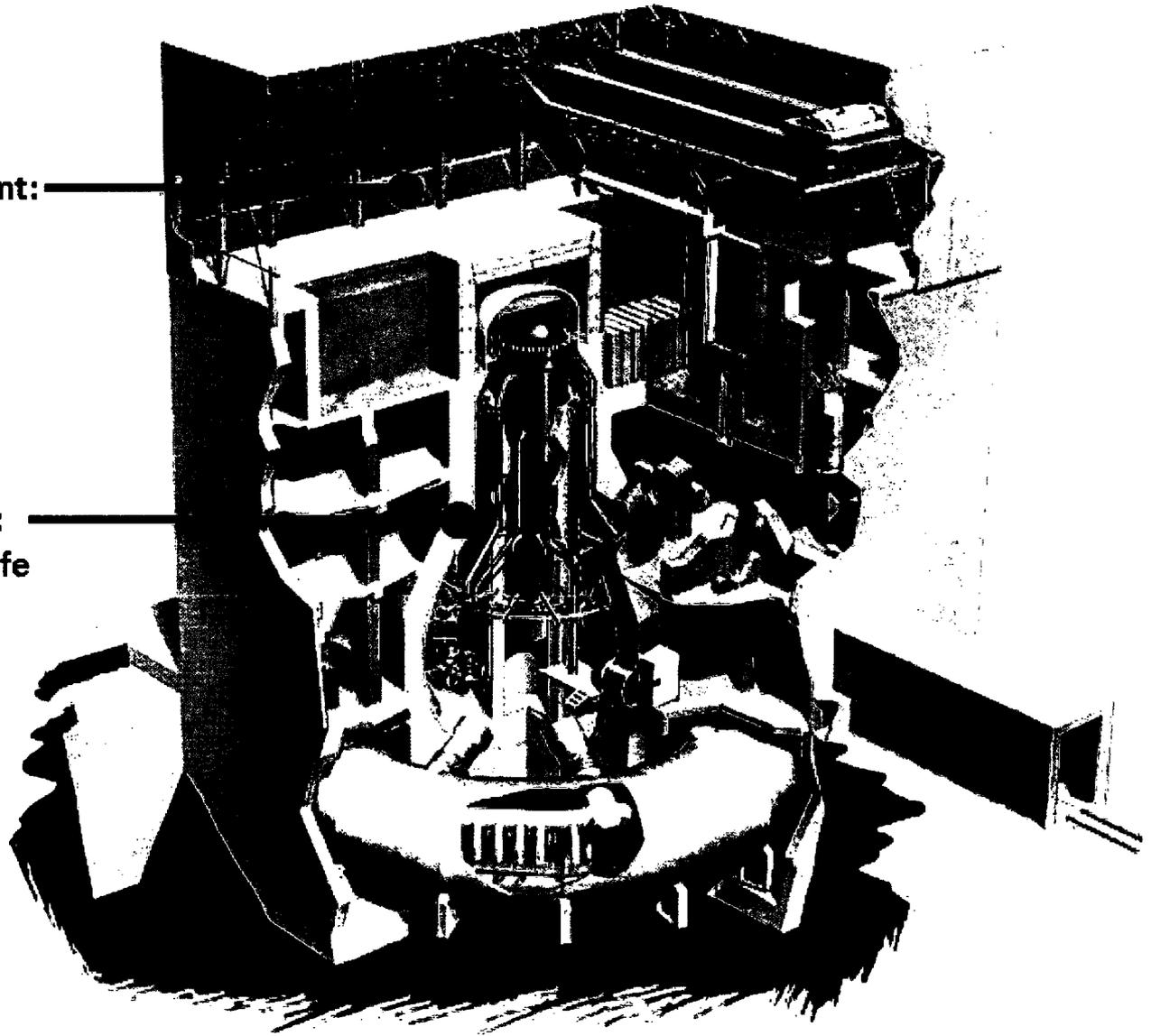
- Attached is a 3D cutaway of a BWR with a Mark I containment and points of interest for Daiichi event.
- From the TEPCO site directly....looks like one individual had a dose of over 10 REM (see below)

Daiichi Units – Site Personnel

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

Secondary containment:
Area of explosion at
Fukushima Daiichi 1

Primary containment:
Remains intact and safe



Boiling Water Reactor Design

From: Nichols, Craig (GE Power & Water)
To: Grobe, Jack - NRR
Subject: RE: TEPCO Earthquake Information Update as of March 14, 0200(JST) - Fukushima Daini Unit 1 is now under cold shutdown
Date: Sunday, March 13, 2011 3:59:16 PM

If you are interested I will continue to send these to you as I receive them.

Thank you, Craig

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

From: Grobe, Jack [mailto:Jack.Grobe@nrc.gov] - NRR
Sent: Sunday, March 13, 2011 3:58 PM
To: Nichols, Craig (GE Power & Water)
Subject: Re: TEPCO Earthquake Information Update as of March 14, 0200(JST) - Fukushima Daini Unit 1 is now under cold shutdown

Thanks.
Jack Grobe, Deputy Director, NRR

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

From: Nichols, Craig (GE Power & Water) <craig.nichols@ge.com>
To: Grobe, Jack; Crowthers, Michael H. (GE Infra, Energy, Non-GE) <mhcrowthers@pplweb.com>; Schiffley, Frederick (GE Infra, Energy, Non-GE) <frederick.schiffley@exeloncorp.com>
Sent: Sun Mar 13 15:45:32 2011
Subject: FW: TEPCO Earthquake Information Update as of March 14, 0200(JST) - Fukushima Daini Unit 1 is now under cold shutdown

Just got this from TEPCO.

Thank you, Craig

From: 松尾 建次 [mailto:matsuo.kenji@wash.tepco.com] On Behalf Of matsuo.kenji@tepco.co.jp
Sent: Sunday, March 13, 2011 3:48 PM
To: matsuo.kenji@tepco.co.jp
Subject: TEPCO Earthquake Information Update as of March 14, 0200(JST) - Fukushima Daini Unit 1 is now under cold shutdown

Dear Friends,

Please find TEPCO's Fukushima-Daini NPS update as of 2:00am , March 14.

At Unit 1, the reactor is now under cold shutdown. This has been completed and cooling of the reactor has been commenced at 1:24 am, Mar 14th.

Contacts:

TEPCO Washington Office 202-457-0790

Kenji Matsuo, General Manager

2/35

Yuichi Nagano, Deputy General Manager,
Masayuki Yamamoto, Manager, Nuclear Power Programs

=====

Press Release (Mar 14,2011)

Plant Status of Fukushima Daini Nuclear Power Station (as of 2:00 am March 14th)

Unit 1 (shut down at 2:48pm on March 11th)

- Reactor is shut down and reactor water level is stable.
- Offsite power is available.
- At 8:19am, Mar 12th, there was an alarm indicating that one of the control rods was not properly inserted, however, at 10:43am, Mar 12th the alarm was spontaneously called off. Other control rods has been confirmed that they are fully inserted (reactor is in subcritical status)
- Status of main steam isolation valve: closed
- Injection of water into the reactor is done by Make-up Water Condensate System.
- We do not believe there is leakage of reactor coolant in the containment vessel at this moment.
- At 5:22am, Mar 12th, the temperature of the suppression chamber exceeded 100 degrees. As the reactor pressure suppression function was lost, at 5:22am, Mar 12th, it was determined that a specific incident stipulated in article 15, clause 1 has occurred.

- We decided to prepare implementing measures to reduce the pressure of the reactor containment vessel (partial discharge of air containing radioactive materials) in order to fully secure safety. This preparation work started at around 9:43am, Mar 12th and finished at 6:30pm, Mar 12th.
- Restoration work in reactor cooling function that was conducted to achieve reactor cold shutdown has been completed and cooling of the reactor has been commenced at 1:24 am, Mar 14th.

Unit 2 (shut down at 2:48pm on March 11th)

- Reactor is shut down and reactor water level is stable.
- Offsite power is available.
- Control rods are fully inserted (reactor is in subcritical status)
- Status of main steam isolation valve: closed
- Injection of water into the reactor is done by Make-up Water Condensate System.
- We do not believe there is leakage of reactor coolant in the containment vessel.

- At 5:32am, Mar 12th, the temperature of the suppression chamber exceeded 100 degrees. As the reactor pressure suppression function was lost, at 5:32am, Mar 12th, it was determined that a specific incident stipulated in article 15, clause 1 has occurred.

- We decided to prepare implementing measures to reduce the pressure of the reactor containment vessel (partial discharge of air containing radioactive materials) in order to fully secure safety. This preparation work started at around 10:33am, Mar 12th and finished at 10:58pm, Mar 12th.

- Restoration work in reactor cooling function is in progress to achieve reactor cold shutdown.

Unit 3 (shut down at 2:48pm on March 11th)

- Reactor is shut down and reactor water level is stable.

- Offsite power is available.

- Control rods are fully inserted (reactor is in subcritical status)

- Status of main steam isolation valve: closed

- We do not believe there is leakage of reactor coolant in the containment vessel.

- We decided to prepare implementing measures to reduce the pressure of the reactor containment vessel (partial discharge of air containing radioactive materials) in order to fully secure safety. The preparation work started at around 12:08pm, Mar 12th and finished at 12:13pm, Mar 12th.

- Reactor cold shutdown at 12:15pm, Mar 12th

Unit 4 (shut down at 2:48pm on March 11th)

- Reactor is shut down and reactor water level is stable.

- Offsite power is available.

- At 0:43PM, there was a signal indicating that one of the control rods may have not properly inserted. However, we confirmed that it was inserted completely by another signal. We will inspect the reason of this.

- Status of main steam isolation valve: closed

- Injection of water into the reactor is done by Make-up Water Condensate System.

- We do not believe there is leakage of reactor coolant in the containment vessel.

- In order to cool down the reactor, injection of water into the reactor had been done by the Reactor Core Isolation Cooling System, however, At 6:07am, Mar 12th, the temperature of the suppression chamber exceeded 100 degrees. As the reactor pressure suppression function was lost, at 6:07am, Mar 12th, it was determined that a specific incident stipulated in article 15, clause 1 has occurred.

- We decided to prepare implementing measures to reduce the pressure of the reactor containment vessel (partial discharge of air containing radioactive materials) in order to fully secure safety. The preparation work started at around 11:44am, Mar 12th and finished at around 11:52am, Mar 12th.

- Restoration work in reactor cooling function is in progress to achieve reactor cold shutdown.

Indication from monitoring posts installed at the site boundary did not show any difference from ordinary level.

No radiation impact to the external environment has been confirmed. We will continue to monitor in detail the possibility of radioactive material being discharged from exhaust stack or discharge canal.

From: frederick.schiffley@exeloncorp.com
To: craig.nichols@ge.com; mhcrowthers@pplweb.com
Cc: Grobe, Jack
Subject: Fw: Japan
Date: Sunday, March 13, 2011 3:42:02 PM

Can you handle? Plane taking off.

Ted Schiffley
Chairman, BWR Owners' Group (BWROG)
Sent from my Blackberry Wireless Device.

From: Grobe, Jack <Jack.Grobe@nrc.gov>
To: Schiffley, Frederick P. II:(GenCo-Nuc)
Sent: Sun Mar 13 14:39:28 2011
Subject: Re: Japan

INRR

Ted

Do you have a summary of infoas best you know it? We are seeming to just now get new info. Latest is that Unit 1 has seawater injection and is fairly stable (although likely some core damage), Unit 2 is on RCIC and fairly stable, Units 4 - 6 were previously shutdown and OK - but I just heard that they are injecting seawater into Unit 3. First I had heard of that. You have any info??
Jack Grobe, Deputy Director, NRR

From: frederick.schiffley@exeloncorp.com <frederick.schiffley@exeloncorp.com>
To: Grobe, Jack
Cc: craig.nichols@ge.com <craig.nichols@ge.com>; mhcrowthers@pplweb.com <mhcrowthers@pplweb.com>; olimpia@entergy.com <olimpia@entergy.com>
Sent: Sun Mar 13 09:32:29 2011
Subject: Japan

Jack,

Please let us know if you need any support from the BWROG. You can contact me, Mike Crowthers (BWROG Vice Chair), or Craig Nichols (GEH/BWROG Program Manager). We will provide support as needed and will also be available, if necessary, as an additional point of contact with GEH.

Regards,

Ted

Ted Schiffley
Chairman, BWR Owners' Group (BWROG)
Sent from my Blackberry Wireless Device.

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may be unlawful. If you have received this e-mail in error, please notify the sender immediately and permanently delete the original and any copy of this e-mail and any printout. Thank You.

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17/2/2011

From: Grobe, Jack
To: "frederick.schiffley@exeloncorp.com"
Subject: Re: TEPCO Earthquake Information Update as of March 14 - Fukushima Daini Unit 1 Restoration from the specific incident stipulated in article 15 clause 1
Date: Sunday, March 13, 2011 11:06:16 PM

Thanks.
Jack Grobe, Deputy Director, NRR

From: frederick.schiffley@exeloncorp.com <frederick.schiffley@exeloncorp.com>
To: Grobe, Jack
Sent: Sun Mar 13 18:15:17 2011
Subject: Fw: TEPCO Earthquake Information Update as of March 14 - Fukushima Daini Unit 1 Restoration from the specific incident stipulated in article 15 clause 1

Jack,

I assume you are getting these.

Ted Schiffley
Chairman, BWR Owners' Group (BWROG)
Sent from my Blackberry Wireless Device.

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

From: 松尾 建次 <matsuo.kenji@wash.tepco.com>
To: matsuo.kenji@tepco.co.jp <matsuo.kenji@tepco.co.jp>
Sent: Sun Mar 13 17:08:16 2011
Subject: TEPCO Earthquake Information Update as of March 14 - Fukushima Daini Unit 1 Restoration from the specific incident stipulated in article 15 clause 1

Dear Friends,

Fukushima Daini unit 1 has restored from the specific incident stipulated in article 15, clause 1,
after it recovered core cooling and achieved cold shutdown.

Contacts:

TEPCO Washington Office 202-457-0790

Kenji Matsuo, General Manager

Yuichi Nagano, Deputy General Manager,

Masayuki Yamamoto, Manager, Nuclear Power Programs

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=====
At 2:48 pm, March 11th 2011, Unit 1 of Fukushima Daini Nuclear Power Station of Tokyo Electric Power Company (Boiling Water Reactor, rated output 1,100 Megawatts) shut down due to the Tohoku-Chihou-Taiheiyou-Oki Earthquake.

After the shut down, in order to cool down the nuclear reactor, we have injected water into the reactor by Reactor Core Isolation Cooling System, and at 3:48 am, March 12th, we started to inject water by Make-up Water Condensate System.

Then, at 5:22am, March 12th, the temperature of the suppression chamber exceeded 100 degrees. As the reactor pressure suppression function was lost, at 5:22am, March 12th, it was determined that a specific incident stipulated in article 15, clause 1 has occurred. (already announced on March 12th, 2011)

In Unit 1, restoration work in reactor cooling function to achieve reactor cold shutdown has been completed and the cooling of the reactor has been initiated at 1:24 am, March 14th. At that moment, it is determined that the specific incidence stipulated in article 15, clause 1 was restored as the water temperature in suppression chamber was below 100 degree Celsius. We will continue to monitor the status of the plant.

In Unit 2 and 4, we will continue the restoration work in reactor cooling function to achieve reactor cold shutdown. (Unit 3 has achieved reactor cold shutdown on March 12th.)

(Safety / Impact to the environment)

In Unit 1, we have not conducted the measures to reduce the pressure of the reactor containment vessel (partial discharge of air containing radioactive materials).

Indication from monitoring posts installed at the site boundary did not show any difference from ordinary level.

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From: frederick.schiffley@exeloncorp.com
To: Grobe, Jack
Cc: craig.nichols@ge.com; mhcrowthers@pplweb.com; olimpia@entergy.com; Jaczko, Gregory; Borchartd, Bill; Virgilio, Martin; Weber, Michael; Leeds, Eric
Subject: Re: Japan
Date: Sunday, March 13, 2011 2:59:00 PM

Jack,

Thanks. We are offering the full support of the BWROG to TEPCO and GEH-I. We will stay in touch. I'm sure that this will also be a major point of discussion at our meeting in May.

Regards,

Ted

Ted Schiffley
Chairman, BWR Owners' Group (BWROG)
Sent from my Blackberry Wireless Device.

From: Grobe, Jack <Jack.Grobe@nrc.gov> *MR*
To: Schiffley, Frederick P. II: (GenCo-Nuc)
Cc: 'craig.nichols@ge.com' <craig.nichols@ge.com>; 'mhcrowthers@pplweb.com' <mhcrowthers@pplweb.com>; 'olimpia@entergy.com' <olimpia@entergy.com>; Jaczko, Gregory <Gregory.Jaczko@nrc.gov>; Borchartd, Bill <Bill.Borchartd@nrc.gov>; Virgilio, Martin <Martin.Virgilio@nrc.gov>; Weber, Michael <Michael.Weber@nrc.gov>; Leeds, Eric <Eric.Leeds@nrc.gov>
Sent: Sun Mar 13 13:51:51 2011
Subject: Re: Japan

Thanks Ted. We sent a couple folks to Japan yesterday. I will provide your offer to folks manning our operations center. You should also use your own contacts in Japan and offer whatever assistance you can directly. The best compilation of information regarding what is happening that I have seen is what Joe Colvin issued from ANS. Please keep in touch.
Jack Grobe, Deputy Director, NRR

From: frederick.schiffley@exeloncorp.com <frederick.schiffley@exeloncorp.com>
To: Grobe, Jack
Cc: craig.nichols@ge.com <craig.nichols@ge.com>; mhcrowthers@pplweb.com <mhcrowthers@pplweb.com>; olimpia@entergy.com <olimpia@entergy.com>
Sent: Sun Mar 13 09:32:29 2011
Subject: Japan

Jack,

Please let us know if you need any support from the BWROG. You can contact me, Mike Crowthers (BWROG Vice Chair), or Craig Nichols (GEH/BWROG Program Manager). We will provide support as needed and will also be available, if necessary, as an additional point of contact with GEH.

Regards,

Ted

Ted Schiffley

2/38

Chairman, BWR Owners' Group (BWROG)
Sent from my Blackberry Wireless Device.

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From: Grobe, Jack - nrr
To: "craig.nichols@ge.com"
Subject: Re: TEPCO Earthquake Information Update as of March 14, 0200(JST) - Fukushima Daini Unit 1 is now under cold shutdown
Date: Sunday, March 13, 2011 4:00:00 PM

Thanks. That would be great.
Jack Grobe, Deputy Director, NRR

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

From: Nichols, Craig (GE Power & Water) <craig.nichols@ge.com>
To: Grobe, Jack - nrr
Sent: Sun Mar 13 15:59:14 2011
Subject: RE: TEPCO Earthquake Information Update as of March 14, 0200(JST) - Fukushima Daini Unit 1 is now under cold shutdown

If you are interested I will continue to send these to you as I receive them.

Thank you, Craig

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

From: Grobe, Jack [mailto:Jack.Grobe@nrc.gov] - nrr
Sent: Sunday, March 13, 2011 3:58 PM
To: Nichols, Craig (GE Power & Water)
Subject: Re: TEPCO Earthquake Information Update as of March 14, 0200(JST) - Fukushima Daini Unit 1 is now under cold shutdown

Thanks.
Jack Grobe, Deputy Director, NRR

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

From: Nichols, Craig (GE Power & Water) <craig.nichols@ge.com> - nrr
To: Grobe, Jack; Crowthers, Michael H. (GE Infra, Energy, Non-GE) <mhcrowthers@pplweb.com>; Schiffley, Frederick (GE Infra, Energy, Non-GE) <frederick.schiffley@exeloncorp.com>
Sent: Sun Mar 13 15:45:32 2011
Subject: FW: TEPCO Earthquake Information Update as of March 14, 0200(JST) - Fukushima Daini Unit 1 is now under cold shutdown

Just got this from TEPCO.

Thank you, Craig

From: 松尾 建次 [mailto:matsuo.kenji@wash.tepco.com] On Behalf Of matsuo.kenji@tepco.co.jp
Sent: Sunday, March 13, 2011 3:48 PM
To: matsuo.kenji@tepco.co.jp
Subject: TEPCO Earthquake Information Update as of March 14, 0200(JST) - Fukushima Daini Unit 1 is now under cold shutdown

Dear Friends,

Please find TEPCO's Fukushima-Daini NPS update as of 2:00am , March 14.

At Unit 1, the reactor is now under cold shutdown. This has been completed and cooling of the reactor has been commenced at 1:24 am, Mar 14th.

Contacts:

TEPCO Washington Office 202-457-0790

Kenji Matsuo, General Manager

Yuichi Nagano, Deputy General Manager,

Masayuki Yamamoto, Manager, Nuclear Power Programs

=====

Press Release (Mar 14,2011)

Plant Status of Fukushima Daini Nuclear Power Station (as of 2:00 am March 14th)

Unit 1 (shut down at 2:48pm on March 11th)

- Reactor is shut down and reactor water level is stable.
- Offsite power is available.
- At 8:19am, Mar 12th, there was an alarm indicating that one of the control rods was not properly inserted, however, at 10:43am, Mar 12th the alarm was spontaneously called off. Other control rods has been confirmed that they are fully inserted (reactor is in subcritical status)
- Status of main steam isolation valve: closed
- Injection of water into the reactor is done by Make-up Water Condensate System.
- We do not believe there is leakage of reactor coolant in the containment vessel at this moment.
- At 5:22am, Mar 12th, the temperature of the suppression chamber exceeded 100 degrees. As the reactor pressure suppression function was lost, at 5:22am, Mar 12th, it was determined that a specific incident stipulated in article 15, clause 1 has occurred.

- We decided to prepare implementing measures to reduce the pressure of the reactor containment vessel (partial discharge of air containing radioactive materials) in order to fully secure safety. This preparation work started at around 9:43am, Mar 12th and finished at 6:30pm, Mar 12th.
- Restoration work in reactor cooling function that was conducted to achieve reactor cold shutdown has been completed and cooling of the reactor has been commenced at 1:24 am, Mar 14th.

Unit 2 (shut down at 2:48pm on March 11th)

- Reactor is shut down and reactor water level is stable.

- Offsite power is available.
- Control rods are fully inserted (reactor is in subcritical status)
- Status of main steam isolation valve: closed
- Injection of water into the reactor is done by Make-up Water Condensate System.
- We do not believe there is leakage of reactor coolant in the containment vessel.
- At 5:32am, Mar 12th, the temperature of the suppression chamber exceeded 100 degrees. As the reactor pressure suppression function was lost, at 5:32am, Mar 12th, it was determined that a specific incident stipulated in article 15, clause 1 has occurred.

- We decided to prepare implementing measures to reduce the pressure of the reactor containment vessel (partial discharge of air containing radioactive materials) in order to fully secure safety. This preparation work started at around 10:33am, Mar 12th and finished at 10:58pm, Mar 12th.

- Restoration work in reactor cooling function is in progress to achieve reactor cold shutdown.

Unit 3 (shut down at 2:48pm on March 11th)

- Reactor is shut down and reactor water level is stable.
- Offsite power is available.
- Control rods are fully inserted (reactor is in subcritical status)
- Status of main steam isolation valve: closed
- We do not believe there is leakage of reactor coolant in the containment vessel.
- We decided to prepare implementing measures to reduce the pressure of the reactor containment vessel (partial discharge of air containing radioactive materials) in order to fully secure safety. The preparation work started at around 12:08pm, Mar 12th and finished at 12:13pm, Mar 12th.
- Reactor cold shutdown at 12:15pm, Mar 12th

Unit 4 (shut down at 2:48pm on March 11th)

- Reactor is shut down and reactor water level is stable.
- Offsite power is available.
- At 0:43PM, there was a signal indicating that one of the control rods may have not properly inserted. However, we confirmed that it was inserted completely by another signal. We will inspect the reason of this.
- Status of main steam isolation valve: closed
- Injection of water into the reactor is done by Make-up Water Condensate System.
- We do not believe there is leakage of reactor coolant in the containment vessel.
- In order to cool down the reactor, injection of water into the reactor had been done by the Reactor Core Isolation Cooling System, however, At 6:07am, Mar 12th, the temperature of the suppression chamber exceeded 100 degrees. As the reactor pressure suppression function was lost, at 6:07am, Mar 12th, it was determined

that a specific incident stipulated in article 15, clause 1 has occurred.

- We decided to prepare implementing measures to reduce the pressure of the reactor containment vessel (partial discharge of air containing radioactive materials) in order to fully secure safety. The preparation work started at around 11:44am, Mar 12th and finished at around 11:52am, Mar 12th.

- Restoration work in reactor cooling function is in progress to achieve reactor cold shutdown.

Indication from monitoring posts installed at the site boundary did not show any difference from ordinary level.

No radiation impact to the external environment has been confirmed. We will continue to monitor in detail the possibility of radioactive material being discharged from exhaust stack or discharge canal.

From: Grobe, Jack - NRR
To: "craig.nichols@ge.com"
Subject: Re: TEPCO Earthquake Information Update as of March 14, 0200(JST) - Fukushima Daini Unit 1 is now under cold shutdown
Date: Sunday, March 13, 2011 3:58:22 PM

Thanks.
Jack Grobe, Deputy Director, NRR

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

From: Nichols, Craig (GE Power & Water) <craig.nichols@ge.com>
To: Grobe, Jack; Crowthers, Michael H. (GE Infra, Energy, Non-GE) <mhcrowthers@pplweb.com>; Schiffley, Frederick (GE Infra, Energy, Non-GE) <frederick.schiffley@exeloncorp.com>
Sent: Sun Mar 13 15:45:32 2011
Subject: FW: TEPCO Earthquake Information Update as of March 14, 0200(JST) - Fukushima Daini Unit 1 is now under cold shutdown

Just got this from TEPCO.

Thank you, Craig

From: 松尾 建次 [mailto:matsuo.kenji@wash.tepco.com] On Behalf Of matsuo.kenji@tepco.co.jp
Sent: Sunday, March 13, 2011 3:48 PM
To: matsuo.kenji@tepco.co.jp
Subject: TEPCO Earthquake Information Update as of March 14, 0200(JST) - Fukushima Daini Unit 1 is now under cold shutdown

Dear Friends,

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At Unit 1, the reactor is now under cold shutdown. This has been completed and cooling of the reactor has been commenced at 1:24 am, Mar 14th.

Contacts:

TEPCO Washington Office 202-457-0790

Kenji Matsuo, General Manager

Yuichi Nagano, Deputy General Manager,

Masayuki Yamamoto, Manager, Nuclear Power Programs

=====

440

Press Release (Mar 14,2011)

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- Injection of water into the reactor is done by Make-up Water Condensate System.
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- We decided to prepare implementing measures to reduce the pressure of the reactor containment vessel (partial discharge of air containing radioactive materials) in order to fully secure safety. This preparation work started at around 9:43am, Mar 12th and finished at 6:30pm, Mar 12th.
- Restoration work in reactor cooling function that was conducted to achieve reactor cold shutdown has been completed and cooling of the reactor has been commenced at 1:24 am, Mar 14th.

Unit 2 (shut down at 2:48pm on March 11th)

- Reactor is shut down and reactor water level is stable.
- Offsite power is available.
- Control rods are fully inserted (reactor is in subcritical status)
- Status of main steam isolation valve: closed
- Injection of water into the reactor is done by Make-up Water Condensate System.
- We do not believe there is leakage of reactor coolant in the containment vessel.
- At 5:32am, Mar 12th, the temperature of the suppression chamber exceeded 100 degrees. As the reactor pressure suppression function was lost, at 5:32am, Mar 12th, it was determined that a specific incident stipulated in article 15, clause 1 has occurred.
- We decided to prepare implementing measures to reduce the pressure of the reactor containment vessel (partial discharge of air containing radioactive materials) in order to fully secure safety. This preparation work started at around 10:33am, Mar 12th and finished at 10:58pm, Mar 12th.
- Restoration work in reactor cooling function is in progress to achieve reactor cold shutdown.

Unit 3 (shut down at 2:48pm on March 11th)

- Reactor is shut down and reactor water level is stable.
- Offsite power is available.
- Control rods are fully inserted (reactor is in subcritical status)
- Status of main steam isolation valve: closed
- We do not believe there is leakage of reactor coolant in the containment vessel.
- We decided to prepare implementing measures to reduce the pressure of the reactor containment vessel (partial discharge of air containing radioactive materials) in order to fully secure safety. The preparation work started at around 12:08pm, Mar 12th and finished at 12:13pm, Mar 12th.
- Reactor cold shutdown at 12:15pm, Mar 12th

Unit 4 (shut down at 2:48pm on March 11th)

- Reactor is shut down and reactor water level is stable.
- Offsite power is available.
- At 0:43PM, there was a signal indicating that one of the control rods may have not properly inserted. However, we confirmed that it was inserted completely by another signal. We will inspect the reason of this.
- Status of main steam isolation valve: closed
- Injection of water into the reactor is done by Make-up Water Condensate System.
- We do not believe there is leakage of reactor coolant in the containment vessel.
- In order to cool down the reactor, injection of water into the reactor had been done by the Reactor Core Isolation Cooling System, however, At 6:07am, Mar 12th, the temperature of the suppression chamber exceeded 100 degrees. As the reactor pressure suppression function was lost, at 6:07am, Mar 12th, it was determined that a specific incident stipulated in article 15, clause 1 has occurred.
- We decided to prepare implementing measures to reduce the pressure of the reactor containment vessel (partial discharge of air containing radioactive materials) in order to fully secure safety. The preparation work started at around 11:44am, Mar 12th and finished at around 11:52am, Mar 12th.
- Restoration work in reactor cooling function is in progress to achieve reactor cold shutdown.

Indication from monitoring posts installed at the site boundary did not show any difference from ordinary level.

No radiation impact to the external environment has been confirmed. We will continue to monitor in detail the possibility of radioactive material being discharged from exhaust stack or discharge canal.

Franovich, Mike

From: Franovich, Mike
Sent: Monday, March 14, 2011 12:16 AM
To: Ostendorff, William
Cc: Nieh, Ho; Warnick, Greg; Kock, Andrea; Zorn, Jason
Subject: France dispatches nuclear experts and rescuers

France dispatches nuclear experts and rescuers

France has become the latest country to send nuclear experts and rescuers to Japan in the aftermath of Friday's quake and tsunami, and accidents at 2 nuclear power plants in Fukushima prefecture. The teams are scheduled to arrive in Tokyo on Monday evening. One team of 12 nuclear experts will help decontaminate people who were exposed to radiation as well as provide them with emergency treatment. They will also check radioactive levels near the 2 nuclear power plants that have been plagued with cooling system failures since the quake. Another team of nearly 100 rescuers will join search and rescue operations in the disaster-hit areas.

Monday, March 14, 2011 11:04 +0900 (JST)

Tracking:

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From: Thorp, John *NRP*
To: Brown, Frederick; Boger, Bruce
Cc: Thomas, Eric
Subject: FW: Talking Points on Implications of Fukushima Accident to U.S. Nuclear Plants
Date: Monday, March 14, 2011 7:16:23 AM
Attachments: ANS Talking Points - 2011-03-13 R1_2.pdf

REL
Fred, Bruce,

FYI. So you're aware of what ANS is saying.

John

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

From: Joe Colvin [<mailto:president@ans.org>] *ANS*
Sent: Monday, March 14, 2011 2:28 AM
To: Thorp, John
Subject: Talking Points on Implications of Fukushima Accident to U.S. Nuclear Plants

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

4/42

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: Boger, Bruce , *NRR*
To: Ruland, William
Subject: Re: Proposed folks to Japan from DSS
Date: Monday, March 14, 2011 9:33:21 AM

Thanks, Bill.

REC.
From: Ruland, William | *NRR*
To: Boger, Bruce
Sent: Mon Mar 14 09:28:59 2011
Subject: Proposed folks to Japan from DSS

1. Tony Nakanishi - BWR analysis guy, spent fuel pool criticality, speaks Japanese
2. Tony Mendiola - BWR qualified examiner (dated) , SRO certified by GE, Navy Nuke

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WLR
From: Brown, Frederick
To: Boger, Bruce; Leeds, Eric
Cc: Grobe, Jack
Subject: FW: POC for Japanese Earthquake questions
Date: Monday, March 14, 2011 4:46:32 PM
Importance: High

Only comment that I got about the text below was including other Offices, which I defer to you on (not sure how much authority you want to assert about other people's staff). If you agree, you could cut the text below the dotted line into an e-mail to all NRR staff.

REF
From: Brown, Frederick
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.

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From: Cullingford, Michael - NKK
To: Leeds, Eric; Boger, Bruce; Grobe, Jack; McGinty, Tim; Regan, Christopher; Hopkins, Jon; Astwood, Heather
Cc: Quinones, Lauren; Brown, Frederick; Gitter, 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 7:56:51 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.

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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-ichi 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-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 (Establishment of Government Nuclear Emergency Response Headquarters and Local Emergency Response Headquarters)

20:50: Fukushima Prefecture's Emergency Response Headquarters issued a direction regarding the accident occurred at Fukushima-Dai-ichi Nuclear Power Station, TEPCO, that the residents living in the area of 2km radius from Unit 1 of the Nuclear Power Station must evacuate.(The population of this area is 1,864)

21:23: Directives from Prime Minister to the Governor of Fukushima, Mayor of Ookuma and Mayor of Futaba were issued regarding the accident occurred at Fukushima-Dai-ichi Nuclear Power Station, TEPCO, pursuant to Paragraph 3, Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness as follows:

- Residents living in the area of 3km radius from Unit 1 of the Nuclear Power Station must evacuate.
- Residents living in the area of 10km radius from the Unit 1 must take sheltering.

24:00: Mr. Ikeda, Vice Minister of METI, arrived at the Local Emergency Response Headquarters

(March12)

05:22 Unit 1 of Fukushima Dai-ni notified NISA of the situation of the Article 15 of Act on Special Measures Concerning Nuclear Emergency Preparedness.

05:32 Unit 2 of Fukushima Dai-ni notified NISA of the situation of the Article 15 of Act on Special Measures Concerning Nuclear Emergency Preparedness.

05:44 Residents living in the area of 10km radius from unit 1 of the Nuclear Power Station must evacuate by the Prime Minister Direction.

06:07 Regarding of Fukushima Dai-ni NPS, TEPCO reported NISA in accordance with Article 15 of Act for Special Measures Concerning Nuclear Emergency Preparedness.

06:50 According to the article 64, 3 of the Nuclear Regulation Act, government order to control the internal pressure in Fukushima-dai-ichi Units 1 and 2

07:45 Directives from Prime Minister to Governor of Fukushima, Mayors of Hirono, Naraha, Tomioka, Ookuma and Futaba were issued regarding the accident occurred at Fukushima-Dai-ni Nuclear Power Station, TEPCO, pursuant to Paragraph 3, Article 15 of the Act for Special Measures Concerning Nuclear Emergency Preparedness as follows:

- Residents living in the area of 3km radius from Fukushima Dai-ni Nuclear Power Station (NPS) must evacuate.
- Residents living in the area of 10km radius from Fukushima Dai-ni NPS must take sheltering

17:00 Notification pursuant to Article 15 of the Act for Special Measure Concerning Nuclear Emergency Preparedness since the radiation level exceeded the acceptable level of Fukushima Dai-ichi NPS.

17:39 Prime Minister directed evacuation of the residents living within the 10 km radius from the Fukushima-Dai-ni NPS

18:25 Prime Minister directed evacuation of the residents living within the 20km radius from the Fukushima Dai-ichi NPS

19:55 Directives from Prime Minister was issued regarding sea water injection to Unit No.1 of Fukushima Dai-ichi NPS.

20:05 Based on the directives 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: [redacted]
To: [redacted]
Subject: #Today Daily Briefing - Focus on DHS
Date: Monday, March 14, 2011 1:11:15 PM



Monday, March 14, 2011

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DAILY NEWS BRIEFING

US Weathers Tsunami, Sends Expert Help to Japan

Specialized personnel from the US Department of Homeland Security (DHS) continued to supply tsunami and earthquake assistance to domestic and international disaster efforts throughout the weekend in the wake of a crippling... »



TODAY'S NEWS ANALYSIS

Admiral Papp Outlines Coast Guard Rebuilding Priorities

Even in the current fiscal environment where resources are scarce rebuilding the Coast Guard to rebuild the Coast Guard, support front-line operations, invest in our people and families, and enhance maritime incident prevention... »



TSA Orders 'Re-tests' of Radiation Levels on Airport Body Scanners

The Transportation Security Administration on Friday ordered re-testing of all radiation-emitting full-body scanners after an internal review showed calculation errors, missing data and other discrepancies on paperwork by... »

Sen. Landrieu Says Japan Earthquake Shows Need for Disaster Funding

Senator Mary Landrieu (D-La.) says the devastating impact of the earthquake off the coast of Japan and subsequent flooding triggered by a tsunami in the Pacific Ocean highlight the need to maintain adequate funding for disaster... »

Calif. Fishing Town Battered by Tsunami Yet Again

Coastal residents forced to evacuate to higher ground were able to spend Friday night in their own homes, while work crews were assessing damage along the California Coast after a tsunami triggered by the massive earthquake in... »

Opinion: Did TSA Really Screen All Air Cargo?

The Transportation Security Administration says it screened all air cargo--but a government auditor said there's no way the TSA can know that. It's the second time this month the GAO has dinged the TSA for over-hyping itself and... »



TODAY'S HEADLINES

Japan Earthquake and Tsunami Death Toll Expected to Exceed 10,000

The death toll from Japan's earthquake and tsunami is almost certain to exceed 20,000, which is the number of people unaccounted for in two coastal cities alone, a Japanese newspaper reported Sunday. Elsewhere, hundreds of bodies... »

FEMA Pushes to Rid Louisiana of Their Trailers

The Federal Emergency Management Agency is pushing to get rid of the last 424 of its trailers still in Louisiana more than five years after Hurricane Katrina struck the state, leveling towns and flooding New Orleans. [Click here...](#) »

Reaction Time Critical in Calif. County Big Wave Scenario

A Monterey County tsunami emergency response plan says there would not be enough time to evacuate coastal residents if a local earthquake created a huge wave similar to the one that

2/2/11

devastated Japan on Thursday.... »

US Lawmakers Say Go Slow on Nuclear Energy

The unfolding nuclear disaster in Japan at reactors damaged by a massive earthquake and tsunami has led some lawmakers to call for putting the "brakes" on US nuclear development. Click here for the full story »

Alaska Democrat Heads to Washington to Fight TSA Pat-Downs

Homeland Security officials and a congressional committee will get an earful from an Alaska politician this week. Rep. Sharon Cissna (D-Anchorage) is heading to Washington to argue that enhanced pat-downs at airports go too far... »

CORRESPONDENTS WATCH

Britain Convicts Awlaki Acolyte Targeting US Bound Planes

Last week a court in London convicted Rajib Karim, a 31-year-old Bangladeshi national in the UK working for British Airways of plotting with the Yemeni-American Al Qaeda in the Arabian Peninsula (AQAP) leader, Anwar Al... »



NEWS SHORTS

Committee Reveals Witness List for Hearing on Muslim Radicalization

The House Homeland Security Committee Monday unveiled the complete list of witnesses testifying at its first planned hearing on Muslim radicalization to be held this Thursday. Rep. Peter King (R-NY), committee chairman, plans to... »



GRANTS & FUNDING

Funding & Resources: Emergency Healthcare's Unique Funding Track

One of the four funding priorities supported by the Homeland Security Grant Program (HSGP) — the largest and most well-known homeland security funder—is, according to its mission statement, "Improving preparedness for, response... »



INDUSTRY ANNOUNCEMENTS

OSI Systems Awarded Contract Worth Approximately \$31 Million

OSI Systems Inc., Hawthorne, Calif., a vertically-integrated provider of specialized electronic products for critical applications in the security and healthcare industries, has announced that its security division, Rapisca... »

Centice Corporation Announces Beta Program for Portable Raman Spectroscopy Platform

Centice Corporation, Morrisville, NC, a pioneer in chemical verification and identification using Raman spectroscopy and computational sensor technology, has announced the start of a Beta Program with Cherokee Multi-Agency... »

NetStar-1 Chooses Monacelli to Lead Management Consulting Division

NetStar-1 Government Consulting Inc. (NetStar-1), Rockville, Md., a provider of consulting services in the areas of program management, financial management, and program governance, has named Pierre Monacelli Vice President of... »

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From: Michael Parker ?
To: Grobe, Jack - NRR
Subject: Japan
Date: Monday, March 14, 2011 11:57:34 AM

Hi John
Are you in Japan right now? Did they do any B.5.b initiatives? Silver Bullet?

4/47

From: Nguven, Quynh - NRR
To: MARION, Alex
Cc: Schwarz, Sherry; Cohen, Shari; Grobe, Jack; Leeds, Eric
Subject: NEI Meetings with Eric Leeds and Jack Grobe
Date: Monday, March 14, 2011 10:53:30 AM

Alex,

I just called and left you a message. Given the recent events in Japan, I recommend that we postpone your status periodic with Eric Leeds and Jack Grobe (both occurring on March 16).

I believe you are scheduled to meet with Jack on March 30th.

Can you confirm receipt of cancellations? Meeting on 30th?

Thanks,
Quynh

4/48

From: Nguyen, Quynh - NRR
To: Grobe, Jack; Givvines, Mary - NRR
Subject: RE: Clothes for Ulsis
Date: Tuesday, March 15, 2011 10:08:24 AM

Covered in the morning meeting and see the other email.

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

From: Grobe, Jack - NRR
Sent: Tuesday, March 15, 2011 10:05 AM
To: Nguyen, Quynh; Givvines, Mary
Subject: Fw: Clothes for Ulsis

Pls take care of this.
Jack Grobe, Deputy Director, NRR

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

From: Dyer, Jim - OCFD
To: Dyer, Jim; Grobe, Jack; Virgilio, Martin; Leeds, Eric; Givvines, Mary - NRR; OEDO
Cc: Mitchell, Reggie; Kaplan, Michele; Matheson, Mary
Sent: Tue Mar 15 09:48:06 2011
Subject: RE: Clothes for Ulsis

Sorry I left off the 2nd e-mail. See attached. Jim

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

From: Dyer, Jim - OCFD
Sent: Tuesday, March 15, 2011 9:47 AM
To: Grobe, Jack; Virgilio, Martin; Leeds, Eric; Givvines, Mary - NRR; OEDO
Cc: Mitchell, Reggie; Kaplan, Michele; Matheson, Mary
Subject: RE: Clothes for Ulsis

NRR Folk,

See attached. Mary Matheson has some good ideas for covering Tony's cost of getting additional clothes. Jim

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

From: Grobe, Jack - NRR
Sent: Monday, March 14, 2011 6:28 PM
To: Virgilio, Martin; Dyer, Jim - OEDO; OCFD
Subject: Clothes for Ulsis

Tony Ulsis took clothing for three days and needs additional stuff. His wife advised that she found the least expensive approach would cost 800 dollars. She was ready to drive to deliver the stuff for shipment and wanted to be sure it would be reimbursed. The critical problem here is that Tony is 6 foot 7. I conferred with ADM and they indicated that they would do exactly what she was doing regarding shipment of the clothes so this would be authorized. I directed to go forward with this effort.
Jack Grobe, Deputy Director, NRR

2/49

- 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 6:01:26 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!

450

Fi

LJC

From: Cunningham, Liza
To: Auluck, Rajender; Boyce, Tom (RES); Brock, Kathryn; Campbell, Stephen; Carlson, Robert; Casto, Greg; Chernoff, Harold; Cranston, Gregory; Dennig, Robert; Dozier, Jerry; Eads, Johnny; Elliott, Robert; Franovich, Rani; Gavrilas, Mirela; Harrison, Donnie; Helton, Shana; Howe, Allen; Imboden, Andy; James, Lois; Kemper, William; Khanna, Meena; Klein, Alex; Kobetz, Timothy; Kulesa, Gloria; Lupold, Timothy; Manoly, Kamal; Markley, Michael; McHale, John; McMurtray, Anthony; Mendiola, Anthony; Mitchell, Matthew; Murphy, Martin; Pascarelli, Robert; Pelton, David; Pham, Bo; Raghavan, Rags; Rosenberg, Stacey; Salgado, Nancy; Scott, Michael; Shoop, Undine; Simms, Sophonia; Tate, Travis; Taylor, Robert; Thatcher, Dale; Thorp, John; Wilson, George; Wrona, David; Zimmerman, Jacob; Boger, Bruce; Givvines, Mary; Grobe, Jack; Leeds, Eric; Bahadur, Sher; Blount, Tom; Brown, Frederick; Cheok, Michael; Cunningham, Mark; Evans, Michele; Ficks, Ben; Galloway, Melanie; Gitter, Joseph; Hiland, Patrick; Holian, Brian; Lee, Samson; Lubinski, John; Lund, Louise; McGinty, Tim; Nelson, Robert; Quay, Theodore; Ruland, William; Skeen, David
Cc: NRR DIRS IOEB Distribution
Subject: FW: PNO-IV-11-001a Update - Diablo Canyon Power Plant Notification of Unusual Event
Date: Monday, March 14, 2011 12:11:58 PM
Attachments: PNO-IV-11-001a DC ADAMS.docx

REL

Attached is the PNO-IV-11-001A: UPDATE - DIABLO CANYON POWER PLANT
NOTIFICATION OF UNUSUAL
EVENT

Thanks,
Liza Cunningham

From: Tannenbaum, Anita *RIV*
Sent: Monday, March 14, 2011 12:09 PM
To: R4; PN_Distribution
Subject: PNO-IV-11-001a Update - Diablo Canyon Power Plant Notification of Unusual Event

ADAMS ML110730377

March 14, 2011

PRELIMINARY NOTIFICATION OF EVENT OR UNUSUAL OCCURRENCE -- PNO-IV-11-001a

This preliminary notification constitutes EARLY notice of events of POSSIBLE safety or public interest significance. The information is as initially received without verification or evaluation, and is basically all that is known by the Region IV staff on this date.

Facility	Licensee Emergency Classification
Pacific Gas and Electric Company	<input checked="" type="checkbox"/> Notification of Unusual Event
Diablo Canyon Nuclear Plant Units 1 and 2	<input type="checkbox"/> Alert
Avila Beach, CA	<input type="checkbox"/> Site Area Emergency
Docket: 50-275, 50-323	<input type="checkbox"/> General Emergency
License: DPR-80, DPR-82	<input type="checkbox"/> Not Applicable

SUBJECT: UPDATE - DIABLO CANYON POWER PLANT NOTIFICATION OF UNUSUAL EVENT

DESCRIPTION:

This preliminary notification updates information provided in PNO-IV-11-001, which was issued on March 11, 2011. Diablo Canyon Power Plant declared a Notification of Unusual Event at 4:23 a.m. EST on March 11, 2011, based on receipt of a tsunami warning from West California Emergency Management Agency resulting from the earthquake in Japan. There was no impact on plant operations and both units continued to operate at full power throughout the event. Maximum wave surge estimated at the site was approximately 3 feet. The tsunami warning was lifted at 6:12 p.m. EST on March 11, 2011, and the licensee subsequently terminated the Unusual Event declaration at 6:28 p.m. EST. The NRC resident inspectors responded to the site to monitor plant conditions and licensee actions for the duration of the event.

NRC Region IV has been in contact with licensee and governmental officials within the areas affected and there have been no reported impacts from the tsunami on nuclear materials licensees and other NRC licensed facilities on the west coast.

The NRC entered the Monitoring Mode at 9:46 a.m. EST on March 11, 2011 in response to the tsunami warning at Diablo Canyon. The NRC is coordinating its actions with other Federal agencies as part of the U.S. government response to the events in Japan.

The state of California has been informed. This information has been discussed with licensee management and is current as of 10:55 a.m. EST.

This preliminary notification is issued for information only.

ADAMS ACCESSION NUMBER: ML110730377

CONTACTS:	Lara Uselding (817)917-0321 lara.uselding@nrc.gov	Geoffrey Miller (817) 917-1212 Geoffrey.Miller@nrc.gov
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public

From: Leeds, Eric - NRR
To: Collins, Elmo; Satorius, Mark; McCree, Victor; Dean, Bill; Sheron, Brian; Tracy, Glenn; Hudson, Jody; Johnson, Michael; Miller, Charles; Hanev, Catherine; Zimmerman, Roy; Stewart, Sharon; Virgilio, Martin; Weber, Michael; Borchardt, Bill; Mamish, Nader; Doane, Margaret; Muesle, Mary
Cc: Boger, Bruce; Grobe, Jack; Ruland, William; Meighan, Sean
Subject: Confirmation of names for Japan
Date: Monday, March 14, 2011 1:11:30 PM

All Ofc

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

2/52

Bozin, Sunny

From: Zorn, Jason
Sent: Tuesday, March 15, 2011 9:47 AM
To: Nieh, Ho
Subject: FYI

I have a call in to the historian Tom Wellock to see if he could point me to any historical records about Commission responses to past emergencies. I'll let you know if I hear anything.

Ostendorff, William

From: Ostendorff, William
Sent: Tuesday, March 15, 2011 11:57 AM
To: 'John Pasko'
Subject: RE: In My Thoughts

John-Many thanks for your kind note. A real tragedy for the people of Japan. My best to all the Pasko's! Bill

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

From: John Pasko [<mailto:jpasko@DNFSB.GOV>]
Sent: Tuesday, March 15, 2011 11:52 AM
To: Ostendorff, William
Subject: In My Thoughts

Bill,

Have been thinking about you these last couple of days. You're in my thoughts and prayers. We're lucky to have someone with your experience, character and work ethic at the NRC.

I'm sure the next couple of weeks/months will be incredibly trying, but having you as a commissioner is a blessing for our country.

May the Lord continue to bless you and your family.

All the best,

v/r John

Kock, Andrea

From: Franovich, Mike
Sent: Tuesday, March 15, 2011 10:15 AM
To: Warnick, Greg
Cc: Nieh, Ho; Zorn, Jason
Subject: Seismic Information

Greg,

I did a project for WCO last summer to support questions from DNFSB on seismic standards for US plants. I setup a folder on the G: drive for the seismic info. It has a cache of regulatory guides, relevant standard review plan sections, and OPA Fact Sheet info. Look under the new folder G:\Japan Event - support information.

*Mike Franovich
Technical Assistant for Reactors
Office of Commissioner Ostendorff
301-415-1784*

Kock, Andrea

From: Ostendorff, William
Sent: Tuesday, March 15, 2011 3:33 PM
To: Kupfer, Jeff
Subject: FW: *RESEND*Press Release: NRC Analysis Continues to Support Japan's Protective Actions
Attachments: 11-049.docx

Jeff-This just came out. If they want to talk with someone, I would suggest Pacific Northwest National Laboratory.



NRC NEWS

U.S. NUCLEAR REGULATORY COMMISSION

Office of Public Affairs Telephone: 301/415-8200

Washington, D.C. 20555-0001

E-mail: opa.resource@nrc.gov Site: www.nrc.gov

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

No. 11-049

March 15, 2011

NRC ANALYSIS CONTINUES TO SUPPORT JAPAN'S PROTECTIVE ACTIONS

NRC analysts overnight continued their review of radiation data related to the damaged Japanese nuclear reactors. The analysts continue to conclude the steps recommend by Japanese authorities parallel those the United States would suggest in a similar situation.

The Japanese authorities Monday recommended evacuation to 20 kilometers around the affected reactors and said that persons out to 30 kilometers should shelter in place.

Those recommendations parallel the protective actions the United States would suggest should dose limits reach 1 rem to the entire body and 5 rem for the thyroid, an organ particularly susceptible to radiation uptake.

A rem is a measure of radiation dose. The average American is exposed to approximately 620 millirems, or 0.62 rem, of radiation each year from natural and manmade sources.

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News releases are available through a free *listserv* subscription at the following Web address: <http://www.nrc.gov/public-involve/listserver.html>. The NRC homepage at www.nrc.gov also offers a SUBSCRIBE link. E-mail notifications are sent to subscribers when news releases are posted to NRC's website.

From: Givvines, Mary - NRR
To: Grobe, Jack
Cc: Dorsey, Cynthia; Le, Hong
Subject: FW: Clothes for Ulsis
Date: Tuesday, March 15, 2011 8:36:13 AM

Hi Jack,

I spoke to Mary Matheson and Milton Brown from OCFO this morning. There is a much more cost effective way of shipping clothes by having the agency ship them or merely using the agency's fedex billing number.

I have Cynthia Dorsey working this.

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

From: Matheson, Mary - OCFO
Sent: Tuesday, March 15, 2011 8:23 AM
To: Givvines, Mary
Subject: FW: Clothes for Ulsis

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

From: Dyer, Jim - OCFO
Sent: Tuesday, March 15, 2011 7:19 AM
To: Mitchell, Reggie; Kaplan, Michele; Matheson, Mary
Cc: Brown, Milton
Subject: FW: Clothes for Ulsis

We should do whatever we need to do to get this reimbursed asap. Jim

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

From: Grobe, Jack - NRR
Sent: Monday, March 14, 2011 6:28 PM
To: Virgilio, Martin; Dyer, Jim
Subject: Clothes for Ulsis

Tony Ulsis took clothing for three days and needs additional stuff. His wife advised that she found the least expensive approach would cost 800 dollars. She was ready to drive to deliver the stuff for shipment and wanted to be sure it would be reimbursed. The critical problem here is that Tony is 6 foot 7. I conferred with ADM and they indicated that they would do exactly what she was doing regarding shipment of the clothes so this would be authorized. I directed to go forward with this effort.
Jack Grobe, Deputy Director, NRR

4/57

From: Leeds, Eric - NR
To: Dean, Bill; McCree, Victor; Satorius, Mark; Collins, Elmo; Sheron, Brian; Evans, Michele; Zimmerman, Roy; Johnson, Michael
Cc: Holahan, Gary; Campbell, Andy; Correia, Richard; Uhle, Jennifer; Howell, Art; Pederson, Cynthia; Wert, Leonard; Lew, David; Weber, Michael; Virgilio, Martin; Grobe, Jack; Boger, Bruce; HOO Hoc
Subject: ACTION: Assistance to Japanese
Date: Monday, March 14, 2011 7:23:56 AM

RI; RII; RIII; RIV; RES; OE;
NSR; NRO
OEDO

Folks –

The Japanese requested the US supply six individuals with knowledge of the BWR 3 & 4 design to assist them in their hour of need. I'd like to discuss potential candidates with you on a conference call today at 9:30 am. I will work through the HOOs to set up a conference call and send you the number. We do not have a lot of details with regard to how long, although we do know these folks will assist in their EOCs at two different locations in Japan. I'll keep you informed as we learn more.

Thanks for your help!

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

L/58

From: Leeds, Eric - NRR
To: Steger (Tucci), Christine
Cc: Givvines, Mary; Grobe, Jack; Boger, Bruce; Ruland, William; Brown, Frederick; Schwarz, Sherry; McDermott, NSIR
Subject: ACTION: Please distribute to all NRR staff in a HIGNFY message.
Date: Monday, March 14, 2011 5:16:54 PM

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!

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

4/59

From: Leeds, Eric *NRR*
To: Ruland, William
Cc: Grobe, Jack; Boger, Bruce; Bahadur, Sher
Subject: ACTION:: Clothes for Ulsis
Date: Tuesday, March 15, 2011 10:54:41 AM
Attachments: RE Clothes for Ulsis.msg

Bill -

Please be sure to save this email so Tony knows that NRR, the CFO and the Agency wants to be sure that he stays appropriately attired in Japan.

We care about our folks!!!!

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

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

From: Dyer, Jim *OCFO*
Sent: Tuesday, March 15, 2011 9:48 AM
To: Dyer, Jim; Grobe, Jack; Virgilio, Martin; Leeds, Eric; Givvines, Mary *DEDO; NRR*
Cc: Mitchell, Reggie; Kaplan, Michele; Matheson, Mary *OCFO*
Subject: RE: Clothes for Ulsis

Sorry I left off the 2nd e-mail. See attached. Jim

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

From: Dyer, Jim
Sent: Tuesday, March 15, 2011 9:47 AM
To: Grobe, Jack; Virgilio, Martin; Leeds, Eric; Givvines, Mary *NRR; OEDO*
Cc: Mitchell, Reggie; Kaplan, Michele; Matheson, Mary *OCFO*
Subject: RE: Clothes for Ulsis

NRR Folk,

See attached. Mary Matheson has some good ideas for covering Tony's cost of getting additional clothes. Jim

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

From: Grobe, Jack *NRR*
Sent: Monday, March 14, 2011 6:28 PM
To: Virgilio, Martin; Dyer, Jim *DEDO; OCFO*
Subject: Clothes for Ulsis

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Jack Grobe, Deputy Director, NRR

2/60

From: Brown, Frederick — NRR
To: Boger, Bruce; Leeds, Eric
Cc: Grobe, Jack
Subject: FW: POC for Japanese Earthquake questions
Date: Monday, March 14, 2011 4:46:32 PM
Importance: High

Only comment that I got about the text below was including other Offices, which I defer to you on (not sure how much authority you want to assert about other people's staff). If you agree, you could cut the text below the dotted line into an e-mail to all NRR staff.

From: Brown, Frederick
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.

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4/61

From: Cullingford, Michael - *NRD*
To: Leeds, Eric; Boger, Bruce; Grobe, Jack; Grobe, Jack; McGinty, Tim; Ruland, William; Lubinski, John; Cheok, Michael; Holian, Brian; Brown, Frederick; Glitter, Joseph; Hiland, Patrick
Subject: FW: Seismic Damage Information News Release in English
Date: Monday, March 14, 2011 8:35:55 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

4/62

NRR
From: Boger, Bruce
To: Nguyen, Quynh
Subject: FW: Partial List
Date: Monday, March 14, 2011 5:11:00 PM

REL

Here's the list—6 way below and 1 right below.

NRR
From: Boger, Bruce
Sent: Monday, March 14, 2011 3:02 PM
To: LIA02 Hoc; LIA03 Hoc
Cc: Evans, Michele
Subject: FW: Partial List

FYI--One additional person has been added to the response team—Bill Cook, Region 1.

NRR
From: Boger, Bruce
Sent: Monday, March 14, 2011 1:58 PM
To: Boger, Bruce; Mamish, Nader
Cc: Leeds, Eric; Carter, Mary; Virgilio, Martin; Borchardt, Bill; Meighan, Sean; Tracy, Glenn; Casto, Chuck; Monninger, John; Nakanishi, Tony; Kolb, Timothy; Foster, Jack; Devercelly, Richard; Cook, William; Wilson, Peter; Dean, Bill
Subject: RE: Partial List

Nader, To complete the list, Bill Cook, SRA in Region 1, is available to support the team.

NRR
From: Boger, Bruce
Sent: Monday, March 14, 2011 1:10 PM
To: Mamish, Nader
Cc: Leeds, Eric; Carter, Mary; Virgilio, Martin; Borchardt, Bill; Meighan, Sean; Tracy, Glenn; Casto, Chuck; Monninger, John; Nakanishi, Tony; Kolb, Timothy; Foster, Jack; Devercelly, Richard
Subject: Partial List

Nader, Here's the partial list of folks on the Japanese support team (need to hear back from Region 1 for 1 name):

- Chuck Casto
- John Monninger
- Tony Nakanishi
- Tim Kolb
- Jack Foster
- Richard DeVercelly

I've been advised that all have current passports and are available to travel tonight. We're working with them to contact the NRC doctor to discuss medical information. Sean Meighan will work with the HQ folks to coordinate a visit with the doctor and will advise the non-HQ folks to call him.

Thanks in advance for Mary Carter's support on travel logistics.

2/63

NRK
From: Boger, Bruce
To: Meighan, Sean
Subject: Health Unit Coordination
Date: Monday, March 14, 2011 12:55:00 PM

REC

Here are the HQ folks going to Japan:
Tony Nakanishi
Tim Kolb
Jack Foster
John Monninger

4/64

From: Boger, Bruce
To: Casto, Chuck
Cc: McCree, Victor
Subject: RE: Casto Bio & Pic
Date: Monday, March 14, 2011 12:50:00 PM

Bon voyage, but wait, that's French.....Stay safe, Chuck

REL

From: Casto, Chuck
Sent: Monday, March 14, 2011 11:32 AM
To: Boger, Bruce
Cc: McCree, Victor
Subject: RE: Casto Bio & Pic

Thanks, Nadar called to say that the Chairman approved...

From: Boger, Bruce
Sent: Monday, March 14, 2011 11:32 AM
To: Casto, Chuck
Cc: McCree, Victor
Subject: RE: Casto Bio & Pic

Unofficial, but for what it's worth, Eric just popped his head in the door and indicated you'd be going.

From: Casto, Chuck
Sent: Monday, March 14, 2011 11:30 AM
To: Mamish, Nader
Cc: Virgilio, Martin; Brenner, Eliot; Leeds, Eric; Monninger, John; Boger, Bruce; McCree, Victor
Subject: Casto Bio & Pic

Folks, Victor suggested that I send you a Bio.....attached....

casto

4/65

From: Boger, Bruce NAR
To: Meighan, Sean
Subject: Fw: Japanese Support Names from DE
Date: Monday, March 14, 2011 9:52:35 AM

REL

From: Hiland, Patrick NAR
To: Nguyen, Quynh
Cc: Leeds, Eric; Boger, Bruce
Sent: Mon Mar 14 09:50:51 2011
Subject: Japanese Support Names from DE

- (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

4/66

From: Boger, Bruce *BR*
To: Thomas, Brian
Cc: Nguyen, Quynh; Lubinski, John; Cusumano, Victor; Meighan, Sean
Subject: RE:
Date: Monday, March 14, 2011 4:52:00 PM

REL
Thanks, Brian. *BR*

From: Thomas, Brian
Sent: Monday, March 14, 2011 2:10 PM
To: Boger, Bruce
Cc: Nguyen, Quynh; Lubinski, John; Cusumano, Victor
Subject:

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

4/67

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

NR
From: Boger, Bruce
To: Leeds, Eric
Subject: RE: Confirmation of names for Japan
Date: Monday, March 14, 2011 1:20:00 PM

RE Thanks, Eric. I still need to hear from Region 1.

NR
From: Leeds, Eric
Sent: Monday, March 14, 2011 1:11 PM
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
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

2/68

NRR
From: Boger, Bruce
To: Lee, Samson
Cc: Cheok, Michael; Meighan, Sean
Subject: RE: DRA recommendations to support current events overseas
Date: Monday, March 14, 2011 11:03:00 AM

REL Got it. Thanks.

NRR
From: Lee, Samson
Sent: Monday, March 14, 2011 11:02 AM
To: Boger, Bruce
Cc: Cheok, Michael
Subject: RE: DRA recommendations to support current events overseas

Bruce:

I just found out that Harold Barrett has pre-planned vacation in a few weeks. Depending on timing, he may not be available to travel. Sorry for the confusion.

Thanks,
Sam

NRR
From: Boger, Bruce
Sent: Monday, March 14, 2011 10:59 AM
To: Lee, Samson
Subject: RE: DRA recommendations to support current events overseas

Thanks, Sam.

NRR
From: Lee, Samson
Sent: Monday, March 14, 2011 10:06 AM
To: Boger, Bruce
Cc: Klein, Alex; Rodriguez, Veronica; Cheok, Michael; Grobe, Jack
Subject: DRA recommendations to support current events overseas

Bruce:

As requested at ET today, please see attached response from DRA.

Thanks,
Sam

4/69

ML

From: Leeds, Eric
To: Dean, Bill; McCree, Victor; Satorius, Mark; Collins, Elmo; Sheron, Brian; Evans, Michele; Zimmerman, Roy; Johnson, Michael
Cc: Holahan, Gary; Campbell, Andy; Correia, Richard; Uhle, Jennifer; Howell, Art; Pederson, Cynthia; Wert, Leonard; Lew, David; Weber, Michael; Virgilio, Martin; Grobe, Jack; Boger, Bruce; HOO Hoc
Subject: ACTION: Assistance to Japanese
Date: Monday, March 14, 2011 7:23:56 AM

Folks –

REL

The Japanese requested the US supply six individuals with knowledge of the BWR 3 & 4 design to assist them in their hour of need. I'd like to discuss potential candidates with you on a conference call today at 9:30 am. I will work through the HOOs to set up a conference call and send you the number. We do not have a lot of details with regard to how long, although we do know these folks will assist in their EOCs at two different locations in Japan. I'll keep you informed as we learn more.

Thanks for your help!

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

470

Kock, Andrea

From: Franovich, Mike
Sent: Monday, March 14, 2011 11:16 PM
To: Ostendorff, William
Cc: Nieh, Ho; Warnick, Greg; Kock, Andrea; Zorn, Jason
Subject: NHK WORLD English - Unit 2 explosion being reported

Sir,

The following link is directly to the NHK news network. There are several news feeds on Daiichi Unit 2 explosion near the torus/suppression pool. There is also a report of a fire breaking out of either Unit 3 or 4 (mixed reports as to which unit).

TEPCO news conference and info from NISA are the basis for the story below. With pressure buildup in the reactor, the seawater injection with the fire pumpers simply do not have enough head to inject water into the vessel.

Following the explosion, containment pressure dropped from 50 psia to atmospheric pressure (suggests a breach of the primary containment).

Also, there is a story of 17 US Navy personnel from the USS Reagan who were contaminated (low level) during their helo ride to Sendai city.

<http://www3.nhk.or.jp/daily/english/>

Explosion heard at Fukushima No.2. reactor

Japan's Nuclear and Industrial Safety Agency says an explosion was heard early Tuesday morning at the No.2 reactor of the disaster-hit Fukushima No.1 nuclear power plant.

Agency officials told reporters that the blast was heard at 6:10 AM local time on Tuesday.

Chief Cabinet Secretary Yukio Edano earlier told a news conference that a reactor facility, called the suppression pool, has been damaged.

But agency officials said they have no detailed information yet about the report.

They said that depending on where the damage is done, either liquid or air could leak out of the suppression pool.

The suppression pool is linked to the reactor containment vessel and is designed to prevent radioactive material from leaking outside.

Experts say a breach to this crucial facility has raised the possibility of a radioactive leak.

The Nuclear and Industrial Safety Agency also said that nuclear fuel rods inside the No.2 reactor are exposed above water by about 2.7 meters. That's about half the length of the fuel rods.

Agency officials said that radiation levels around the nuclear power plant reached 965.5 microsieverts following the explosive sound.

They say the figure later dropped slightly to 882 microsieverts.

The officials said they believe the rise in radiation level is due to the breach in the suppression pool, but that they cannot say for sure. They said they are monitoring the situation closely.

The officials added that the monitored level of radiation would not immediately pose a health threat.

Tokyo Electric Power Company that operates the power station briefly evacuated workers from the facility following the sound of the blast.

Tuesday, March 15, 2011 09:26 +0900 (JST)

INAR
From: Lee, Samson
To: Boger, Bruce
Cc: Klein, Alex; Rodriguez, Veronica; Cheok, Michael; Grobe, Jack
Subject: DRA recommendations to support current events overseas
Date: Monday, March 14, 2011 10:06:40 AM
Attachments: From DRA March 14 2011.doc

Bruce:

REL
As requested at ET today, please see attached response from DRA.

Thanks,
Sam

4/72

3/14/11

From DRA:

Jeff Circle

Mr. Circle has extensive experience in the following areas:

- Probabilistic risk assessments, including system modeling.
- ROP, SDP, and SERPs
- Licensing interface
- Maintenance rule
- Reactive inspection decision-making
- Outage management

Mr. Circle is a member of the HQ Incident Response Reactor Safety Team. Prior to joining the NRC, Mr. Circle worked for Entergy for 6 years (2000-2006) and with the New York Power Authority for 7 years (1993-2000). He has significant experience with BWRs and PWRs.

Harold Barrett

Mr. Barrett has significant BWR experience. He worked at Nine Mile Point on and off for about 15 years. He held a Senior Reactor Operator's license at Nine Mile Point Unit 1, including several positions in Operations Management (Assistant Operations Superintendent and General Supervisor Operations), was qualified in Emergency Plan Implementation and was involved with symptom-based procedure development and participated on the BWR Owner's Group Emergency Procedures Committee (responsible for the BWR Emergency Procedure Guidelines for all BWR product lines) in the mid-1980s.

From: Brown, Frederick | NAR
To: Boger, Bruce
Subject: FW: BWR assistance
Date: Monday, March 14, 2011 10:39:50 AM
Importance: High

REL

From: McHale, John | NAR
Sent: Monday, March 14, 2011 10:36 AM
To: Brown, Frederick
Subject: FW: BWR assistance

Confirmation from Tim Kolb that he could travel

From: Kolb, Timothy | NAR
Sent: Monday, March 14, 2011 10:36 AM
To: Leeds, Eric
Cc: McHale, John
Subject: BWR assistance

Eric,
Just wanted to offer assistance for Japan. I am on dayshift RST Team as BWR Analyst and have 13 years experience operating reactors at Quad Cities. I do have a passport and could support any efforts for helping with the Japan emergency.
Thanks,
Tim Kolb

From: Boger, Bruce *NRR*
To: Wilson, Peter; Cook, William
Subject: FW: Partial List
Date: Monday, March 14, 2011 1:58:00 PM

REL

Pete/Bill—more information for the trip.

From: Mamish, Nader, *OP*
Sent: Monday, March 14, 2011 1:35 PM
To: Boger, Bruce
Cc: Leeds, Eric; Carter, Mary; Virgilio, Martin; Borchardt, Bill; Meighan, Sean; Tracy, Glenn; Casto, Chuck; Monninger, John; Nakanishi, Tony; Kolb, Timothy; Foster, Jack; Devercelly, Richard; LIA03 Hoc; Foggie, Kirk; Smith, Brooke
Subject: RE: Partial List

Thanks to all for your willingness to support. For those of you who may not have provided some needed information, could you please e-mail Mary Carter the following information ASAP?

Your name as it appears on your passport
DOB
Passport number
Passport expiration date

We're looking at a flight tomorrow. Kirk Foggie will brief the team on logistics during the flight (Margie briefed Chuck).

Thanks again!

NRR
From: Boger, Bruce
Sent: Monday, March 14, 2011 1:10 PM
To: Mamish, Nader
Cc: Leeds, Eric; Carter, Mary; Virgilio, Martin; Borchardt, Bill; Meighan, Sean; Tracy, Glenn; Casto, Chuck; Monninger, John; Nakanishi, Tony; Kolb, Timothy; Foster, Jack; Devercelly, Richard
Subject: Partial List

Nader, Here's the partial list of folks on the Japanese support team (need to hear back from Region 1 for 1 name):

Chuck Casto
John Monninger
Tony Nakanishi
Tim Kolb
Jack Foster
Richard DeVercelly

I've been advised that all have current passports and are available to travel tonight. We're working with them to contact the NRC doctor to discuss medical information. Sean Meighan will work with the HQ folks to coordinate a visit with the doctor and will advise the non-HQ folks to call him.

Thanks in advance for Mary Carter's support on travel logistics.

4/74

From: Boger, Bruce, NRP
To: Wilson, Peter
Subject: FW: Partial List
Date: Monday, March 14, 2011 1:38:00 PM

RE: Pete, Looks like travel tomorrow is planned. That might take the pressure off Bill's logistics.

From: Mamish, Nader, NRP
Sent: Monday, March 14, 2011 1:35 PM
To: Boger, Bruce
Cc: Leeds, Eric; Carter, Mary; Virgilio, Martin; Borchardt, Bill; Meighan, Sean; Tracy, Glenn; Casto, Chuck; Monninger, John; Nakanishi, Tony; Kolb, Timothy; Foster, Jack; Devercelly, Richard; LIA03 Hoc; Foggie, Kirk; Smith, Brooke
Subject: RE: Partial List

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Your name as it appears on your passport
DOB
Passport number
Passport expiration date

We're looking at a flight tomorrow. Kirk Foggie will brief the team on logistics during the flight (Margie briefed Chuck).

Thanks again!

From: Boger, Bruce, NRP
Sent: Monday, March 14, 2011 1:10 PM
To: Mamish, Nader
Cc: Leeds, Eric; Carter, Mary; Virgilio, Martin; Borchardt, Bill; Meighan, Sean; Tracy, Glenn; Casto, Chuck; Monninger, John; Nakanishi, Tony; Kolb, Timothy; Foster, Jack; Devercelly, Richard
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Tim Kolb
Jack Foster
Richard DeVercelly

I've been advised that all have current passports and are available to travel tonight. We're working with them to contact the NRC doctor to discuss medical information. Sean Meighan will work with the HQ folks to coordinate a visit with the doctor and will advise the non-HQ folks to call him.

L/75

Thanks in advance for Mary Carter's support on travel logistics.

From: Dean, Bill *BT*
To: Meighan, Sean
Cc: Wilson, Peter; Clifford, James; Roberts, Darrell; Lorson, Raymond; Collins, Daniel; Weerakkody, Sunil; Leeds, Eric; Boger, Bruce; Lew, David
Subject: Possible support to Japan
Date: Monday, March 14, 2011 10:57:47 AM

REV
Region I has several individuals that may be suited to assist as discussed in a conference call with Eric Leeds this morning.

Below are staff for consideration regarding the ongoing events in Japan.

For support on severe accident mitigation. All are knowledgeable of SAMAs and B.5.b strategies. All have considerable BWR backgrounds. These are the three Region I Senior reactor analysts.

1. Bill Cook
2. Wayne Schmidt
3. Chris Cahill

Also, Ray Lorson and Blake Welling, who have been SRIs at BWRs have indicated a willingness to support this initiative.

For expertise on radiological health effects and plume modeling.

1. Ron Nimitz
2. Jim Noggle (worked at Fukushima in the 1980's)

For expertise on incident response

1. Ray McKinley (former BWR 4 SRO)

Bill

M/76

From: NRR HIGNFY Resource *MAN*
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!

REL

4/77



From: Boger, Bruce (NRR)
To: Meighan, Sean
Subject: Another Name
Date: Monday, March 14, 2011 11:24:00 AM

REL

Please add John Monninger to the list. He's on the Chairman's staff. We'll worry about the expertise column later, if need be. Thanks.

4/78

NAR

From: Cullingford, Michael
To: Leeds, Eric; Boger, Bruce; Grobe, Jack; Grobe, Jack; McGinty, Tim; Ruland, William; Lubinski, John; Cheok, Michael; Holian, Brian; Brown, Frederick; Gitter, 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-----

REL

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

4/79

From: Meighan, Sean *SM*
To: Mamish, Nader; Leeds, Eric; Boger, Bruce
Subject: KI for Japan deployment
Date: Monday, March 14, 2011 2:08:51 PM

Nader:

REL

Dr. Cadoux asked the question "what will we do with respect to Potassium Iodide for those who will be going to Japan?" We currently do not have a stance on this. What is your suggestion/direction?

Very Respectfully
Sean Meighan
415-1020

L/80

From: Thomas, Brian | *NR*
To: Boger, Bruce
Cc: Nguyen, Quynh; Lubinski, John; Cusumano, Victor
Date: Monday, March 14, 2011 2:10:21 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:

- REL*
- 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

4/81

WJZ
REL
REL

NRR

From: Brown, Frederick
To: Hiland, Patrick; Ruland, William; McGinty, Tim; Skeen, David; Thomas, Eric; Thorp, John; Glitter, Joseph
Cc: Roger, Bruce
Date: Monday, March 14, 2011 1:10:46 PM
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.

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From: Thorp, John
To: King, Mark; Boger, Bruce; Brown, Frederick
Cc: Thomas, Eric
Subject: RE: (Action) Tsunami Fact Sheet - NUREG issued in March 2009 Link
Date: Monday, March 14, 2011 7:28:24 AM
Attachments: naturalphenomenasummary.docx

Saved as a docx document, see attached.

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

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

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
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

Thanks Mark

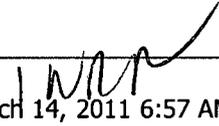
From: King, Mark
Sent: Monday, March 14, 2011 7:08 AM
To: Thorp, John; Boger, Bruce
Cc: Brown, Frederick; Thomas, Eric
Subject: RE: (Action) Tsunami Fact Sheet - NUREG issued in March 2009 Link

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: [\[NUREG/CR-6966\]](#)

483

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

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

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

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

Nuclear Power Plant Design for Natural Phenomena

The NRC regulations require that nuclear power plants be designed to withstand the effects of natural phenomena such as earthquakes, tornadoes, hurricanes, floods, and tsunamis. Nuclear power plant design reflects consideration of the most severe natural phenomena that have been historically reported for the plant site and surrounding area. The design also provides sufficient margin for the limited accuracy, quantity, and period of time in which the historical data have been accumulated. Additionally, the design considers the appropriate combinations of the effects of the natural phenomena with the effects of normal and accident conditions at the plant.

Each nuclear power plant is, therefore, designed to a specific magnitude or strength of a natural phenomenon that is appropriate for the plant site and surrounding area. For example, a nuclear power plant in Texas or Florida (where earthquakes are of small magnitude and rarely occur) would not be designed for the same earthquake loading as a nuclear power plant in California (where earthquakes are more severe and common).

The attached table shows some examples of design values of natural phenomena for the Waterford Steam Electric Station, Unit 3 (Waterford-3), the River Bend Station (River Bend), South Texas Project, Units 1 and 2 (STP), Wolf Creek Generating Station, Unit 1 (Wolf Creek), Diablo Canyon Nuclear Power Plant, Units 1 and 2 (Diablo Canyon), Duane Arnold Energy Center (Duane Arnold), and Grand Gulf Nuclear Station, Unit 1 (Grand Gulf).

TABLE 1 - Comparison of Plant-Specific Design Values for Selected Natural Phenomena

PLANT	EARTHQUAKE (ground acceleration, g)		TORNADO WIND SPEED (mph)		SUSTAINED WIND (mph)	FLOOD height above grade (ft)	TSUNAMI/Storm Surge height above grade (ft)
	SSE ¹ (horz.)	SSE (vert.)	Translational Speed (mph)	Tangential Speed (mph)			
Waterford-3	0.10	0.07	60	300	200 at 30 ft.	15.5	14.5
River Bend	0.15	0.10	70	290	100 at 30 ft.	N/A ²	N/A ³
STP	0.10	0.07g	70	290	125 at 30 ft.	23	N/A ³
Wolf Creek	0.20/ 0.12 ⁴	0.20/ 0.12 ⁴	70	290	100 at 30 ft.	N/A ²	N/A ^{5,6}
Diablo Canyon	0.20	0.13	43	157	80 ⁷	N/A ²	N/A ²
Duane Arnold	0.12	0.10	60	300	105-145 ⁸	12	N/A ⁵
Grand Gulf	0.15	0.10	70	290	90 at 30 ft.	N/A ²	N/A ³

¹ Safe Shutdown Earthquake

² Maximum flood level or tsunami/storm surge is below grade

³ Tsunami is not a credible event in the Gulf Coast

⁴ Power-block/non-power-block

⁵ Not a coastal plant

⁶ Remote from large bodies of water

⁷ Gust factor of 1.1 will apply

⁸ Depending on height

From: Cullingford, Michael *in*
To: Leeds, Eric; Boger, Bruce; Grobe, Jack; McGinty, Tim; Regan, Christopher; Hopkins, Jon; Astwood, Heather
Cc: Quinones, Lauren; Brown, Frederick; Glitter, 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

RL

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.

4/84

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-ri 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

(March12)

05:22 Unit 1 of Fukushima Dai-ni notified NISA of the situation of the Article 15 of Act on Special Measures Concerning Nuclear Emergency Preparedness.

05:32 Unit 2 of Fukushima Dai-ni notified NISA of the situation of the Article 15 of Act on Special Measures Concerning Nuclear Emergency Preparedness.

05:44 Residents living in the area of 10km radius from unit 1 of the Nuclear Power Station must evacuate by the Prime Minister Direction.

06:07 Regarding of Fukushima Dai-ni NPS, TEPCO reported NISA in accordance with Article 15 of Act for Special Measures Concerning Nuclear Emergency Preparedness.

06:50 According to the article 64, 3 of the Nuclear Regulation Act, government order to control the internal pressure in Fukushima-dai-ichi Units 1 and 2

07:45 Directives from Prime Minister to Governor of Fukushima, Mayors of Hirono, Naraha, Tomioka, Ookuma and Futaba were issued regarding the accident occurred at Fukushima-Dai-ni Nuclear Power Station, TEPCO, pursuant to Paragraph 3, Article 15 of the Act for Special Measures Concerning Nuclear Emergency Preparedness as follows:

- Residents living in the area of 3km radius from Fukushima Dai-ni Nuclear Power Station (NPS) must evacuate.

- Residents living in the area of 10km radius from Fukushima Dai-ni NPS must take sheltering

17:00 Notification pursuant to Article 15 of the Act for Special Measure Concerning Nuclear Emergency Preparedness since the radiation level exceeded the acceptable level of Fukushima Dai-ichi NPS.

17:39 Prime Minister directed evacuation of the residents living within the 10 km radius from the Fukushima-Dai-ni NPS

18:25 Prime Minister directed evacuation of the residents living within the 20km radius from the Fukushima Dai-ichi NPS

19:55 Directives from Prime Minister was issued regarding sea water injection to Unit No.1 of Fukushima Dai-ichi NPS.

20:05 Based on the directives 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

NRA
From: Boger, Bruce
To: Meighan, Sean
Subject: FW: DRA recommendations to support current events overseas
Date: Monday, March 14, 2011 10:20:00 AM
Attachments: From DRA March 14 2011.doc

RFL

NRA
From: Lee, Samson
Sent: Monday, March 14, 2011 10:06 AM
To: Boger, Bruce
Cc: Klein, Alex; Rodriguez, Veronica; Cheok, Michael; Grobe, Jack
Subject: DRA recommendations to support current events overseas

Bruce:

As requested at ET today, please see attached response from DRA.

Thanks,
Sam

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3/14/11

From DRA:

Jeff Circle

Mr. Circle has extensive experience in the following areas:

- Probabilistic risk assessments, including system modeling.
- ROP, SDP, and SERPs
- Licensing interface
- Maintenance rule
- Reactive inspection decision-making
- Outage management

Mr. Circle is a member of the HQ Incident Response Reactor Safety Team. Prior to joining the NRC, Mr. Circle worked for Entergy for 6 years (2000-2006) and with the New York Power Authority for 7 years (1993-2000). He has significant experience with BWRs and PWRs.

Harold Barrett

Mr. Barrett has significant BWR experience. He worked at Nine Mile Point on and off for about 15 years. He held a Senior Reactor Operator's license at Nine Mile Point Unit 1, including several positions in Operations Management (Assistant Operations Superintendent and General Supervisor Operations), was qualified in Emergency Plan Implementation and was involved with symptom-based procedure development and participated on the BWR Owner's Group Emergency Procedures Committee (responsible for the BWR Emergency Procedure Guidelines for all BWR product lines) in the mid-1980s.

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

Attached is some stuff a friend of mine sent me.

4/86

Fukushima Daiichi Nuclear Plant Event Summary and FPL/DAEC Actions



Fukushima Daiichi Nuclear Station

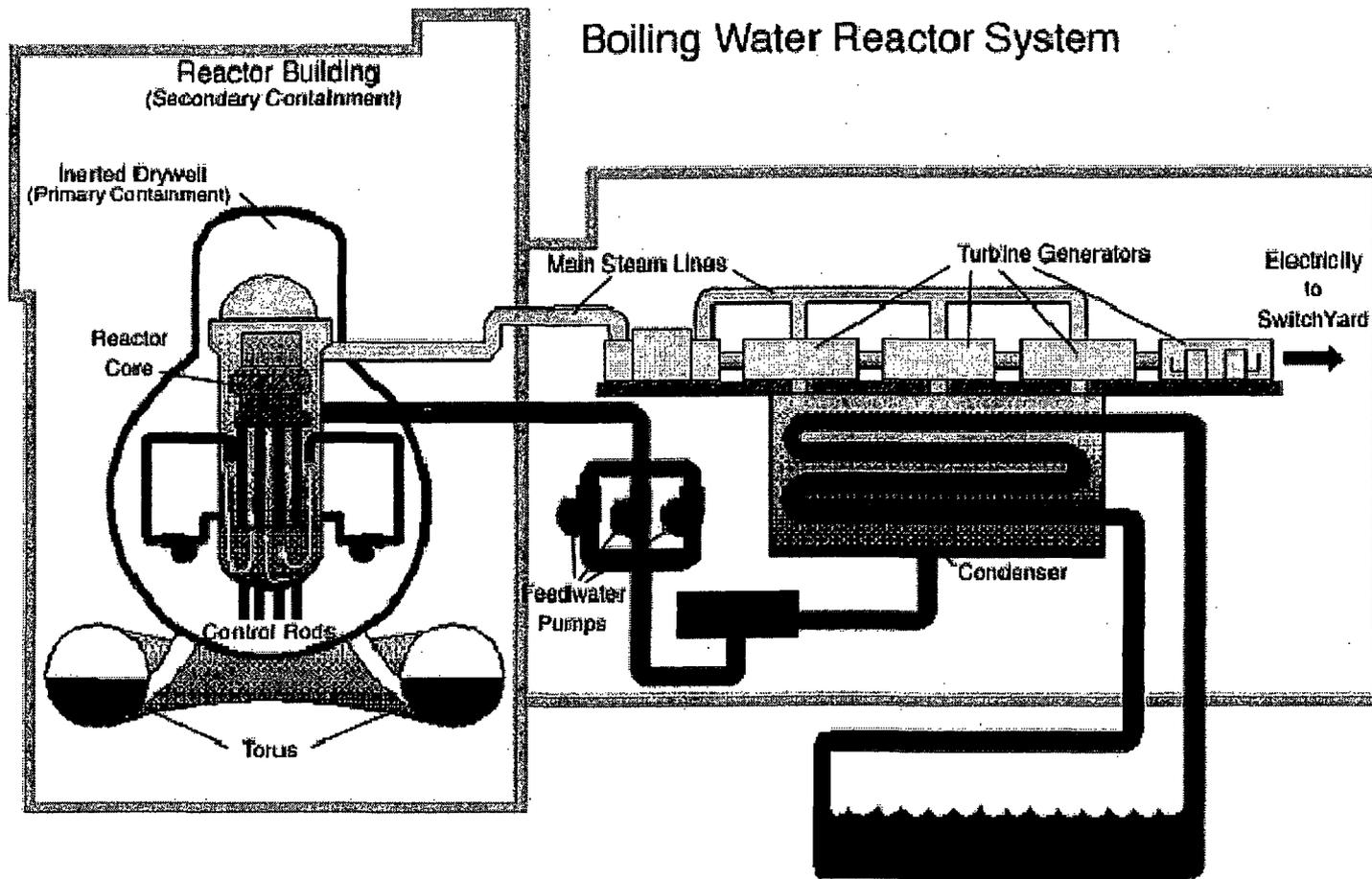
- Six BWR units at the Fukushima Nuclear Station:
 - Unit 1: 439 MWe BWR, 1971 (unit was in operation prior to event)
 - Unit 2: 760 MWe BWR, 1974 (unit was in operation prior to event)
 - Unit 3: 760 MWe BWR, 1976 (unit was in operation prior to event)
 - Unit 4: 760 MWe BWR, 1978 (unit was in outage prior to event)
 - Unit 5: 760 MWe BWR, 1978 (unit was in outage prior to event)
 - Unit 6: 1067 MWe BWR, 1979 (unit was in outage prior to event)



Unit 1

Fukushima Daiichi Unit 1

- Typical BWR 3 and 4 Reactor Design
- Some similarities to Duane Arnold Energy Center



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

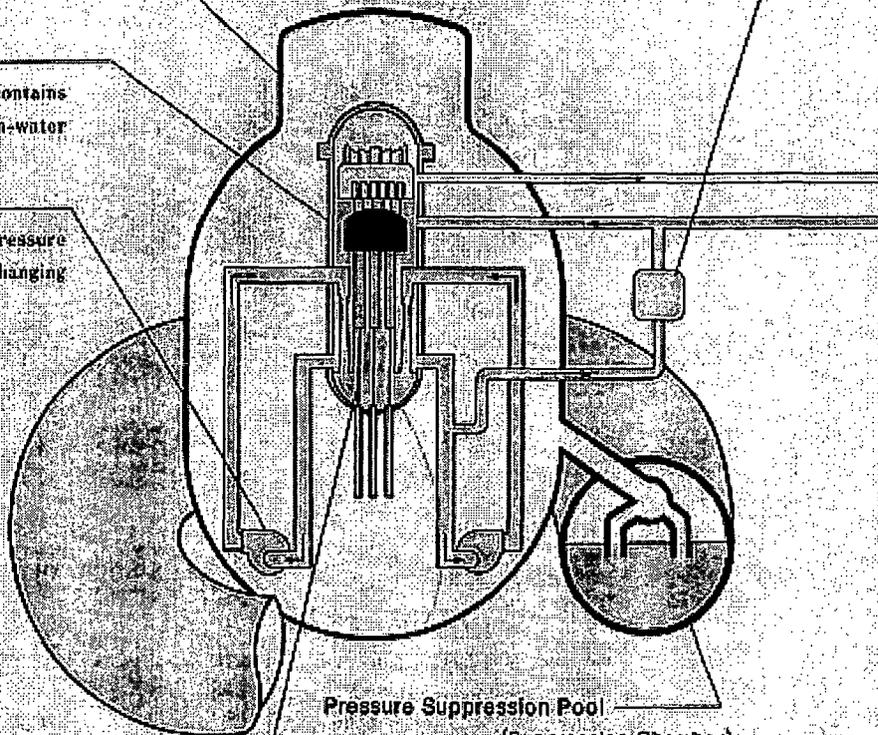
It is made of 12cm thick steel and contains fuel, control rods, jet pumps, steam-water separator and steam dryer.

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

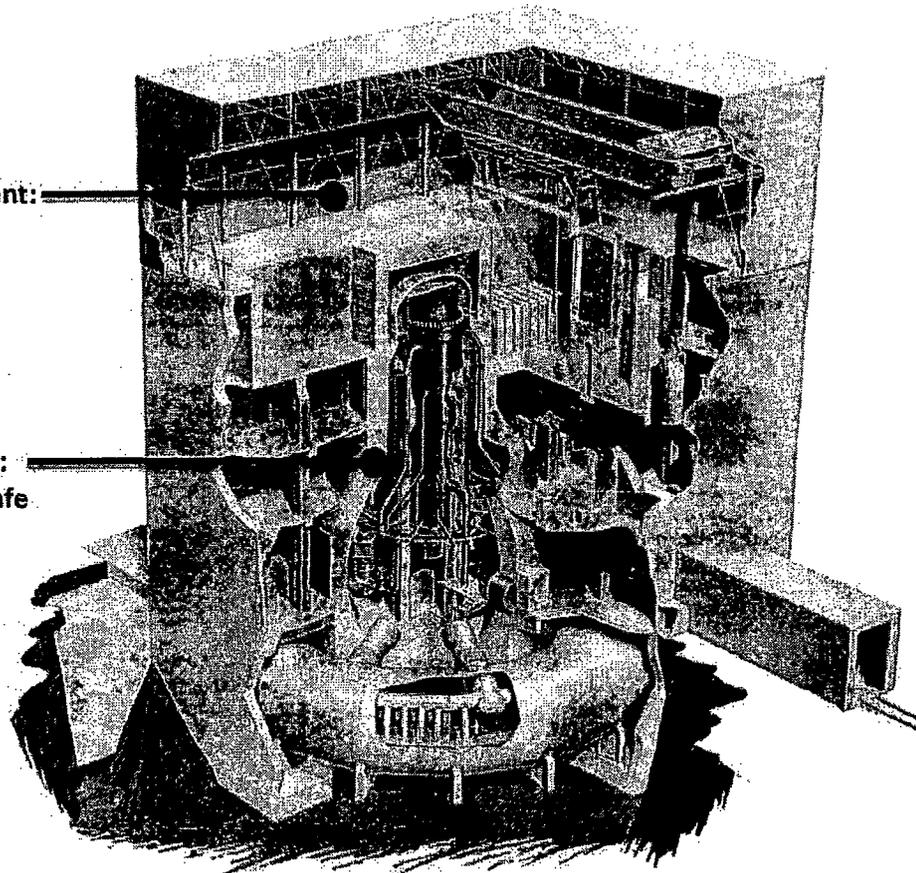
(Suppression Chamber)

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

Secondary containment:
Area of explosion at
Fukushima Daiichi 1

Primary containment:
Remains intact and safe



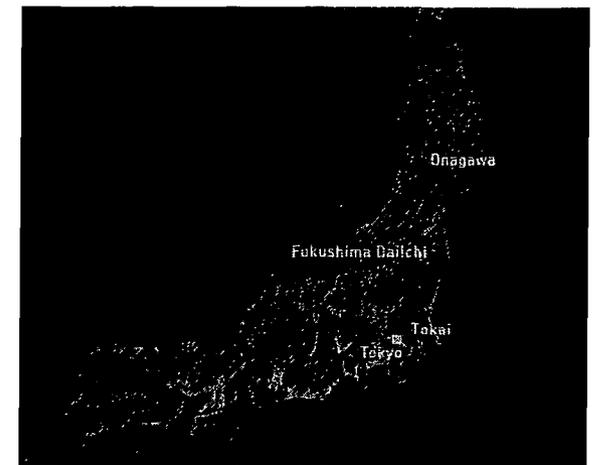
Boiling Water Reactor Design

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



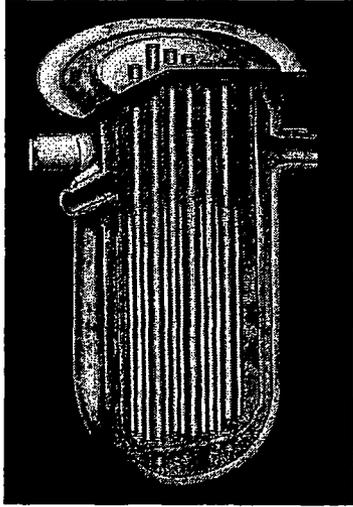
Initial Response

- 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.
- Reactor operators were able to utilize emergency battery power to provide power for cooling the core for 8 hours.
- Operators followed abnormal operating procedures and emergency operating procedures.

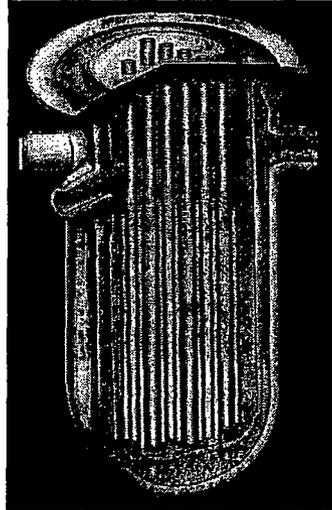
Loss of Makeup

- 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.

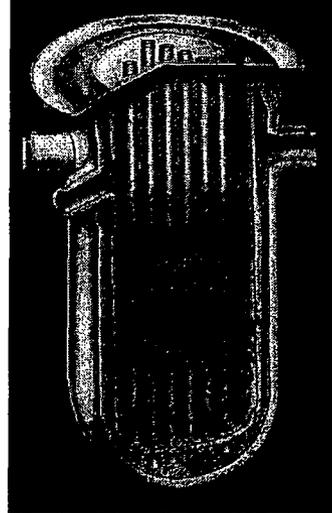
Core Damage Sequence



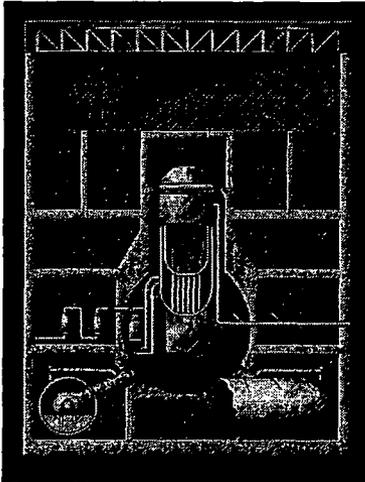
Core Uncovered



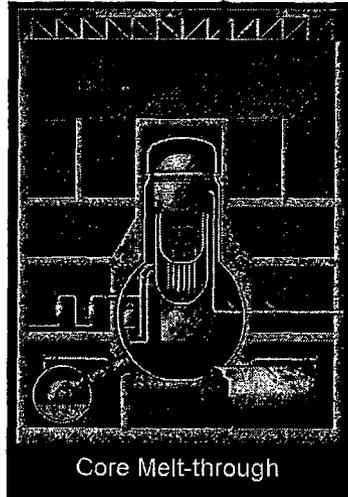
Fuel Overheating



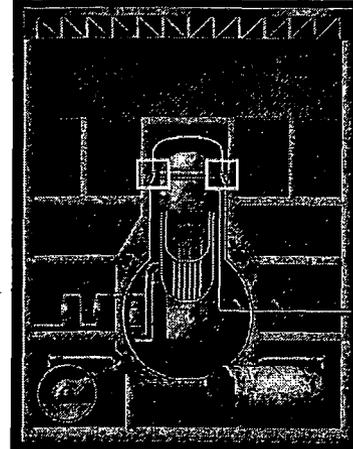
Fuel melting - Core Damaged



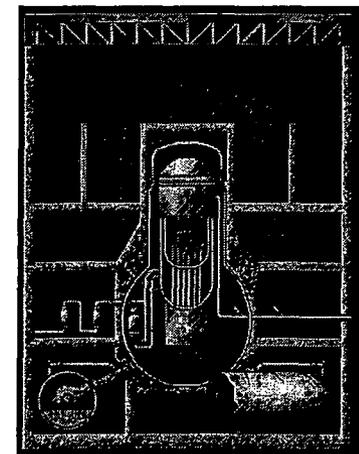
Core Damaged but retained in vessel



Core Melt-through
Some portions of core melt into lower RPV head

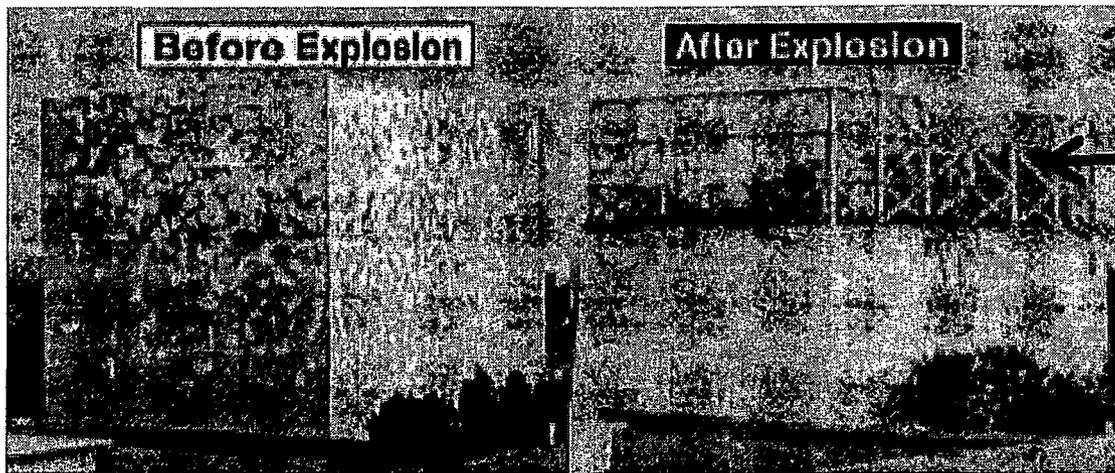
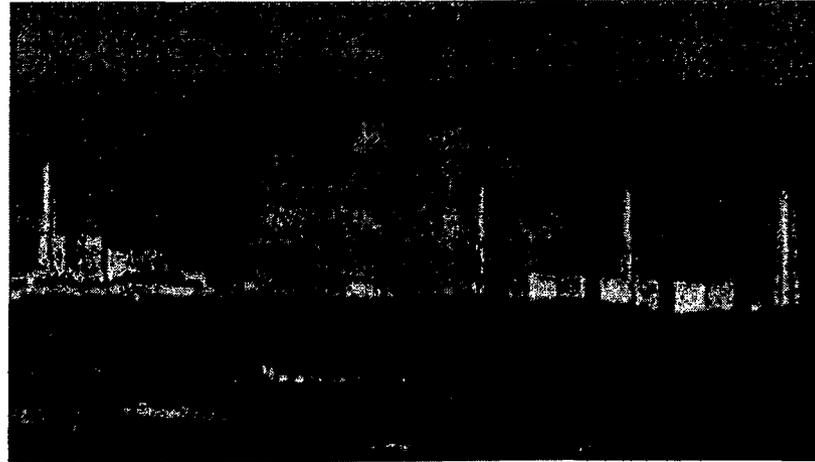


Containment pressurizes.
Leakage possible at drywell head



Releases of hydrogen into secondary containment

Hydrogen Detonation at Unit 1



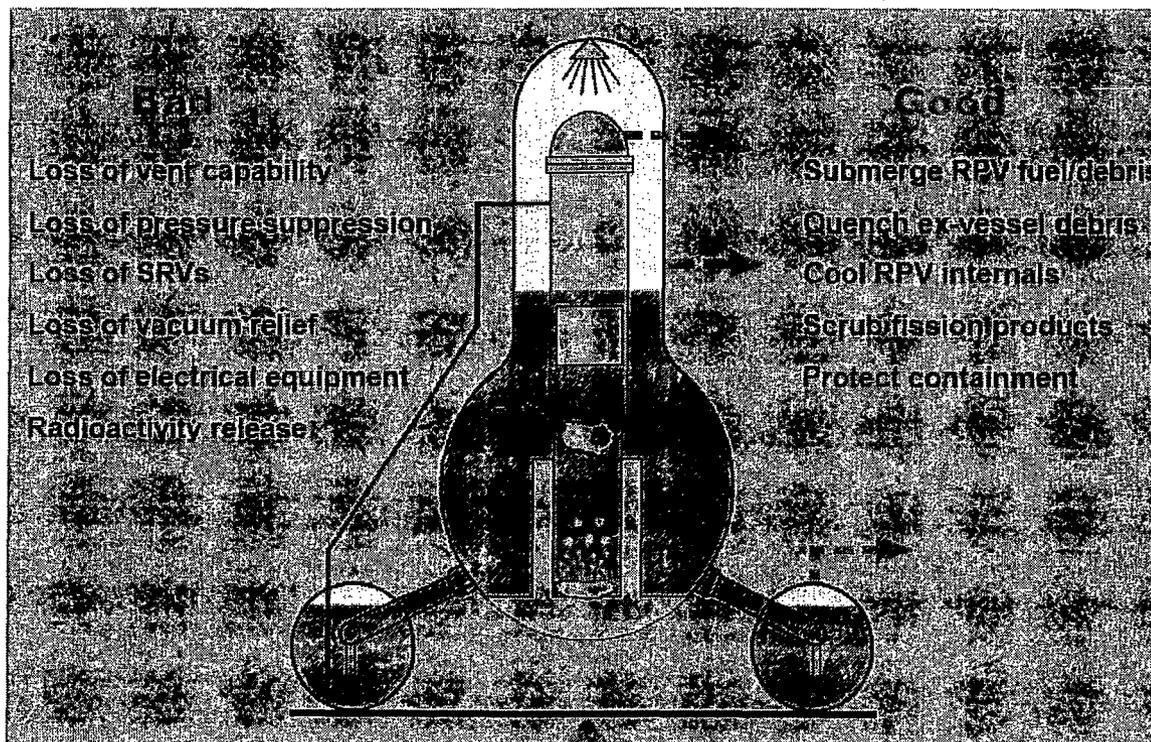
Refuel Floor

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.
- Authorities distributed Potassium-iodide tablets to protect the public from potential health effects of radioactive isotopes of iodine that could potentially be released. This is quickly taken up by the body and its presence prevents the take-up of iodine-131 should people be exposed to it.
- Over 300 after shocks have occurred and continue to challenge station response.



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

- As part of the 9/11 response, stations took the following additional actions:
 - Procured portable diesel-driven pumps and developed procedures to use the portable pumps to inject water from external sources into the reactor, primary containment, spent fuel pool, hotwell, and condensate storage tanks.
 - Made modifications to the plant to provide connections for using the portable diesel-driven pump.
 - 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.

REC

From: Rodriguez, Veronica *NR*
To: Astwood, Heather; Quinones, Lauren
Cc: Boger, Bruce; Regan, Christopher; McGinty, Tim
Subject: RE: INFO: CNS Monthly Status Update
Date: Monday, March 14, 2011 12:21:43 PM

Thanks Heather. We have a meeting w the Chairman on Thurs and this will be a topic of discussion.

REC

From: Astwood, Heather *NR*
Sent: Monday, March 14, 2011 12:12 PM
To: Quinones, Lauren; Rodriguez, Veronica
Cc: Boger, Bruce; Regan, Christopher; McGinty, Tim
Subject: RE: INFO: CNS Monthly Status Update

Lauren/ Veronica

I am sure the Fukushima event will be a big talking point at the CNS. You may want to work with the Chairman/EDO's office to add some points to the US presentation and to have Q&A's ready for the Chairman and EDO as well as staff.

Heather Astwood

International Team Leader
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
301-415-1075

NR

From: Quinones, Lauren
Sent: Monday, March 14, 2011 11:31 AM
To: Boger, Bruce; Mamish, Nader
Cc: Zimmerman, Jacob; Virgilio, Martin; Williams, Shawn; Leeds, Eric; McGinty, Tim; Quay, Theodore; Blount, Tom; Hopkins, Jon; Cullingford, Michael; Borchardt, Bill; Doane, Margaret; Giitter, Joseph; Grobe, Jack; Clarke, Deanna; Couret, Ivonne; Crockett, Steven; Decker, David; Deegan, George; Dehn, Jeff; Dudek, Michael; Fields, Leslie; Gartman, Michael; Graham, Thorne; Hill, Brittain; Meighan, Sean; Mitchell, Matthew; Nourbakhsh, Hossein; Reinert, Dustin; Rough, Richard; Schwartzman, Jennifer; Simmons, Anneliese; Suttenger, Jeremy; Titus, Brett; Wong, Albert; Abu-Eid, Bobby; Cool, Donald; Virgilio, Rosetta; Kotzalas, Margie; Skeen, David; Tappert, John; Regan, Christopher; Pederson, Cynthia; Gibson, Lauren; Tate, Travis; McHale, John; Karwoski, Kenneth; Tabatabai, Omid; Rosales-Cooper, Cindy; Rodriguez, Veronica; Astwood, Heather; Titus, Brett; Smith, Shawn; Roquecruz, Carla; Evans, Jonathan; Coleman, Nicole; Williams, Barbara
Subject: INFO: CNS Monthly Status Update

Bruce, Nader,

The monthly status of our preparation activities for the 2011 Convention on Nuclear Safety is up on our internal SharePoint Portal.

<http://portal.nrc.gov/edo/nrr/dpr/pfib/international/2011%20CNS/default.aspx>

After clicking on the link, click on 'CNS Activities Status' in the upper left corner.

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If you have any questions, please feel free to contact me.

Thanks,
Lauren

1 wan
From: [Boger, Bruce](#)
To: [Meighan, Sean](#)
Subject: Fw: Proposed folks to Japan from DSS
Date: Monday, March 14, 2011 9:42:58 AM

REC
1 wan
From: Ruland, William
To: Boger, Bruce
Sent: Mon Mar 14 09:28:59 2011
Subject: Proposed folks to Japan from DSS

1. Tony Nakanishi - BWR analysis guy, spent fuel pool criticality, speaks Japanese
2. Tony Mendiola - BWR qualified examiner (dated) , SRO certified by GE, Navy Nuke

From: Hiland, Patrick , *WAW*
To: Nguyen, Quynh
Cc: Leeds, Eric; Boger, Bruce
Subject: Japanese Support Names from DE
Date: Monday, March 14, 2011 9:51:03 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

REL

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REL

NR

From: Leeds, Eric
To: Steger (Tucci), Christine
Cc: Givvines, Mary; Grobe, Jack; Boger, Bruce; Ruland, William; Brown, Frederick; Schwarz, Sherry; McDermott, Brian; Evans, Michele
Subject: ACTION: Please distribute to all NRR staff in a HIGNFY message.
Date: Monday, March 14, 2011 5:16:54 PM

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!

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

490

From: Boger, Bruce 1 NNN
To: Ruland, William
Subject: RE: Proposed folks to Japan from DSS
Date: Monday, March 14, 2011 11:03:00 AM

REL Thanks, Bill.

From: Ruland, William NNN
Sent: Monday, March 14, 2011 9:29 AM
To: Boger, Bruce
Subject: Proposed folks to Japan from DSS

1. Tony Nakanishi - BWR analysis guy, spent fuel pool criticality, speaks Japanese
2. Tony Mendiola - BWR qualified examiner (dated) , SRO certified by GE, Navy Nuke

491

From: Leeds, Eric / NRR
To: Schwarz, Sherry; Cohen, Shari; Ross, Robin
Cc: Grobe, Jack; Boger, Bruce
Subject: FW: Capturing time for supporting Japan
Date: Tuesday, March 15, 2011 12:52:56 PM

For capturing our time and attendance.

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

REC

From: Muessle, Mary / EDO
Sent: Tuesday, March 15, 2011 10:27 AM
To: Givvines, Mary; Virgilio, Martin
Cc: Dyer, Jim; Grobe, Jack; Leeds, Eric; Boger, Bruce
Subject: RE: Capturing time for supporting Japan

Here is the TAC

ZG0061 PA code of 9A1A - Japan Earthquake and Tsunami Drill

Mary Muessle
Assistant for Operations - Acting
Office of the Executive Director for Operations
U.S. Nuclear Regulatory Commission
301-415-1703 office
301-415-2700 fax

From: Givvines, Mary / NRR
Sent: Tuesday, March 15, 2011 10:08 AM
To: Virgilio, Martin
Cc: Dyer, Jim; Muessle, Mary; Grobe, Jack; Leeds, Eric; Boger, Bruce
Subject: Capturing time for supporting Japan

Good morning Marty,

I know many of us are busy supporting the Japan situation; however, do you think it would be a good idea for staff across the agency to start capturing the time spent supporting this effort since it will be significant? As you know, most international activities fall under the 10% appropriation.

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492

Thoughts?

Mary Givvines

Director, Program Management, Policy Development and Analysis Staff

Office of the Nuclear Reactor Regulation

U.S. Nuclear Regulatory Commission

(301) 415-1275; Mary.Givvines@nrc.gov

From: Boger, Bruce *NRB*
To: Wilson, George
Cc: Thomas, Eric; Nguyen, Quynh; Meighan, Sean
Subject: FW: NBC deadline question for NRC on seismic hazard estimates
Date: Tuesday, March 15, 2011 9:49:00 AM

REL
George, Please close the loop with Eric Thomas after the response is generated. He's our POC for Q&As related to the Japanese situation. This one is close enough to be included. Thanks.

From: Hiland, Patrick *NRB*
Sent: Tuesday, March 15, 2011 9:40 AM
To: Sheron, Brian
Cc: Uhle, Jennifer
Subject: FW: NBC deadline question for NRC on seismic hazard estimates

Brian, I'm on mids tonight so I'm tele-working this morning. I've asked George Wilson to contact cognizant RES and OPA to facilitate a response.

From: Bill Dedman [mailto:Bill.Dedman@msnbc.com]
Sent: Tuesday, March 15, 2011 9:06 AM
To: Manoly, Kamal; Sheron, Brian; Hiland, Patrick; OPA Resource
Subject: NBC deadline question for NRC on seismic hazard estimates

Good morning,

My name is Bill Dedman. I'm a reporter for NBC News and msnbc.com, writing an article today about:

SAFETY/RISK ASSESSMENT RESULTS FOR GENERIC ISSUE 199, "IMPLICATIONS OF UPDATED PROBABILISTIC SEISMIC HAZARD ESTIMATES IN CENTRAL AND EASTERN UNITED STATES ON EXISTING PLANTS"

I reached out to NRC Public Affairs yesterday but have not heard back, and my deadline is end-of-day today. I'm hoping to get on the phone today with someone from NRC to make sure I'm conveying this information accurately to the public. If nothing else, I'm hoping one of the technical people can help clarify the points below. My telephone number is 203-451-9995.

I've read Director Brian Sheron's memo of Sept. 2, 2010, to Mr. Patrick Hiland; the safety/risk assessment of August 2010; its appendices A through D; NRC Information Notice 2010-18; and the fact sheet from public affairs from November 2010.

I have these questions:

1. I'd like to make sure that I accurately place in layman's terms the seismic hazard estimates. I need to make sure that I'm understanding the nomenclature for expressing the seismic core-damage frequencies. Let's say there's an estimate expressed as "2.5E-06." (I'm looking at Table D-2 of the safety/risk assessment of August 2010.) I believe that this expression means the same as 2.5×10^{-06} , or 0.0000025, or 2.5 divided by one million. In layman's terms, that means an expectation, on average, of 2.5 events every million years, or once every 400,000 years. Similarly, "2.5E-05" would be 2.5 divided by 100,000, or 2.5 events every 100,000 years, on average, or once every 40,000 years. Is this correct?

493

2. These documents give updated probabilistic seismic hazard estimates for existing nuclear power plants in the Central and Eastern U.S. What document has the latest seismic hazard estimates (probabilistic or not) for existing nuclear power plants in the Western U.S.?

3. The documents refer to newer data on the way. Have NRC, USGS et al. released those? I'm referring to this: "New consensus seismic-hazard estimates will become available in late 2010 or early 2011 (these are a product of a joint NRC, U.S. Department of Energy, U.S. Geological Survey (USGS) and Electric Power Research Institute (EPRI) project). These consensus seismic hazard estimates will supersede the existing EPRI, Lawrence Livermore National Laboratory, and USGS hazard estimates used in the GI-199 Safety/Risk Assessment."

4. What is the timetable now for consideration of any regulatory changes from this research?

Thank you for your help.

Regards,

Bill Dedman

This e-mail message and attached documents are confidential; intended only for the named recipient(s) above and may contain information that is privileged, confidential, proprietary, and/or exempt from disclosure under applicable law. If the reader of this message is not the intended recipient, you are hereby notified that any unauthorized use, dissemination, distribution or copy of this communication is strictly prohibited. No waiver of privilege, confidence or otherwise is intended by virtue of this communication. If you have received this message in error, or are not the named recipient(s), please immediately notify the sender, destroy all copies and delete this e-mail message from your computer. Thank you.

WRP

From: Boger, Bruce
To: Leeds, Eric; Grobe, Jack; Ruland, William
Cc: Dean, Bill; Lew, David; McCree, Victor; Wert, Leonard; Satorius, Mark; Pederson, Cynthia; Collins, Elmo; Howell, Art; Virgilio, Martin; Thomas, Eric; Brown, Frederick
Subject: Industry Efforts
Date: Tuesday, March 15, 2011 5:04:00 PM

REC

I spoke with Randy Edington (CNO Palo Verde) and later with Steve Nichols (INPO) regarding industry actions as a result of the situation in Japan. The CNOs teleconferenced over the weekend and agreed to a series of near-term actions. INPO issued a Level 1 Event Report (highest level) to its members this afternoon. It identifies 4 actions, with due dates, and requires a written response. In general, the actions include walkdowns and verifications of aspects of facility capabilities to address B.5.b equipment and procedures, SAMGs, mitigation of SBO conditions, mitigation of internal and external flooding, and fire and flooding events that could be impacted by a concurrent seismic event. This should help shape the generic communication we've been discussing. INPO is figuring out how quickly they will be able to share the report with us. The report won't be available to the public, but we can share it internally.

REL

WRA

From: [Boger, Bruce](#)
To: [Astwood, Heather](#)
Cc: [Regan, Christopher](#)
Subject: RE: Follow up actions from bi-lat
Date: Tuesday, March 15, 2011 11:29:00 AM

Heather, Thanks for placing this structure to the actions coming out of the bi-lats last week. It fits very nicely with our interest in capturing actions and items of interest that evolve from our various international interactions. Bruce

From: Astwood, Heather
Sent: Wednesday, March 09, 2011 6:43 PM
To: Leeds, Eric; Boger, Bruce; Grobe, Jack
Cc: Regan, Christopher; Hopkins, Jon; Cullingford, Michael; Lubinski, John; Quinones, Lauren
Subject: Follow up actions from bi-lat

Eric, Bruce, Jack –

This is not complete yet, but Mike and I wanted you to know that we are working on a simple tracking list for the actions that were given to NRR today during the bi-lats.

We will finish filling this out and will assign people to complete the tasks. This would be a great place to keep any other international action items that you may have picked up in other meetings. Please let us know if there are other things you would like to add.

Note there is a different spread sheet for France, Japan, and Finland.

Heather Astwood
International Team Leader
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
301-415-1075

495

From: [NRC Announcement](#)
To: [NRC Announcement](#)
Subject: From the Chairman: Events in Japan
Date: Tuesday, March 15, 2011 9:38:17 AM

NRC Daily Announcements



Highlighted Information and Messages



Tuesday March 15, 2011 -- Headquarters Edition

From the Chairman: Events in Japan

From the Chairman: Events in Japan

REL
By now I am sure that most of you are aware of the tragic earthquake and tsunami that struck Japan last week, killing thousands of people, destroying cities and infrastructure, and knocking out large portions of the electricity grid.

I am so proud of our staff and the dedication and tenacity they have shown during the tragic events of the past several days. NRC employees have been willingly working around the clock, and their energy, experience and expertise have been invaluable to our response. Those of you who have not directly been involved in this effort are playing just as valuable a role in making sure that the facilities we license are safe and secure.

The natural disasters in Japan—and the resulting situations at the Fukushima nuclear power plant—are sobering in their size and scope. It's easy to become distracted by the stories and images of devastation and destruction. The best thing we can do in this situation is to make sure we remain mindful of our responsibilities for the safety and security of our existing nuclear plants and materials, and to keep our focus where it must always be—on our mission. I continue to appreciate your dedication to ensure the safety and security of the American people.



(2011-03-15 00:00:00.0)

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4/96

WAP
From: Givvines, Mary
To: Virgilio, Martin
Cc: Dyer, Jim; Muessle, Mary; Grobe, Jack; Leeds, Eric; Boger, Bruce
Subject: Capturing time for supporting Japan
Date: Tuesday, March 15, 2011 10:07:57 AM

Good morning Marty,

I know many of us are busy supporting the Japan situation; however, do you think it would be a good idea for staff across the agency to start capturing the time spent supporting this effort since it will be significant? As you know, most international activities fall under the 10% appropriation.

REL

We were going to take action to make this happen in NRR but we believe it should be captured agency-wide. If you agree, I can work with Mary Muessle to establish a TAC and issue an announcement from the EDO office?

Thoughts?

Mary Givvines

Director, Program Management, Policy Development and Analysis Staff
Office of the Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
(301) 415-1275; Mary.Givvines@nrc.gov

497

From: Nuclear Plant Journal
To: [Boger, Bruce](#)
Subject: E-News from Nuclear Plant Journal
Date: Tuesday, March 15, 2011 5:46:54 PM

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Nuclear Plant Journal



Nuclear Plant Journal E-News

Japan Update
March 15, 2011

Dear BRUCE,

Nuclear Plant Journal brings you a special E-edition of the Journal with the latest information from events related to the Miyagiken-Oki Earthquake and ensuing tsunami on March 11, 2011, in northern Japan.

All Fukushima Daiichi Nuclear Power Plants have an INES Radiation Alert Level 4. Please see this [IAEA link](#) for an explanation of the levels.

The following two links provides updates as of March 15, 2011:

- On the JAIF website, there is a [complete summary PDF](#) that includes status updates of all units at the Fukushima plant.
- The Prime Minister's office [update](#).

Organizations which are currently providing the current status of the Japanese affected nuclear power stations are listed below.

TEPCO News Releases

Tokyo Electric Power Company provides the [latest updates](#) from the utility that owns the Fukushima Daiichi Nuclear Power Station.



Japan Atomic Industrial Forum

Please see [this link](#) for the most current from the Japan Atomic Industrial Forum.



REL

4/98

Nuclear and Industrial Safety Agency (NISA)

Please see [this link](#) for the most current from NISA.



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Contact Information

phone: 630-313-6739

email: NPJ@goinfo.com

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Nuclear Plant Journal | 1400 Opus Place, Suite 904 | Downers Grove | IL | 60515

From: Leeds, Eric - NRR
To: Boger, Bruce; Ruland, William; Grobe, Jack - NRR
Cc: Glitter, Joseph
Subject: RE: DORL Initiative
Date: Tuesday, March 15, 2011 5:28:27 PM

Thank you! I need to know if any are influenced by the Japanese events.

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

From: Boger, Bruce - NRR
Sent: Tuesday, March 15, 2011 3:53 PM
To: Leeds, Eric; Ruland, William; Grobe, Jack - NRR
Cc: Glitter, Joseph
Subject: DORL Initiative

FYI—DORL has started to take a look at licensing actions that are ready for issuance with a sensitivity to potential considerations from the Japanese situation.

499

From: Muessle, Mary - O EDO
To: Givvines, Mary; Virgilio, Martin - NRR, OEDO
Cc: Dyer, Jim; Grobe, Jack; Leeds, Eric; Boger, Bruce
Subject: RE: Capturing time for supporting Japan
Date: Tuesday, March 15, 2011 10:26:41 AM

Here is the TAC

ZG0061 PA code of 9A1A - Japan Earthquake and Tsunami Drill

Mary Muessle
Assistant for Operations - Acting
Office of the Executive Director for Operations
U.S. Nuclear Regulatory Commission
301-415-1703 office
301-415-2700 fax

From: Givvines, Mary - NRR
Sent: Tuesday, March 15, 2011 10:08 AM
To: Virgilio, Martin - O EDO
Cc: Dyer, Jim; Muessle, Mary; Grobe, Jack; Leeds, Eric; Boger, Bruce
Subject: Capturing time for supporting Japan

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Thoughts?

Mary Givvines

*Director, Program Management, Policy Development and Analysis Staff
Office of the Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
(301) 415-1275; Mary.Givvines@nrc.gov*

4100

From: ANS Broadcasts
To: Grobe, Jack
Subject: ANS Public Information: Japan Nuclear Reactors
Date: Tuesday, March 15, 2011 9:31:12 PM
Attachments: Fact React 1.pdf
Responding to inaccurate information in the news media.pdf

NSIR
NRU

1. SERVE AS A MEDIA CONTACT

2. HELP CORRECT INACCURATE AND/OR MISLEADING NEWS REPORTS

3. SEND US YOUR THOUGHTS, ANECDOTES, SUGGESTIONS OR EXPERTISE TO SHARE ON THE ONGOING JAPAN SITUATION

Dear ANS Member,

Many of you have told us you are frustrated when you see someone on TV, in a newspaper, or the Internet, claiming to be a "nuclear expert" sharing inaccurate and misleading information about the situation in Japan or nuclear energy generally. **You can do something about it!**

We have established Japanfacts@ans.org to serve as a centralized communications email address for ANS member communications to ANS Headquarters on the Japan situation. ANS staff will make sure the proper person gets your email.

SERVE AS A MEDIA CONTACT

There is an **URGENT NEED** for ANS members who can serve as media contacts. The need is particularly urgent for experts on radiation and human health effects, but we are also seeking people who can speak to reactor design and operation, licensing and safety issues, and crisis response activities.

Email Japanfacts@ans.org with **MEDIA** in the subject line-include your name, city/state, phone numbers, area of expertise, and any additional information you think we should know

HELP CORRECT INACCURATE AND/OR MISLEADING NEWS REPORTS

Directly engage local news media when you read, hear, or view reports that contain technical information about nuclear energy topics that are not factually correct. See the **guidance document** attached that provides some "rules of the road" for talking with the news media.

Inform the ANS Public Information Committee about what you've communicated to the news media and the outcome, if any. **Send your reports to** Japanfacts@ans.org with **FACT REACT** in the subject line.

Ask for help if you need it. We have cadre of specialists in TV, print and social media who are talking round the clock on how to best address news media coverage of the situation in Japan. **Email** Japanfacts@ans.org with **HELP** in the subject line.

SEND US YOUR THOUGHTS, ANECDOTES, SUGGESTIONS OR EXPERTISE TO SHARE ON THE ONGOING JAPAN SITUATION

K/101

Email them to Japanfacts@ans.org with **JAPAN** in the subject line.

ANS RESOURCES

ANS continues to provide a news aggregation service on the ANS Nuclear Cafe blogsite at <http://ansnuclearcafe.org/>. I urge you to share this link with friends, colleagues, and your social networks.

The ANS Professional Divisions are currently engaged in an urgent effort to develop talking points on the Japan situation for distribution to members. Additionally, ANS-HQ will be providing a periodic update of communications efforts under a 'What's New' link at <http://www.ans.org/>.

Thank you all for your efforts in supporting the nuclear community during these challenging times. Our professional responsibility is to provide credible information based on the information on hand, realizing that this information may be incomplete and/or evolving.

Sincerely,

Candace Davison
Chair, ANS Public Information Committee

Dan Yurman
Social Media rep, Public Information Committee
Email: djysrv@gmail.com Twitter: @djysrv
Mobile: 208-521-5726

Laura Scheele
American Nuclear Society
Communications & Outreach
Email: lscheele@ans.org Twitter: @lscheele
Phone: (708) 579-8224

-
1. **SERVE AS A MEDIA CONTACT**
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-

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Mobile: 208-521-5726

Laura Scheele
American Nuclear Society
Communications & Outreach
Email: lscheele@ans.org Twitter: @lscheele
Phone: (708) 579-8224

Responding to inaccurate information in the news media

Take it as a given that in dealing with the technical complexities of the nuclear crisis in Japan, the mainstream news media is going to make mistakes. You can do something about it, but you must use proven methods to do so.

It is OK to reach out to local or national news media using email or telephone, but don't hit the keyboard or keypad before you assemble the facts.

First, ask yourself, "am I technically qualified to really address this issue?" Assuming the answer is yes, assemble a brief set of one-liners that explain your expertise. Use plain English.

Next, tackle the issue at hand. What's factually wrong with the news media report? What facts are needed to make it correct?

Assemble the facts in a rough order of descending order of importance. Keep an eye on the big picture. Do not get wrapped up in hair splitting details.

Write your response using the active voice and in talking points format. Remember, general assignment reporters will not follow detailed technical arguments. You must keep it simple.

Be sure to include your contact information and a summary of your expertise at the end of the talking points.

Once you have your talking points prepared, you are ready to contact the reporter or their editor by email or phone.

How talk to a journalist

Do not argue with a journalist. Stick to the facts.

Communicating with journalists makes a difference. It does not have to be perfect. When you write to journalists, be factual, not rhetorical. Do not personally attack them; that's more likely to convince them that they're in the right. Address them in the language that most journalists are trained to understand - plain English.

Remember, you are responding as expert and viewer. **You are NOT responding on behalf of ANS or your employer.**

Please send us a copy of your emails or notes about telephone conversations (published and unpublished) to japanfact@ans.org.

Writing letters to the editor

Letters that are intended for publication should usually be drafted more carefully. Here are some tips to keep in mind:

Make one point (or at most two) in your letter, email, or fax. State the point clearly, ideally in the first sentence.

Make your letter timely. If you are not addressing a specific article, editorial or letter that recently appeared in the paper you are writing to, then try to tie the issue you want to write about to a recent event.

Familiarize yourself with the coverage and editorial position of the paper to which you are writing. Refute or support specific statements, address relevant facts that are ignored, but do avoid blanket attacks on the media in general or the newspaper in particular.

Check the letter specifications of the newspaper to which you are writing. Length and format requirements vary from paper to paper. (Generally, roughly two short paragraphs are ideal.) You also must include your name, signature, address and phone number.

Be sure to say something, even one sentence, about your technical expertise, in the letter. You can provide more but don't expect it to be published.

Look at the letters that appear in your paper. Is a certain type of letter usually printed?

Support your facts. If the topic you address is controversial, consider sending documentation along with your letter. But don't overload the editors with too much info.

Keep your letter brief. Type it whenever possible.

Find others to write letters when possible. This will show that other individuals in the community are concerned about the issue. If your letter doesn't get published, perhaps someone else's on the same topic will.

Monitor the paper for your letter. If your letter has not appeared within a week or two, follow up with a call to the editorial department of the newspaper.

An increasing number of broadcast news programs (60 Minutes, All Things Considered, etc.) also solicit and broadcast "letters to the editor." Don't forget these outlets.

Remember, you are responding as expert and viewer. **You are NOT responding on behalf of ANS or your employer.**

Please send us a copy of your letters (published and unpublished) to japanfacts@ans.org.

How to Write an Op-Ed

Op-eds are longer than letters to the editor, and there is more competition for space. You may want to call the paper for length requirements (usually 600-800 words).

Try to write on a controversial issue being covered at that time. If you can use a professional title that suggests authority, do so. If you work for an organization, get permission to sign the op-ed as a representative of that organization.

Feel free to send it to papers far from where you live, but avoid sending it to two newspapers in the same "market." (Sending to the San Francisco Examiner and the Seattle Times is OK, but not to the Examiner and the San Francisco Chronicle.)

"National" newspapers like the New York Times, Los Angeles Times, Washington Post, Christian Science Monitor and USA Today generally do not accept op-eds that are also being offered to other papers. But you can easily submit the same piece to five or ten local dailies in different regions—greatly increasing your chances of being published.

Assure the op-ed editor in your cover letter that the piece has not been submitted to any other paper in their market. If, on the other hand, you sent it to only one paper, let that paper know you are offering them an exclusive.

In writing op-eds, avoid excessive rhetoric. State the subject under controversy clearly. You are trying to persuade a middle-of-the-road readership. If you rely on facts not commonly found in mainstream media, cite your sources.

Try to think of a catchy title. If you don't, the paper will be more likely to run its own—which may not emphasize your central message. (Even if you do write your own headline, don't be surprised if it appears under a different one.)

Be prepared to shorten and re-submit your article as a letter to the editor in case it does not get accepted as an op-ed.

From: Boger, Bruce -NR
To: Leeds, Eric; Ruland, William; Grobe, Jack
Cc: Glitter, Joseph
Subject: DORL Initiative
Date: Tuesday, March 15, 2011 3:53:19 PM

FYI—DORL has started to take a look at licensing actions that are ready for issuance with a sensitivity to potential considerations from the Japanese situation.

2/102

From: Leeds, Eric - NRR
To: Schwarz, Sherry; Cohen, Shari; Ross, Robin
Cc: Grobe, Jack; Boger, Bruce
Subject: FW: Capturing time for supporting Japan
Date: Tuesday, March 15, 2011 12:52:56 PM

For capturing our time and attendance.

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

From: Muessle, Mary OEDO
Sent: Tuesday, March 15, 2011 10:27 AM
To: Givvines, Mary; Virgilio, Martin - NRR, OEDO
Cc: Dyer, Jim; Grobe, Jack; Leeds, Eric; Boger, Bruce
Subject: RE: Capturing time for supporting Japan

Here is the TAC

ZG0061 PA code of 9A1A - Japan Earthquake and Tsunami Drill

Mary Muessle
Assistant for Operations - Acting
Office of the Executive Director for Operations
U.S. Nuclear Regulatory Commission
301-415-1703 office
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From: Givvines, Mary - NRR
Sent: Tuesday, March 15, 2011 10:08 AM
To: Virgilio, Martin - OEDO
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Subject: Capturing time for supporting Japan

Good morning Marty,

I know many of us are busy supporting the Japan situation; however, do you think it would be a good idea for staff across the agency to start capturing the time spent supporting this effort since it will be significant? As you know, most international activities fall under the 10% appropriation.

We were going to take action to make this happen in NRR but we believe it should be captured agency-wide. If you agree, I can work with Mary Muessle to establish a TAC and issue an announcement from the EDO office?

2/103

Thoughts?

Mary Givvines

Director, Program Management, Policy Development and Analysis Staff

Office of the Nuclear Reactor Regulation

U.S. Nuclear Regulatory Commission

(301) 415-1275; Mary.Givvines@nrc.gov

0200

From: Weber, Michael
To: RSTQ1 Hoc
Cc: HOO Hoc; Grobe, Jack
Subject: FYI - Industry Efforts
Date: Tuesday, March 15, 2011 6:35:17 PM

Update on actions being taken by the industry in response to the evolving Japanese nuclear emergencies.

From: Leeds, Eric - *NR*
Sent: Tuesday, March 15, 2011 5:27 PM
To: Borchardt, Bill; Virgilio, Martin - *0200*
Cc: Weber, Michael
Subject: FYI: Industry Efforts

FYI – Please see Bruce’s email below. NRR is considering short term and longer term actions in response to the Japanese event. We’re considering a measured regulatory response to put an initial footprint on the issue. Its positive to see the industry get out ahead of it – whatever planning they did based on the BP experience seems to be in play. We will keep you in the loop.

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

release

From: Boger, Bruce - *NR*
Sent: Tuesday, March 15, 2011 5:04 PM
To: Leeds, Eric; Grobe, Jack; Ruland, William - *NR*
Cc: Dean, Bill; Lew, David; McCree, Victor; Wert, Leonard; Satorius, Mark; Pederson, Cynthia; Collins, Elmo; Howell, Art; Virgilio, Martin; Thomas, Eric; Brown, Frederick
Subject: Industry Efforts

I spoke with Randy Edington (CNO Palo Verde) and later with Steve Nichols (INPO) regarding industry actions as a result of the situation in Japan. The CNOs teleconferenced over the weekend and agreed to a series of near-term actions. INPO issued a Level 1 Event Report (highest level) to its members this afternoon. It identifies 4 actions, with due dates, and requires a written response. In general, the actions include walkdowns and verifications of aspects of facility capabilities to address B.5.b equipment and procedures, SAMGs, mitigation of SBO conditions, mitigation of internal and external flooding, and fire and flooding events that could be impacted by a concurrent seismic event. This should help shape the generic communication we’ve been discussing. INPO is figuring out how quickly they will be able to share the report with us. The report won’t be available to the public, but we can share it internally.

release

4/104

From: Virgilio, Martin - OEDO
To: Grobe, Jack; Dorman, Dan - NRR, FSME
Subject: Fw: FYI: Industry Efforts
Date: Tuesday, March 15, 2011 8:18:35 PM

FYI

From: Leeds, Eric - NRR
To: Borchartdt, Bill; Virgilio, Martin - OEDO
Cc: Weber, Michael
Sent: Tue Mar 15 17:26:31 2011
Subject: FYI: Industry Efforts

FYI – Please see Bruce’s email below. NRR is considering short term and longer term actions in response to the Japanese event. We’re considering a measured regulatory response to put an initial footprint on the issue. Its positive to see the industry get out ahead of it – whatever planning they did based on the BP experience seems to be in play. We will keep you in the loop.

Eric J. Leeds, Director
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U.S. Nuclear Regulatory Commission
301-415-1270

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Sent: Tuesday, March 15, 2011 5:04 PM
To: Leeds, Eric; Grobe, Jack; Ruland, William - NRR
Cc: Dean, Bill; Lew, David; McCree, Victor; Wert, Leonard; Satorius, Mark; Pederson, Cynthia; Collins, Elmo; Howell, Art; Virgilio, Martin; Thomas, Eric; Brown, Frederick
Subject: Industry Efforts

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4105

From: [Nguyen, Quynh](#)
To: [Grobe, Jack](#)
Subject: RE: NEI Meetings with Eric Leeds and Jack Grobe
Date: Tuesday, March 15, 2011 2:55:13 PM

One more vote... I asked Eric to help smooth it along as appropriate. He knows this is important for 805. Eric told me to remind him at end of week...

From: Grobe, Jack
Sent: Tuesday, March 15, 2011 2:54 PM
To: Nguyen, Quynh
Subject: Fw: NEI Meetings with Eric Leeds and Jack Grobe

Where are we on this
Jack Grobe, Deputy Director, NRR

From: MARION, Alex <axm@nei.org>
To: Nguyen, Quynh
Cc: Grobe, Jack
Sent: Mon Mar 14 11:09:08 2011
Subject: RE: NEI Meetings with Eric Leeds and Jack Grobe

Can someone please send me the SECY paper proposing a staggered review schedule. I understand it has been released but we can seem to obtain it from your website. Thank you in advance.

From: Nguyen, Quynh [mailto:Quynh.Nguyen@nrc.gov] — *NRR*
Sent: Monday, March 14, 2011 10:53 AM
To: MARION, Alex — *NEI*
Cc: Schwarz, Sherry; Cohen, Shari; Grobe, Jack; Leeds, Eric
Subject: NEI Meetings with Eric Leeds and Jack Grobe

Alex,

I just called and left you a message. Given the recent events in Japan, I recommend that we postpone your status periodic with Eric Leeds and Jack Grobe (both occurring on March 16).

I believe you are scheduled to meet with Jack on March 30th.

Can you confirm receipt of cancellations? Meeting on 30th?

Thanks,
Quynh



2/106

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Sent through mail.messaging.microsoft.com



Alex,

I checked upstairs and it has not been released publicly yet – when I get word, I will send to you.

Also, Jack will be covering the Ops Center from 1500-2300 all week so I'll do my best to cover regarding NEI activities!

Quynh

From: MARION, Alex [mailto:axm@nei.org]
Sent: Monday, March 14, 2011 11:09 AM
To: Nguyen, Quynh
Cc: Grobe, Jack
Subject: RE: NEI Meetings with Eric Leeds and Jack Grobe

Can someone please send me the SECY paper proposing a staggered review schedule. I understand it has been released but we can seem to obtain it from your website. Thank you in advance.

From: Nguyen, Quynh [mailto:Quynh.Nguyen@nrc.gov] — MRK
Sent: Monday, March 14, 2011 10:53 AM
To: MARION, Alex
Cc: Schwarz, Sherry; Cohen, Shari; Grobe, Jack; Leeds, Eric
Subject: NEI Meetings with Eric Leeds and Jack Grobe

Alex,

I just called and left you a message. Given the recent events in Japan, I recommend that we postpone your status periodic with Eric Leeds and Jack Grobe (both occurring on March 16).

I believe you are scheduled to meet with Jack on March 30th.

Can you confirm receipt of cancellations? Meeting on 30th?

Thanks,
Quynh



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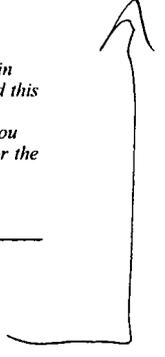


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4/107

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Sent through mail.messaging.microsoft.com



From: Giitter, Joseph , NRR
To: Boger, Bruce
Subject: FW: URGENT REQUEST TO SUPPORT NRC HEARING ON WEDNESDAY
Date: Wednesday, March 16, 2011 4:04:08 PM
Attachments: Tide_legal_use.gif

The attached table will help with the various levels referred to in the matrix.

From: Giitter, Joseph
Sent: Monday, March 14, 2011 8:28 PM
To: NRR_DORL Distribution
Cc: Rihm, Roger; Kammerer, Annie; Hiland, Patrick; Thomas, Eric
Subject: URGENT REQUEST TO SUPPORT NRC HEARING ON WEDNESDAY

The EDO has asked us to prepare a table that contains the following information for each of the operating reactors: Safe Shutdown Earthquake, Reference Level Earthquake and probable maximum tsunami or maximum tsunami water level (for coastal sites). I'm requesting you to obtain the pertinent information from the 1st and 3rd columns (as applicable) from the FSARs and provide it to Michael Mahoney the format below. Michael will put this information into an Excel spreadsheet so that it can be sorted various ways. I'm trying to get clarification on a couple of questions, including what is meant by Reference Level Earthquake. Hopefully, I will be able to provide you with clearer instructions tomorrow morning—once I get this additional clarification. It may be that they were looking for Review Level Earthquake information, which is in Table 3.1 of the attached 50.54(f) letter (GL 88-20, Supplement 4) pertaining to Individual Plant Evaluations of External Events (IPEEE). The 50.54(f) letter can be found at http://r12k3web.nrc.gov/drs/toolbox/fp_refs/Gen-Ltrs/gl8820s4.pdf. I also have a call into Annie Kammerer to see if she has any of this information available. { I checked with the Ops Center and they referred me to Annie. }

Plant Name (location)	Safe shutdown or Design basis earthquake ³	Reference Review Level earthquake	probable max tsunami OR max tsunami water level (for coastal sites)
San Onofre 2 and 3 (California)	0.67 g	N/A	+30 feet mllw ¹

1. The controlling tsunami occurs during simultaneous high tide and storm surge produces a maximum runup to elevation +15.6 feet mean lower low water line (mllw) at the Unit 2 and 3 seawall. When storm waves are superimposed, the predicted maximum runup is to elevation +27 mllw. Tsunami protection for the SONGS site is

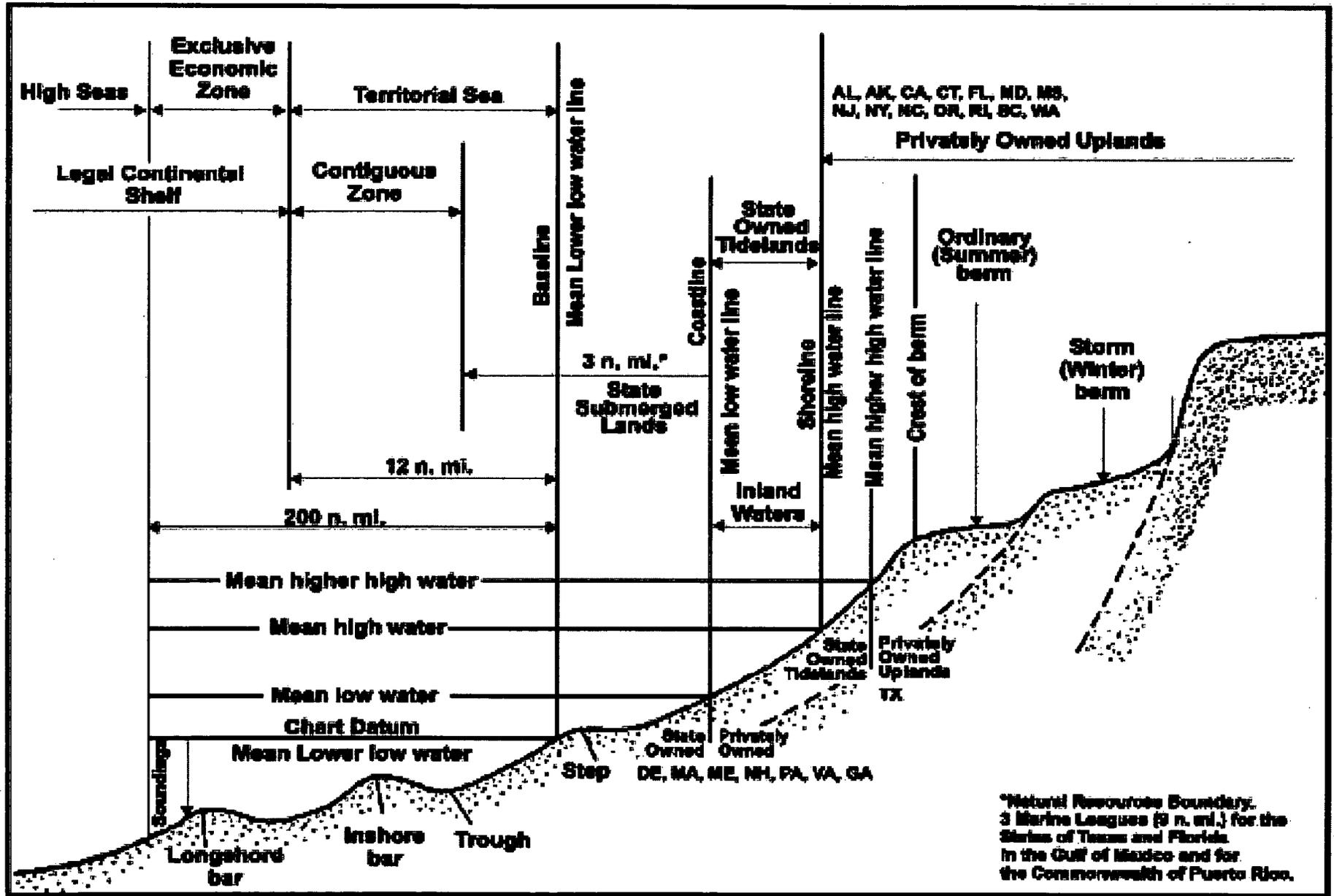
provided by a reinforced concrete seawall constructed to elevation +30.0 mllw.

2. The NRC requires safety-significant structures, systems, and components be designed to take into account: (1) The most severe natural phenomena historically reported for the site and surrounding area, with sufficient margin for the limited accuracy, quantity, and period of time in which the historical data have been accumulated, (2) appropriate combinations of the effects of normal and accident conditions with the effects of the natural phenomena and (3) the importance of the safety functions to be performed.

3. The design basis earthquake (DBE) is defined as that earthquake producing the maximum vibratory ground motion that the nuclear power generating station is designed to withstand without functional impairment of those features necessary to shut down the reactor, maintain the station in a safe condition, and prevent undue risk to the health and safety of the public. The DBE for SONGS was assessed during the construction permit phase of the project. The DBE is postulated to occur near the site (5 miles), and the ground accelerations are postulated to be quite high (0.67g), when compared to other nuclear plant sites in the U.S (0.25g or less is typical for plants in the eastern U.S.). Based on the unique seismic characteristics of the SONGS site, the site tends to amplify long-period motions, and to attenuate short-period motions. These site-specific characteristics were accounted for in the SONGS site-specific seismic analyses.

Joseph G. Gitter
Director
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

DATUMS



NRR

From: Leeds, Eric
To: Virgilio, Martin; Weber, Michael
Cc: Borchart, Bill; Boger, Bruce; Grobe, Jack; Ruland, William; Johnson, Michael; Sheron, Brian; Evans, Michele
Subject: NRR Actions: near-term
Date: Wednesday, March 16, 2011 1:13:54 PM
Importance: High

REL

Please see below. NRR has assembled a team, led by an SES manager to evaluate near term actions for the agency's response to the Japanese event. At this time, we are considering inspection as well as a generic communication and a review of "sensitive" licensing actions". I will keep you informed as we go forward I have discussed the current situation in Japan with the RAs and our preliminary thoughts for regulatory actions going forward.

We have also prepared a scheduling note for the commission meeting for next week. We will send it to you.

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

NRR

From: Brown, Frederick
Sent: Wednesday, March 16, 2011 11:32 AM
To: Leeds, Eric; Boger, Bruce; Grobe, Jack
Subject: FW: Action: Consider potential on-site activities in near-term
Importance: High

FYI

NRR

From: Brown, Frederick
Sent: Wednesday, March 16, 2011 11:17 AM
To: Roberts, Darrell; Clifford, James; Croteau, Rick; Jones, William; Croteau, Rick; Darrell Roberts; James Clifford; Jones, William; Kennedy, Kriss; Shear, Gary; Troy Pruett; West, Steven
Cc: Vogel, Anton; Wilson, Peter; Miller, Chris; Weerakkody, Sunil; OBrien, Kenneth; Reynolds, Steven; Munday, Joel; Moorman, James; Christensen, Harold; Westreich, Barry
Subject: Action: Consider potential on-site activities in near-term
Importance: High

On the DRA call today, I'm going to float the potential for either a smart sample or a TI to look at the following areas:

- Licensee verification of 50.54(hh)(2) current status and readiness;
- Licensee verification of SBO current status and readiness consistent with their coping strategy;
- Licensee verification of Internal and External Flooding design features consistency with their licensing basis; and
- Licensee verification that their 50.54(hh)(2) equipment would survive a seismic event undamaged.

If you have thoughts, I'd like to hear them, and you may want to prep your DRAs.

4/109

Thanks,
Fred

nan

From: Astwood, Heather
To: Boger, Bruce; McGinty, Tim
Cc: Cullingford, Michael; Hopkins, Jon; Quinones, Lauren; Regan, Christopher; Rodriguez, Veronica
Date: Wednesday, March 16, 2011 6:12:00 PM
Attachments: 031611 POP NRR International Activities Status for Bruce.docx

Bruce and Tim,

REL

We know you both had a long day in the trenches today. However, since you were unable to attend the international team meeting we are sending this e-mail to update you on the most important topics. Attached is the handout that was prepared and we would be happy to answer any questions you have.

You should be aware that there were to be several CNS briefings planned this week. They were pre-briefings to prepare the EDO and Chairman for the upcoming CNS meeting. These briefings have been delayed until next week. However, in light of the events in Japan, Veronica and Lauren are working on proposals for changes to the US/Chairman's statement, Qs and As, and guidance to staff members attending the meeting.

Also, you should be aware that Eric Leeds would like NRR to try to support OIP's request for assistance if possible. All of the International Team has volunteered to take shifts (we would not all be gone at once) and we are canvassing other Divisions to see if there is anyone else interested in helping. The key message from Eric is that this should not/not impact the very important work that NRR needs to accomplish in the coming weeks.

Thanks,

Heather Astwood
International Team Leader
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
301-415-1075

2/110

NRR INTERNATIONAL ACTIVITIES STATUS
March 16, 2011

PURPOSE:

To inform the NRR Deputy Office Director with a status of NRR international activities and highlight upcoming activities.

EXPECTED OUTCOME:

Obtain a common understanding of the status of NRR international activities and upcoming activities.

PROCESS:

1. Integrated Regulatory Review Service Jon 4 min
 - o IRRS Mission report is published
 - o Jun 30 Detailed action plan for mission findings (SECY)
2. OSART Jon 3 min
 - o Comanche Peak employee for South African OSART
3. Convention on Nuclear Safety Lauren 8 min
 - o Mar 15 CNS delegation meeting – Logistics
 - o Mar 17 Meeting with the Chairman to discuss presentation
 - o Mar 18 Finalize U.S. presentation
 - o Mar 30 Pre-Mission meeting with the Chairman and the Delegation
 - o Develop talking points for Japan, ie, assistance, technical concerns-seismic, tsunami, station blackout, EP
4. Tracked Items Lauren 4 min
 - o Mar 28 Y020110014, Y020110015, Y020110016 – Review of DS429, "External Expert Support on Safety Issues." Assigned to DE, DCI, and DLR.
 - o Mar 29 YT – Develop slides for Eric Leed’s briefing to Marty Virgilio on NEA
5. Bilateral meetings Heather and Mike 4 min
 - o Mar 16 (Postponed) Japan - Info exchange with Japan on Knowledge Management (Jon)
 - o Followup actions resulting from Post-RIC BiLaterals
6. OIP request for staff assistance/rotations All 5 min
7. Action items Lauren 2 min

From: [Cullingford, Michael](#) , NRR
To: [Thomas, Eric](#)
Cc: [McGinty, Tim](#); [Boger, Bruce](#); [Astwood, Heather](#)
Subject: FW: WNN Daily: Problems for units 3 and 4
Date: Wednesday, March 16, 2011 2:07:00 PM

fyi

From: World Nuclear News [mailto:wnn=world-nuclear-news.org@mcsv162.net] **On Behalf Of** World Nuclear News
Sent: Wednesday, March 16, 2011 1:43 PM
To: Cullingford, Michael
Subject: WNN Daily: Problems for units 3 and 4

REL

[View the WNN Daily in your browser.](#)



16 March 2011

REGULATION & SAFETY: [Problems for units 3 and 4](#)

Chief cabinet secretary Yukio Edano has described problems that occurred on the morning of 16 March with Fukushima Daiichi 3 and 4, as well as plans to pump water into unit 4.

CORPORATE: [Billion-euro nuclear shutdown for Germany](#)

The German government has declared a three-month moratorium on nuclear power, in which eight reactors will stay offline, checks will take place and nuclear policy may be reconsidered.

INDUSTRY TALK: [Korea sends boric acid supplies](#)

The South Korean government said today it is sending boric acid supplies to Japan to use in efforts to stabilise stricken nuclear reactors. Boron is an efficient neutron absorber that can be injected in to the core of a nuclear reactor to inhibit nuclear reactions.

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4/111

From: Cullingford, Michael , MRR
To: Thomas, Eric
Cc: McGinty, Tim; Boger, Bruce; Astwood, Heather
Subject: FW: **Update 1:15pm March 16** Information on the Japanese Earthquake and Reactors in that Region
Date: Wednesday, March 16, 2011 2:12:39 PM

fyi

REL

From: NEIGA@nei.org [mailto:NEIGA@nei.org]
Sent: Wednesday, March 16, 2011 2:01 PM
To: Cullingford, Michael
Subject: **Update 1:15pm March 16** Information on the Japanese Earthquake and Reactors in that Region



UPDATE AS OF 1:15 P.M. EDT, WEDNESDAY, MARCH 16:

NEI has posted an updated version of the fact sheet Used Nuclear Fuel Storage at the Fukushima Daiichi Nuclear Power Plant. Also available is a new fact sheet called Industry Taking Action to Ensure Continued Safety at U.S. Nuclear Energy Plants.

As always, please go to <http://resources.nei.org/japan> for the latest updates.

Click [here](#) to unsubscribe



2/112

NAR

From: Ross, Robin
To: Boger, Bruce; Brown, Frederick; Glitter, Joseph; Holian, Brian; McGinty, Tim
Subject: FW: New Agency Wide TAC Number
Date: Wednesday, March 16, 2011 10:39:08 AM

Please see below and apprise me if you need to do a corrected time card for last week.

Robin Ross

D C F O

From: HRMSBulletin Resource
Sent: Wednesday, March 16, 2011 9:52 AM
To: HRMSBulletin Resource
Cc: HRMSBulletin Resource
Subject: New Agency Wide TAC Number

REC

All Employees,

Due to the most current event in Japan, the Agency has decided to establish a new Agency wide Activity Code. It is: ZG0061 - Japan Earthquake and Tsunami. The PA will be: 111180 – Response Program-Event/Response - Operating RX. Please be reminded that if you charged hours to D92374 in PP6, you will need to submit a corrected time card and use the new TAC number ZG0061 under PA 111180. Also please contact your T & L Coordinator to have that TAC established in your profile.

Thank you for your cooperation.

Time, Labor and Payroll Services

4/1/13

NAK

From: Howe, Allen
To: Merzke, Daniel; Andersen, James
Cc: Leeds, Eric; Ruland, William; Giitter, Joseph; Boger, Bruce; Grobe, Jack; Virgilio, Martin; Weber, Michael; Borchardt, Bill; Brenner, Eliot; Schmidt, Rebecca; Doane, Margaret; Holian, Brian; Brown, Frederick
Subject: Draft Scheduling Note for Japan event 3-16-2011
Date: Wednesday, March 16, 2011 1:18:12 PM
Attachments: Scheduling NoteMar2011 JapaneseEvent agh 3-16-2011.docx

REV

Dan/Jim – attached is a rough draft scheduling note for the Commission meeting. Eric Leeds has reviewed it and approved. We are coordinating support for the meeting, which could occur as early as Monday. Please keep me updated on any developments.

Thanks - Allen

4/14

Draft: 3/16/11

SCHEDULING NOTE

Title: BRIEFING ON JAPANESE EVENT and US RESPONSE (Public?)

Purpose: To provide the Commission a status on the recent event in Japan, and to provide an overview of staff actions to date, early planned actions

Scheduled: March XX, 2011
9:00 am

Duration: Approx. 2 hours

Location: Commissioners' Conference Room OWFN

Participants: **Presentation**

NRC Staff Panel **50 mins.***

Bill Borchardt, Executive Director for Operations 15 mins.*
Topic: Overview of Japanese Event and U.S. response

Mike Weber, Deputy Executive Director Materials, Waste,
Research, State, Tribal and Compliance Programs 10 mins.*
Topic: Potential consequences; what will be seen in U.S.

Marty Virgilio, Deputy Executive Director for Reactor
and Preparedness Programs 10 mins.*
Topic: Situation assessment for U.S. reactors and applicants

Elliot Brenner, OPA 5 mins.*
Topic: Communication Challenges

Eric Leeds, Director, NRR 10 mins.*
Topic: Path forward; Near term and longer term

Commission Q & A **30 mins.**

Discussion – Wrap-up **5 mins.**

Break **10 mins.**

Closed session

Strategy and agenda planning

Documents:

Staff background material due to SECY: March __, 2011.

Slides due to SECY: March __, 2011.

From: [HRMSBulletin Resource](#)
To: [HRMSBulletin Resource](#)
Cc: [HRMSBulletin Resource](#)
Subject: New Agency Wide TAC Number
Date: Wednesday, March 16, 2011 9:53:31 AM

10CFD

All Employees,

Due to the most current event in Japan, the Agency has decided to establish a new Agency wide Activity Code. It is: ZG0061 - Japan Earthquake and Tsunami. The PA will be: 111180 – Response Program-Event/Response - Operating RX. Please be reminded that if you charged hours to D92374 in PP6, you will need to submit a corrected time card and use the new TAC number ZG0061 under PA 111180. Also please contact your T & L Coordinator to have that TAC established in your profile.

Thank you for your cooperation.

Time, Labor and Payroll Services

4/15

From: Schwarz, Sherry on behalf of Leeds, Eric
To: NRR Distribution
Subject: Appreciation and Continued Mission Focus
Date: Wednesday, March 16, 2011 5:06:03 PM

NRR

REL

During this period of heightened activity in response to the events in Japan, I want to take the time to let you know how much I value the work that all of you do in NRR. Some of you are providing key support in emergency response, while others are performing the equally vital day-to-day regulatory duties. Throughout these distracting times abroad, it is so important to keep our focus on the safe operation of nuclear power plants here in the United States. Whether you are involved with licensing actions, technical analysis, budget preparations, or administrative functions to help us execute our essential regulatory work, your continued dedication and commitment are vital for us to maintain our mission of protecting the American public's health and safety.

I know that there can be anxiety and stress as events unfold; take time to take good care of yourself. To keep informed, there will be periodic updates from the EDO, and I encourage you to stay abreast of the agency's public announcements and blog at www.nrc.gov. As regulators, we excel at our steadiness in protecting people and the environment. Again, thanks for all you do.

Eric

4/11/6

From: Boger, Bruce *NR*
To: Giitter, Joseph; Howe, Allen; Nelson, Robert
Subject: Fw: DORL Initiative
Date: Wednesday, March 16, 2011 9:08:47 AM

REL
Please advise us of any licensing actions that require delay or adjustment as a result of this appropriate focus. Thanks.

From: Leeds, Eric *NR*
To: Boger, Bruce; Ruland, William; Grobe, Jack
Cc: Giitter, Joseph
Sent: Tue Mar 15 17:27:51 2011
Subject: RE: DORL Initiative

Thank you! I need to know if any are influenced by the Japanese events.

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

From: Boger, Bruce *NR*
Sent: Tuesday, March 15, 2011 3:53 PM
To: Leeds, Eric; Ruland, William; Grobe, Jack
Cc: Giitter, Joseph
Subject: DORL Initiative

FYI—DORL has started to take a look at licensing actions that are ready for issuance with a sensitivity to potential considerations from the Japanese situation.

4/17

NRR

From: Steger (Tucci), Christine
To: Leeds, Eric; Grobe, Jack; Boger, Bruce; Givvines, Mary; Ruland, William
Cc: Nguyen, Quynh; Meighan, Sean
Subject: For Review/Approval: Agenda for NRR All Supervisors Meeting on 3/30
Date: Wednesday, March 16, 2011 8:48:13 AM
Attachments: Draft NRR All Supervisors Meeting Agenda 03.30.11.docx

Good Morning,

REL

Unfortunately, we have been unable to meet in person, so I have attached the draft/suggested outline for the upcoming NRR All Supervisors Meeting scheduled for March 30. At your earliest convenience, please provide me your comments and suggestions.

You will find a suggested outline as well as additional topics for discussion that were submitted by supervisors. To include some of these topics, you may consider using them as "planted questions" for the discussion portion of the meeting.

In light of the events in Japan and NRC involvement, this may be another topic for consideration.

FYI: the BCC is committed to speaking on Enlightened Leadership.

Thanks,
Christine

Christine A. Steger
Communications Analyst
Program Management, Policy Development
and Analysis Staff
Office of Nuclear Reactor Regulation
Direct: 301-415-2008
christine.steger@nrc.gov

4/118

NRR All Supervisors Meeting

Wednesday, March 30, 2011 (1:30-3:00pm)
Commission Hearing Room

Suggested Outline:

Eric Leeds

- Welcome
- Introduction of New Branch Chiefs

Branch Chief Council – Speaker TBD (10 minutes)

- Enlightened Leadership – Share success stories and feedback

LT Chair – Bill Ruland (15 minutes)

- Safety Accomplishments
- Looking Ahead – Challenges

Eric Leeds (15 minutes)

- *(Consider discussing Japanese events, NRR/NRC response etc.)*
- EEO Assessment
- Orientation Training for Branch Chiefs
- Messages re: Administrative Assistants

Jack Grobe (10 minutes)

- Corporate Update
- Changes to Collective Bargaining Agreement
- Financial Status
- Agency Initiatives

Bruce Boger (10 minutes)

- Safety Culture Focus Groups
- IRRS Final Report

Q&A (30 Minutes)

Other Suggested Topics from Supervisors - Consider folding topics into Q&A where ET could prepare responses ahead of time

1. ET position on use of non-monetary awards, and any guidance/expectations they can give in that regard.
2. High Quality Increases - Why are High Quality Increases (HQI's) funded by an awards budget, which, especially in light of shrinking awards budgets, provides a huge dis-incentive to give worthy individuals increased pay for their long term performance?
3. Equitable approach to recognizing the increased responsibility of BC's (If RI's and SRI's already are assigned a 2 or 3 step increase in their salary because of their positions of responsibility, it would seem reasonable to assign a similar step increase for those willing and able to effectively take on the role of Branch Chief.)
4. Discuss the furlough contingency plans and the decision process for identifying "critical" functions versus non-critical. Include discussion of communication plans during a furlough to ensure employees are notified as quickly as possible for a timely return to work.
5. 3 White Flint Construction - expert on the construction project give us all a brief presentation on the project, design, status, etc.
6. Requirements, if any, for RIF in an extended furlough. Opinions abound; what are the facts?

From: Grobe, Jack *NRR*
To: Leeds, Eric
Subject: Re: Appreciation and Continued Mission Focus
Date: Wednesday, March 16, 2011 6:16:10 PM

Very nice touch.
Jack Grobe, Deputy Director, NRR

From: Schwarz, Sherry - *NRR*
To: NRR Distribution
Sent: Wed Mar 16 17:05:08 2011
Subject: Appreciation and Continued Mission Focus

During this period of heightened activity in response to the events in Japan, I want to take the time to let you know how much I value the work that all of you do in NRR. Some of you are providing key support in emergency response, while others are performing the equally vital day-to-day regulatory duties. Throughout these distracting times abroad, it is so important to keep our focus on the safe operation of nuclear power plants here in the United States. Whether you are involved with licensing actions, technical analysis, budget preparations, or administrative functions to help us execute our essential regulatory work, your continued dedication and commitment are vital for us to maintain our mission of protecting the American public's health and safety.

I know that there can be anxiety and stress as events unfold; take time to take good care of yourself. To keep informed, there will be periodic updates from the EDO, and I encourage you to stay abreast of the agency's public announcements and blog at www.nrc.gov. As regulators, we excel at our steadiness in protecting people and the environment. Again, thanks for all you do.

Eric

4/119

From: Ruland, William - NRR
To: Williams, Donna; Uhle, Jennifer; Sheron, Brian; Moore, Scott; Miller, Charles; Brenner, Eliot; Haney, Catherine; Dorman, Dan; Wiggins, Jim; Evans, Michele; Doane, Margaret; Mamish, Nader
Cc: Johnson, Michael; Holahan, Gary; Leeds, Eric; Grobe, Jack; Howe, Allen
Subject: Planning for upcoming, short notice Commission meeting
Date: Wednesday, March 16, 2011 1:18:39 PM
Attachments: Scheduling NoteMar2011 JapaneseEvent agh 3-16-2011.docx

Folks,

Attached find a early draft of a scheduling note for a Commission meeting that may be held as early as this coming Monday, March 21st. NRR has been assigned as the lead to pull the meeting together. As you could imagine, this will take some effort. To help with coordination, please provide me a contact so that we can draw on your expertise and help to make this happen. Alan Howe, currently deputy director of DORL, has the lead to pull this together.

I know you have many questions. I'd ask for your patience as we try to get this done. I'll keep you updated through the contact that you provide to us.

Thank you very much.

Bill Ruland

4/120

Draft: 3/16/11

SCHEDULING NOTE

Title: BRIEFING ON JAPANESE EVENT and US RESPONSE (Public?)

Purpose: To provide the Commission a status on the recent event in Japan, and to provide an overview of staff actions to date, early planned actions

Scheduled: March XX, 2011
9:00 am

Duration: Approx. 2 hours

Location: Commissioners' Conference Room OWFN

Participants: **Presentation**

NRC Staff Panel **50 mins.***

Bill Borchardt, Executive Director for Operations 15 mins.*
Topic: Overview of Japanese Event and U.S. response

Mike Weber, Deputy Executive Director Materials, Waste,
Research, State, Tribal and Compliance Programs 10 mins.*
Topic: Potential consequences; what will be seen in U.S.

Marty Virgilio, Deputy Executive Director for Reactor
and Preparedness Programs 10 mins.*
Topic: Situation assessment for U.S. reactors and applicants

Elliot Brenner, OPA 5 mins.*
Topic: Communication Challenges

Eric Leeds, Director, NRR 10 mins.*
Topic: Path forward; Near term and longer term

Commission Q & A **30 mins.**

Discussion – Wrap-up **5 mins.**

Break **10 mins.**

Closed session

Strategy and agenda planning

Documents:

Staff background material due to SECY: March __, 2011.

Slides due to SECY: March __, 2011.

From: [HRMSBulletin Resource](#) - HR
To: [HRMSBulletin Resource](#)
Cc: [HRMSBulletin Resource](#)
Subject: New Agency Wide TAC Number
Date: Wednesday, March 16, 2011 9:53:17 AM

All Employees,

Due to the most current event in Japan, the Agency has decided to establish a new Agency wide Activity Code. It is: ZG0061 - Japan Earthquake and Tsunami. The PA will be: 111180 – Response Program-Event/Response - Operating RX. Please be reminded that if you charged hours to D92374 in PP6, you will need to submit a corrected time card and use the new TAC number ZG0061 under PA 111180. Also please contact your T & L Coordinator to have that TAC established in your profile.

Thank you for your cooperation.

Time, Labor and Payroll Services

4/12/11

From: Leeds, Eric - NRR
To: Virgilio, Martin; Weber, Michael
Cc: Borchardt, Bill; Boger, Bruce; Grobe, Jack; Ruland, William; Johnson, Michael; Sheron, Brian; Evans, Michele
Subject: NRR Actions: near-term
Date: Wednesday, March 16, 2011 1:13:54 PM
Importance: High

Please see below. NRR has assembled a team, led by an SES manager to evaluate near term actions for the agency's response to the Japanese event. At this time, we are considering inspection as well as a generic communication and a review of "sensitive" licensing actions". I will keep you informed as we go forward I have discussed the current situation in Japan with the RAs and our preliminary thoughts for regulatory actions going forward.

We have also prepared a scheduling note for the commission meeting for next week. We will send it to you.

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

From: Brown, Frederick
Sent: Wednesday, March 16, 2011 11:32 AM
To: Leeds, Eric; Boger, Bruce; Grobe, Jack
Subject: FW: Action: Consider potential on-site activities in near-term
Importance: High

FYI

From: Brown, Frederick - NRR
Sent: Wednesday, March 16, 2011 11:17 AM
To: Roberts, Darrell; Clifford, James; Croteau, Rick; Jones, William; Croteau, Rick; Darrell Roberts; James Clifford; Jones, William; Kennedy, Kriss; Shear, Gary; Troy Pruett; West, Steven
Cc: Vogel, Anton; Wilson, Peter; Miller, Chris; Weerakkody, Sunil; OBrien, Kenneth; Reynolds, Steven; Munday, Joel; Moorman, James; Christensen, Harold; Westreich, Barry
Subject: Action: Consider potential on-site activities in near-term
Importance: High

On the DRA call today, I'm going to float the potential for either a smart sample or a TI to look at the following areas:

- Licensee verification of 50.54(hh)(2) current status and readiness;
- Licensee verification of SBO current status and readiness consistent with their coping strategy;
- Licensee verification of Internal and External Flooding design features consistency with their licensing basis; and
- Licensee verification that their 50.54(hh)(2) equipment would survive a seismic event undamaged.

If you have thoughts, I'd like to hear them, and you may want to prep your DRAs.

4/22

Thanks,
Fred

From: Schwarz, Sherry on behalf of Leeds, Eric
To: NRR Distribution
Subject: Appreciation and Continued Mission Focus
Date: Wednesday, March 16, 2011 5:06:00 PM

NRR

During this period of heightened activity in response to the events in Japan, I want to take the time to let you know how much I value the work that all of you do in NRR. Some of you are providing key support in emergency response, while others are performing the equally vital day-to-day regulatory duties. Throughout these distracting times abroad, it is so important to keep our focus on the safe operation of nuclear power plants here in the United States. Whether you are involved with licensing actions, technical analysis, budget preparations, or administrative functions to help us execute our essential regulatory work, your continued dedication and commitment are vital for us to maintain our mission of protecting the American public's health and safety.

I know that there can be anxiety and stress as events unfold; take time to take good care of yourself. To keep informed, there will be periodic updates from the EDO, and I encourage you to stay abreast of the agency's public announcements and blog at www.nrc.gov. As regulators, we excel at our steadiness in protecting people and the environment. Again, thanks for all you do.

Eric

4/123

From: Leeds, Eric - NRR
To: Howe, Allen; Rutland, William; Boger, Bruce; Grobe, Jack
Cc: Brown, Frederick; McGinty, Tim; Glitter, Joseph; Hiland, Patrick
Subject: Brain-storming upcoming Commish meeting
Date: Wednesday, March 16, 2011 1:34:17 PM

Allen/all -

I will undoubtedly need your help in crafting the staff's messages for the upcoming Commission meeting on the Japanese event. If there is a public part of this meeting, and there probably will be, it will be a good opportunity for us to get out the message that we have requirements in place for severe accident management, 50.63 SBO, flooding, 50.54hh(2), Mark I containment improvements, etc. Please brainstorm how we can make that part of our message to the Commission. A lot of what I think we need to do with our licensees, at least in the near term, is to verify what they are already required to do. It might make a good message for the public.

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

4/124

From: Howe, Allen - NRR
To: Merzke, Daniel; Andersen, James DESO
Cc: Leeds, Eric; Ruland, William; Glitter, Joseph; Boger, Bruce; Grobe, Jack; Virgilio, Martin; Weber, Michael; Borchardt, Bill; Brenner, Eliot; Schmidt, Rebecca; Doane, Margaret; Holian, Brian; Brown, Frederick
Subject: Draft Scheduling Note for Japan event 3-16-2011
Date: Wednesday, March 16, 2011 1:18:12 PM
Attachments: Scheduling NoteMar2011 JapaneseEvent agh 3-16-2011.docx

Dan/Jim – attached is a rough draft scheduling note for the Commission meeting. Eric Leeds has reviewed it and approved. We are coordinating support for the meeting, which could occur as early as Monday. Please keep me updated on any developments.

Thanks - Allen

4/125

Draft: 3/16/11

SCHEDULING NOTE

Title: BRIEFING ON JAPANESE EVENT and US RESPONSE (Public?)

Purpose: To provide the Commission a status on the recent event in Japan, and to provide an overview of staff actions to date, early planned actions

Scheduled: March XX, 2011
9:00 am

Duration: Approx. 2 hours

Location: Commissioners' Conference Room OWFN

Participants: **Presentation**

NRC Staff Panel **50 mins.***

Bill Borchardt, Executive Director for Operations 15 mins.*
Topic: Overview of Japanese Event and U.S. response

Mike Weber, Deputy Executive Director Materials, Waste, 10 mins.*
Research, State, Tribal and Compliance Programs
Topic: Potential consequences; what will be seen in U.S.

Marty Virgilio, Deputy Executive Director for Reactor 10 mins.*
and Preparedness Programs
Topic: Situation assessment for U.S. reactors and applicants

Elliot Brenner, OPA 5 mins.*
Topic: Communication Challenges

Eric Leeds, Director, NRR 10 mins.*
Topic: Path forward; Near term and longer term

Commission Q & A **30 mins.**

Discussion – Wrap-up **5 mins.**

Break **10 mins.**

Closed session

Strategy and agenda planning

Documents:

Staff background material due to SECY: March __, 2011.

Slides due to SECY: March __, 2011.

From: Wilson, George - *NRK*
To: Hiland, Patrick; Skeen, David; Grobe, Jack; Cohen, Shari - *NRK*
Cc: Skeen, David; Khanna, Meena
Subject: RE: Jack Requested You Call Joe Donahue on his behalf
Date: Wednesday, March 16, 2011 3:53:40 PM

Pat,

As requested, I called Joe Donahue of Progress Energy. I explained to Joe that Jack is busy responding to the Japanese event and relayed his regrets that he was not able to contact him directly. I indicated that I was calling on Jack's behalf to obtain a current status of the recent issue at Crystal River Unit 3. Joe indicated that during the repair, and during the last pass (pass 11) of the retensioning activities, there was an additional delamination, which was identified in bay 5/6. He did indicate that the computer models that they ran did not predict any indications or issues of retensioning because the margins were maintained in bay 5/6. Joe indicated that they are continuing to perform a root cause assessment as well as extent of condition assessment. He stated that this additional delamination issue will cause a "significant delay" in their restart schedule. Progress Energy has been in discussions with the region and agreement was reached to cancel the public meeting that was scheduled for March 22. The region will be issuing a cancellation notice of the meeting, shortly.

Thanks,
George

From: Hiland, Patrick *NRK*
Sent: Wednesday, March 16, 2011 3:08 PM
To: Khanna, Meena
Cc: Wilson, George; Skeen, David
Subject: FW: Jack Requested You Call Joe Donahue on his behalf
Importance: High

Meena, I sent the below to George Wilson and asked him to return call to Progress Energy. You may want to give him a heads up prior to call.

From: Hiland, Patrick - *NRK*
Sent: Wednesday, March 16, 2011 3:03 PM
To: Wilson, George - *NRK*
Cc: Skeen, David
Subject: FW: Jack Requested You Call Joe Donahue on his behalf
Importance: High

Hey George, can you handle the below? FYI Crystal River identified an anomaly Monday while doing final re-tensioning. Meena/Farhead will have the specific details. Explain that Jack is responding to the escalating problems in Japan and regret he was unable to return the call. You as Acting DE might ask if they have drawn any conclusions yet? Also, there is supposed to be a public meeting at the site next week (3/22) with Eric Leeds attending.

From: Cohen, Shari *NRK*
Sent: Wednesday, March 16, 2011 2:56 PM
To: Hiland, Patrick

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Subject: Jack Requested You Call Joe Donahue on his behalf

Jack had called Joe (of Progress Energy) yesterday asking for technical information on Crystal River III. Jack was too busy to take Joe's return call when he called Jack back so Jack asked that you please call Joe on his behalf – Joe's number is 919-632-5970 (bb). Thank you!

Shari Cohen, Contract Secretary
Office of Nuclear Reactor Regulation, USNRC
Room – O-13H18 / Mail Stop - O13H16M
Phone – 301-415-1270
Fax - 301 - 415-8333
Email - shari.cohen@nrc.gov

Kock, Andrea

From: Ostendorff, William
Sent: Thursday, March 17, 2011 10:33 AM
To: Schneider, Daniel (McConnell)
Cc: Chatterjee, Neil (McConnell); Herr, Linda
Subject: RE: Hey

Good.

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

From: Schneider, Daniel (McConnell) [mailto:Daniel_Schneider@mcconnell.senate.gov]
Sent: Thursday, March 17, 2011 10:32 AM
To: Ostendorff, William
Cc: Chatterjee, Neil (McConnell)
Subject: RE: Hey

12:15 is fine. We'll try you then.

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

From: Ostendorff, William [<mailto:William.Ostendorff@nrc.gov>]
Sent: Thursday, March 17, 2011 10:31 AM
To: Schneider, Daniel (McConnell)
Subject: Re: Hey

That's fine. You can call me at 301-415-1759. Should we plan on 1215 or is a later time in that window (1215-1345) better for you?

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

From: Schneider, Daniel (McConnell) <Daniel_Schneider@mcconnell.senate.gov>
To: Ostendorff, William
Sent: Thu Mar 17 10:21:37 2011
Subject: RE: Hey

I'd like to call you so I can conference in our energy and environment advisor, Neil Chatterjee. But if that is not convenient for you, my desk phone number is 202-224-0712.

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

From: Ostendorff, William [<mailto:William.Ostendorff@nrc.gov>]
Sent: Thursday, March 17, 2011 10:06 AM
To: Schneider, Daniel (McConnell)
Subject: Re: Hey

Okay-what is a good number for me to call?

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

From: Schneider, Daniel (McConnell) <Daniel_Schneider@mcconnell.senate.gov>
To: Ostendorff, William
Cc: Chatterjee, Neil (McConnell) <Neil_Chatterjee@mcconnell.senate.gov>
Sent: Thu Mar 17 10:04:33 2011
Subject: RE: Hey

I think so.

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

From: Ostendorff, William [<mailto:William.Ostendorff@nrc.gov>]

Sent: Thursday, March 17, 2011 9:59 AM

To: Schneider, Daniel (McConnell)

Subject: RE: Hey

Would some time between 1215 and 1:45 work for you ?

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

From: Schneider, Daniel (McConnell) [mailto:Daniel_Schneider@mcconnell.senate.gov]

Sent: Thursday, March 17, 2011 9:11 AM

To: Ostendorff, William

Cc: Chatterjee, Neil (McConnell)

Subject: RE: Hey

When would you be available?

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

From: Ostendorff, William [<mailto:William.Ostendorff@nrc.gov>]

Sent: Thursday, March 17, 2011 7:30 AM

To: Schneider, Daniel (McConnell)

Subject: Re: Hey

Dan--I will give you a call. Bill

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

From: Schneider, Daniel (McConnell) <Daniel_Schneider@mcconnell.senate.gov>

To: Ostendorff, William

Sent: Wed Mar 16 22:03:56 2011

Subject: Hey

Are you and the chairman on the same page re Japan, or are there disagreements?

NAR
From: Boger, Bruce
To: Ross, Robin
Subject: RE: New Agency Wide TAC Number
Date: Thursday, March 17, 2011 12:03:00 PM

REL Perfect. Thanks.

NAR
From: Ross, Robin
Sent: Thursday, March 17, 2011 10:54 AM
To: Boger, Bruce
Subject: RE: New Agency Wide TAC Number

Hi Bruce,

The new TAC number, for dutiful response to the Japan event, has been added to your profile.

Robin Ross

NAR
From: Boger, Bruce
Sent: Thursday, March 17, 2011 8:15 AM
To: Ross, Robin
Subject: RE: New Agency Wide TAC Number

I don't need to do a corrected card, but I'd like to have the new TAC number added to my profile. Please make that happen. Thanks.

NAR
From: Ross, Robin
Sent: Wednesday, March 16, 2011 10:39 AM
To: Boger, Bruce; Brown, Frederick; Giitter, Joseph; Holian, Brian; McGinty, Tim
Subject: FW: New Agency Wide TAC Number

Please see below and apprise me if you need to do a corrected time card for last week.

Robin Ross

OFF
From: HRMSBulletin Resource
Sent: Wednesday, March 16, 2011 9:52 AM
To: HRMSBulletin Resource
Cc: HRMSBulletin Resource
Subject: New Agency Wide TAC Number

All Employees,

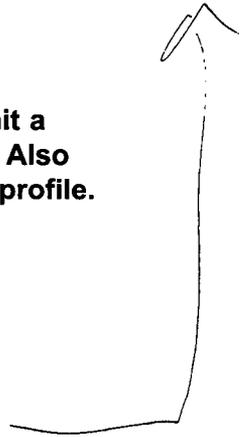
Due to the most current event in Japan, the Agency has decided to establish a new Agency wide Activity Code. It is: ZG0061 - Japan Earthquake and Tsunami. The PA will be: 11180 - Response Program-Event/Response - Operating RX. Please be

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reminded that if you charged hours to D92374 in PP6, you will need to submit a corrected time card and use the new TAC number ZG0061 under PA 111180. Also please contact your T & L Coordinator to have that TAC established in your profile.

Thank you for your cooperation.

Time, Labor and Payroll Services



From: Boger, Bruce
To: Grobe, Jack; Weerakkody, Sunil; Leeds, Eric
Cc: Sheron, Brian; Uhle, Jennifer; Wiggins, Jim; Evans, Michele
Subject: RE: Question w.r.t. NRC's New Strategic Plan for Out Years for you to ponder
Date: Thursday, March 17, 2011 1:09:00 PM

REL
Great topic of discussion, but as Jack indicates, a little too early in our understanding of the path forward in the longer term.

From: Grobe, Jack
Sent: Thursday, March 17, 2011 12:52 PM
To: Weerakkody, Sunil; Leeds, Eric; Boger, Bruce
Cc: Sheron, Brian; Uhle, Jennifer; Wiggins, Jim; Evans, Michele
Subject: Re: Question w.r.t. NRC's New Strategic Plan for Out Years for you to ponder

Sunil

On the surface I would say no. However it is really too early to say difinitively.
Jack Grobe, Deputy Director, NRR

From: Weerakkody, Sunil
To: Leeds, Eric; Boger, Bruce; Grobe, Jack
Cc: Sheron, Brian; Uhle, Jennifer; Wiggins, Jim; Evans, Michele
Sent: Thu Mar 17 11:14:31 2011
Subject: Question w.r.t. NRC's New Strategic Plan for Out Years for you to ponder

Eric\Jack\Bruce,

As the NRR representative overseeing the NRC Strategic Plan development activities, I have the following question for you to ponder among yourself and share your views, when time permits, so that I can effectively represent NRR. I will be posing this same question to members of the Steering Group to initiate a dialogue among the members.

"Should we be re-evaluating our revision to the Strategic Plan for FY 13-18 in light of the events unfolding in Japan?" i.e., "Will NRR revisit HIGH-LEVEL priorities, strategies, goals, etc...of the operating reactor business line during the next 5 years?"

Sunil D. Weerakkody
Deputy Director - DRS (Acting)
NRC - RGN I
Tel: 610-337-5128

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From: [HRMSBulletin Resource](#)
To: [HRMSBulletin Resource](#)
Cc: [HRMSBulletin Resource](#)
Subject: Clarification for use of the Tac ZG0061
Date: Thursday, March 17, 2011 9:26:26 AM

10/10

REC

Clarification for use of the TAC (ZG0061) that was established for the events in JAPAN

This TAC (ZG0061) was established to track activity related to staff that are supporting the recent events in Japan. Managers that are performing managerial functions relating to the events in Japan should continue to use the TAC (ZM0000). In the situation where a manager is required to perform duties which would be considered different than managerial responsibilities should record their time under the new TAC ZG0061. Support staff that are performing Japan events should use TAC's that relate to their normal responsibilities. In the situation where administrative support staff is required to perform duties that would be considered different than routine administrative support responsibilities should record their time under the new TAC ZG0061.

If you have any additional questions please e-mail Jackie Jones Jackie.Jones@NRC.GOV or Mary Matheson at Mary.Matheson@NRC.GOV.

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NAR
From: Boger, Bruce
To: Ruland, William
Subject: FW: Link to "Boggs Box" (spray nozzle) sent from Oconee to Japan
Date: Thursday, March 17, 2011 11:51:00 AM

REL
Bill, Here's a video of the nozzle that Oconee is providing to Japan. The RST may be interested, although I don't know how it could be placed into service, given the radiation fields as I understand them. Bruce

NAR
From: Meighan, Sean
Sent: Thursday, March 17, 2011 11:42 AM
To: Boger, Bruce
Subject: Link to "Boggs Box" (spray nozzle) sent from Oconee to Japan

Bruce:

As per your request.

<http://portal.nrc.gov/edo/nrr/dor/japan/Shared%20Documents/Forms/AllItems.aspx>

Very Respectfully
Sean

4/13/11

NAR
From: Boger, Bruce
To: Schwarz, Sherry; Grobe, Jack
Cc: Compton, Makeeka
Subject: RE: New HRMS TAC for Japan Event
Date: Thursday, March 17, 2011 9:56:00 AM

REL OK, thanks, Sherry and Makeeka.

NAR
From: Schwarz, Sherry
Sent: Thursday, March 17, 2011 9:49 AM
To: Boger, Bruce; Grobe, Jack
Cc: Compton, Makeeka
Subject: New HRMS TAC for Japan Event

Good morning Bruce and Jack,

As you know HRMS created a new TAC for the Japan Earthquake and Tsunami. Makeeka has kindly added this TAC (ZG0061) to your HRMS profiles, as well as Eric's.

Sherry G. Schwarz
Administrative Assistant to Eric J. Leeds
Office of Nuclear Reactor Regulation
301-415-1270
Location: O13/D15
Mailstop: O13/H16M
Sherry.Schwarz@NRC.gov

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From: Boger, Bruce / NRR
To: Andersen, James
Cc: Wittick, Brian; Leeds, Eric
Subject: FW: Response requested: INPO liaison
Date: Thursday, March 17, 2011 1:38:00 PM

REL Jim, Per our discussion. We'll let Brian get some sleep. Bruce

From: Boger, Bruce / NRR
Sent: Thursday, March 17, 2011 1:18 PM
To: Wittick, Brian
Cc: Howe, Allen; Brown, Frederick; Westreich, Barry; Wittick, Brian
Subject: RE: Response requested: INPO liaison

Brian, I believe OEDO has the level of interface with INPO to suggest the report should be made public. The responses should remain INPO-private, but I don't see why the report itself is so sensitive that INPO would over-resist making it public. Can you help us?
Thanks. Bruce

From: Howe, Allen / NRR
Sent: Thursday, March 17, 2011 1:07 PM
To: Brown, Frederick; Westreich, Barry
Cc: Boger, Bruce
Subject: Response requested: INPO liaison
Importance: High

We want to talk about INPOs level 1 event report on the event in Japan at the Monday Commission meeting. How do we obtain a release?

Thanks - Allen

4/133

REL

From: Boger, Bruce, *NAN*
To: McGinty, Tim
Cc: Bowman, Eric
Subject: RE: ACTION REQUESTED: Japanese Earthquake-related Information Notice
Date: Thursday, March 17, 2011 1:06:00 PM

Wow. Very impressive. You guys are good. Way to go. Thanks for hurrying this one along.

From: McGinty, Tim, *NAN*
Sent: Thursday, March 17, 2011 12:42 PM
To: Bowman, Eric; Thomas, Eric; Correia, Richard; Mathew, Roy
Cc: Rosenberg, Stacey; Hiland, Patrick; Westreich, Barry; Boger, Bruce; Leeds, Eric; Quay, Theodore; Blount, Tom; Skeen, David
Subject: RE: ACTION REQUESTED: Japanese Earthquake-related Information Notice

My apologies. We have now been tasked to issue the IN tomorrow. Need your comments and concurrence by mid-afternoon today, COB at the latest. Tim

From: Bowman, Eric, *NAN*
Sent: Thursday, March 17, 2011 11:37 AM
To: Thomas, Eric; Correia, Richard; Mathew, Roy
Cc: Rosenberg, Stacey; McGinty, Tim; Hiland, Patrick; Westreich, Barry
Subject: ACTION REQUESTED: Japanese Earthquake-related Information Notice
Importance: High

All,

We plan to issue the attached Information Notice early next week on the implications of the recent Japanese Earthquake. In support of that effort, your comments and Divisional concurrence are requested by tomorrow afternoon.

Very many thanks in advance for your efforts.

V/R; R/ Eric

Eric E. Bowman
Sr. Project Manager
Generic Communications & Power Uprate Branch
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
301-415-2963
Eric.Bowman@nrc.gov

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NEC

From: Boger, Bruce *NRB*
To: McGinty, Tim
Subject: RE: FYI: Plans to Draft and Issue an NRC Information Notice on the Japanese Earthquake/Tsunami Effects on Japanese Power Plants
Date: Thursday, March 17, 2011 11:41:00 AM

Thanks, Tim. As you might have expected, many folks would like to have this issued before the Commission meeting Monday morning. Wanna try for the new generic communication timeliness record?

From: McGinty, Tim *NRB*
Sent: Thursday, March 17, 2011 11:17 AM
To: Nelson, Robert; Howe, Allen; Westreich, Barry; Brown, Frederick; Cheek, Michael; Hiland, Patrick; Thomas, Eric; Skeen, David; Burnell, Scott; Williamson, Edward; Giitter, Joseph; Evans, Michele
Cc: Boger, Bruce; McDermott, Brian; Leeds, Eric; Blount, Tom; Quay, Theodore; Bowman, Eric; Rosenberg, Stacey
Subject: FYI: Plans to Draft and Issue an NRC Information Notice on the Japanese Earthquake/Tsunami Effects on Japanese Power Plants

This is an FYI:

DPR staff (Eric Bowman, lead) is developing an Information Notice on the above Subject for near-term issuance.

I anticipate that it will go into concurrence today, and we will ask concurrence of DIRS, DE, and NSIR.

Upon having the necessary comments and concurrences (by noon tomorrow), we plan to share the draft for "awareness" to ensure full coordination prior to issuance. For awareness, we anticipate sharing with the DRA's, DORL, OPA, OGC and the Executive Team in the Operations Center. Our goal is to be in a position to issue the Information Notice early next week.

We are open to suggestions on this plan, so please don't hesitate. If you want to identify a primary contact for us to work with, in your organization, please respond to Eric Bowman, Stacey Rosenberg or myself.

Thanks in Advance for your Support, Tim

4/13/11

From: Boger, Bruce , NRR
To: McGinty, Tim; Sloan, Scott
Cc: Ross-Lee, MaryJane; Quay, Theodore; Blount, Tom; Ruland, William; Leeds, Eric
Subject: RE: Incident Response Performance Feedback Regarding Scott Sloan, Federal Liaison
Date: Thursday, March 17, 2011 12:02:00 PM

REL

Scott, I too applaud your efforts. You directly contributed to the agency's top priority by not allowing bureaucratic impediments to stall this important activity. Way to go—and thanks. Bruce

From: McGinty, Tim , NRR
Sent: Thursday, March 17, 2011 10:46 AM
To: Sloan, Scott
Cc: Ross-Lee, MaryJane; Quay, Theodore; Blount, Tom; Ruland, William; Boger, Bruce; Leeds, Eric
Subject: Incident Response Performance Feedback Regarding Scott Sloan, Federal Liaison

Scott – the purpose of this email is for you to hand to your future supervision regarding your performance in the Operations Center regarding the events in Japan.

As a member of the Liaison Team, in the role of Federal Liaison, your performance has been outstanding. Your initiative, out-of-the-box thinking, can-do attitude, dedication and commitment to safety and security are truly remarkable. I have personal knowledge of your performance in this regard, having served on the same shift with you as the LT Director. Thank You.

This morning, however, it was brought to my attention that your performance last night was especially noteworthy. Bill Ruland informed the entire Executive Team and Leadership Team about your actions yesterday to drive the development of systems to help mitigate the conditions existing in Japan, and to coordinate with other stakeholders for the purposes of positioning the U.S. in a way where we could provide this highly critical technical assistance.

Mr. Ruland conveyed to me that your actions were "heroic".

Scott – speaking for the NRR ET and LT: Thank You.

Sincerely, Tim McGinty, Director, NRR/DPR

L/136

NRR
From: Boger, Bruce
To: Meighan, Sean
Subject: RE: Link to "Boggs Box" (spray nozzle) sent from Oconee to Japan
Date: Thursday, March 17, 2011 11:49:00 AM

REL
Cool. Thanks.

NRR
From: Meighan, Sean
Sent: Thursday, March 17, 2011 11:42 AM
To: Boger, Bruce
Subject: Link to "Boggs Box" (spray nozzle) sent from Oconee to Japan

Bruce:

As per your request.

<http://portal.nrc.gov/edo/nrr/dor/japan/Shared%20Documents/Forms/AllItems.aspx>

Very Respectfully
Sean

4/137

From: ANS Broadcasts
To: Boger, Bruce
Subject: Letter to President Obama
Date: Thursday, March 17, 2011 10:36:52 PM



AMERICAN NUCLEAR SOCIETY

555 North Kensington Avenue
La Grange Park, Illinois
60526-5592 USA

Tel: 708 / 352-6611
E-Mail: NUCLEUS@ans.org
<http://www.ans.org>
Fax: 708 / 352-0499

March 16, 2011

The Honorable Barack Obama
President of the United States
1600 Pennsylvania Avenue NW
Washington, DC 20500

Dear Mr. President:

On behalf of the more than 11,000 men and women of the American Nuclear Society (ANS), I extend our deepest sympathies to the people of Japan as they begin to recover from a natural disaster of unprecedented proportions. We also salute the heroic efforts of the TEPCO/Fukushima plant operators as they work to facilitate a safe shutdown of the impacted reactors.

ANS has offered technical assistance to the Atomic Energy Society of Japan (AESJ) and is prepared to help the U.S. government in any way possible to provide needed assistance to the Japanese government and people.

We also thank you for your administration's measured political response to the current situation.

Clearly, events at the Fukushima Daiichi reactor site continue to evolve rapidly and our understanding of them has been clouded by conflicting information, and in some cases misleading media reports.

We are urging policymakers in the administration and Congress to withhold judgments on U.S. nuclear policy until the current situation has been resolved and the incident has been fully understood.

We recognize that the events in Japan will trigger a broader public discussion over the benefits and risks of nuclear energy. We welcome that discussion, but only after a complete technical understanding of its causes, progression, and impact has been established and fully evaluated.

Please let me know if I can be of any assistance to you on this or any other matter.

Sincerely,

A handwritten signature in black ink, appearing to read "Joe F. Colvin".

Joe F. Colvin
President, American Nuclear Society

CC: The Honorable Steven Chu, Secretary of Energy

4/138

From: McGinty, Tim, NRR
To: Sloan, Scott
Cc: Ross-Lee, MaryJane; Quay, Theodore; Blount, Tom; Ruland, William; Boger, Bruce; Leeds, Eric
Subject: Incident Response Performance Feedback Regarding Scott Sloan, Federal Liaison
Date: Thursday, March 17, 2011 10:45:53 AM

Scott – the purpose of this email is for you to hand to your future supervision regarding your performance in the Operations Center regarding the events in Japan.

REL
As a member of the Liaison Team, in the role of Federal Liaison, your performance has been outstanding. Your initiative, out-of-the-box thinking, can-do attitude, dedication and commitment to safety and security are truly remarkable. I have personal knowledge of your performance in this regard, having served on the same shift with you as the LT Director. Thank You.

This morning, however, it was brought to my attention that your performance last night was especially noteworthy. Bill Ruland informed the entire Executive Team and Leadership Team about your actions yesterday to drive the development of systems to help mitigate the conditions existing in Japan, and to coordinate with other stakeholders for the purposes of positioning the U.S. in a way where we could provide this highly critical technical assistance.

Mr. Ruland conveyed to me that your actions were “heroic”.

Scott – speaking for the NRR ET and LT: Thank You.

Sincerely, Tim McGinty, Director, NRR/DPR

4139

From: Steger (Tucci), Christine *NRR*
To: Grobe, Jack
Subject: RE: For Review/Approval: Agenda for NRR All Supervisors Meeting on 3/30
Date: Thursday, March 17, 2011 8:35:39 AM

Ok great. Thanks. I'll start preparing some information and then set a time for us to meet next week.

From: Grobe, Jack *NRR*
Sent: Thursday, March 17, 2011 8:20 AM
To: Steger (Tucci), Christine
Subject: Re: For Review/Approval: Agenda for NRR All Supervisors Meeting on 3/30

Fine by me
Jack Grobe, Deputy Director, NRR

From: Steger (Tucci), Christine - *NRR*
To: Leeds, Eric; Grobe, Jack; Boger, Bruce; Givvines, Mary; Ruland, William - *NRR*
Cc: Nguyen, Quynh; Meighan, Sean
Sent: Wed Mar 16 08:48:07 2011
Subject: For Review/Approval: Agenda for NRR All Supervisors Meeting on 3/30

Good Morning,

Unfortunately, we have been unable to meet in person, so I have attached the draft/suggested outline for the upcoming NRR All Supervisors Meeting scheduled for March 30. At your earliest convenience, please provide me your comments and suggestions.

You will find a suggested outline as well as additional topics for discussion that were submitted by supervisors. To include some of these topics, you may consider using them as "planted questions" for the discussion portion of the meeting.

In light of the events in Japan and NRC involvement, this may be another topic for consideration.

FYI: the BCC is committed to speaking on Enlightened Leadership.

Thanks,
Christine

Christine A. Steger
Communications Analyst
Program Management, Policy Development
and Analysis Staff
Office of Nuclear Reactor Regulation
Direct: 301-415-2008
christine.steger@nrc.gov

4/14/10

From: Giitter, Joseph - NRR
To: Leeds, Eric; Howe, Allen; Ruland, William; Boger, Bruce; Grobe, Jack - NRR
Cc: Brown, Frederick; McGinty, Tim; Hiland, Patrick
Subject: RE: Brain-storming upcoming Commish meeting
Date: Wednesday, March 16, 2011 7:47:41 PM
Attachments: Eric Leeds Remarks.docx

Eric - I took a stab and putting some thoughts together. It needs a lot of work, but it is a start.

From: Leeds, Eric - NRR
Sent: Wednesday, March 16, 2011 1:34 PM
To: Howe, Allen; Ruland, William; Boger, Bruce; Grobe, Jack - NRR
Cc: Brown, Frederick; McGinty, Tim; Giitter, Joseph; Hiland, Patrick
Subject: Brain-storming upcoming Commish meeting

Allen/all -

I will undoubtedly need your help in crafting the staff's messages for the upcoming Commission meeting on the Japanese event. If there is a public part of this meeting, and there probably will be, it will be a good opportunity for us to get out the message that we have requirements in place for severe accident management, 50.63 SBO, flooding, 50.54hh(2), Mark I containment improvements, etc. Please brainstorm how we can make that part of our message to the Commission. A lot of what I think we need to do with our licensees, at least in the near term, is to verify what they are already required to do. It might make a good message for the public.

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

4/14/11

Draft Remarks for Eric in Preparation for the upcoming Commission Meeting on the event at the Fukushima Daiichi Plant in Japan

There will undoubtedly be many lessons learned in the months to come as we learn more about the tragic events at the Fukushima Daiichi plant in Japan. However, one of the early lessons is that events can occur that you didn't anticipate—either in the deterministic design basis of the plant or through probabilistic risk assessment models. That is why the fundamental approach to defense in depth is crucial to ensuring that safety is achieved, even under extreme circumstances, such as those experienced at the Fukushima Daiichi plant.

Of course, defense in depth starts with the design of the reactor. In the 1980s the NRC undertook a program to determine if any actions needed to be taken, on a generic basis, to reduce the vulnerability of designs to severe accident challenges. As part of this effort, the NRC looked specifically at the BWR Mark I containment design and identified a number of plant modifications that substantially enhance the ability of the design to prevent and mitigate the consequences of severe accidents. These recommendations included installation of a hardened vent that allows operators, in accordance with their emergency procedures, to relieve pressure from the containment to avoid exceeding the containment pressure limit. At this time the NRC also concluded that continued reliance on pre-existing capability—which was a non-pressure-bearing vent path—could jeopardize access to vital plant areas or other equipment and create an impediment to implementing a successful accident management strategy. Furthermore, the NRC determined that implementation of reliable venting capability and procedures can reduce the likelihood of core melt from accident sequences involving loss of long-term decay heat removal, such as a station blackout event. Finally, it was concluded that the hardened vent provides assurance of a pressure relief path with significant scrubbing of fission products which would result in lower releases, even for containment failure modes not associated with pressurization, such as liner meltthrough. All U.S. BWRs with the Mark I containment design have installed hardened vents (need to verify).

The NRC also identified certain containment performance improvements that licensees should “seriously consider” individual plant examinations in addition to the implementation of a hardened vent. These improvements included an alternate source of water injection into the reactor vessel to reduce the likelihood of core melt due to a station blackout or a loss of long-term decay heat removal, and an enhanced reactor pressure vessel depressurization system that could be operated in an extended station blackout after station batteries have been depleted. (Need to say something about the extent to which licensees have implemented this).

- 2 -

Also, in the 1980s--specifically in 1988-- the NRC concluded that additional regulatory requirements were justified in order to provide further assurance that a loss of both offsite and onsite emergency ac power systems—a station blackout condition--would not adversely affect public health and safety. Studies conducted by the NRC have shown that the hardware and procedures that have been implemented to meet the station blackout requirements have resulted in significant risk reduction and have further enhanced defense in depth. However, we plan to carefully evaluate the lessons learned from the events in Japan to determine if enhancements to the station blackout rule are warranted.

One of the most significant lessons learned from the Three Mile Island Accident in 1979 was that operating procedures need to be symptom based and less prescriptive. Procedures that previously directed operators to take a series of actions based on a pre-established accident were replaced with procedures that directed operators to maintain the critical safety functions-- such as keeping the core

covered and cooled. Emergency procedure guidelines that address conditions well beyond design basis accidents and can be used for severe accident management were also developed. Operators routinely practice these procedures on a plant specific simulator to ensure that they can be implemented for a wide range of accident scenarios, including a station blackout scenario.

More recently, since the 9/11 terrorist attack, NRC has required licensees to implement procedures and pre-stage equipment that would allow operators to ensure critical safety functions are met even under extreme conditions involving fires and explosions. NRC routinely evaluates the ability of licensees to implement these strategies. (Need more detail here.)

Mention steps that INPO has taken in their level 1 directive and our corresponding regulatory footprint—whatever it might be.

NR
From: Brown, Frederick
To: Virgilio, Martin; Leeds, Eric; Weber, Michael
Cc: Borchardt, Bill; Boger, Bruce; Grobe, Jack; Ruland, William; Johnson, Michael; Sheron, Brian; Evans, Michele; McHale, John
Subject: Re: NRR Actions: near-term
Date: Thursday, March 17, 2011 2:05:48 PM

Yep.

Ripe for a new regulatory approach as well (no longer non regulatory).

From: Virgilio, Martin *MD*
To: Leeds, Eric; Weber, Michael; Brown, Frederick
Cc: Borchardt, Bill; Boger, Bruce; Grobe, Jack; Ruland, William; Johnson, Michael; Sheron, Brian; Evans, Michele
Sent: Thu Mar 17 06:08:29 2011
Subject: RE: NRR Actions: near-term

Eric

I recall we have 2 suggestions in the IRRS report related to severe accident management that should be considered in formulating our actions (see items S5 and S10). This could be an opportunity to address and close on the issue related to confirming the adequacy of operating training on severe management mitigation.

Marty

From: Leeds, Eric *NR*
Sent: Wednesday, March 16, 2011 1:14 PM
To: Virgilio, Martin; Weber, Michael *DEDO*
Cc: Borchardt, Bill; Boger, Bruce; Grobe, Jack; Ruland, William; Johnson, Michael; Sheron, Brian; Evans, Michele
Subject: NRR Actions: near-term
Importance: High

Please see below. NRR has assembled a team, led by an SES manager to evaluate near term actions for the agency's response to the Japanese event. At this time, we are considering inspection as well as a generic communication and a review of "sensitive" licensing actions". I will keep you informed as we go forward I have discussed the current situation in Japan with the RAs and our preliminary thoughts for regulatory actions going forward.

We have also prepared a scheduling note for the commission meeting for next week. We will send it to you.

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

re/cad

4/14/2

From: Brown, Frederick
Sent: Wednesday, March 16, 2011 11:32 AM
To: Leeds, Eric; Boger, Bruce; Grobe, Jack
Subject: FW: Action: Consider potential on-site activities in near-term
Importance: High

FYI

From: Brown, Frederick *mark*
Sent: Wednesday, March 16, 2011 11:17 AM
To: Roberts, Darrell; Clifford, James; Croteau, Rick; Jones, William; Croteau, Rick; Darrell Roberts; James Clifford; Jones, William; Kennedy, Kriss; Shear, Gary; Troy Pruett; West, Steven
Cc: Vegel, Anton; Wilson, Peter; Miller, Chris; Weerakkody, Sunil; OBrien, Kenneth; Reynolds, Steven; Munday, Joel; Moorman, James; Christensen, Harold; Westreich, Barry
Subject: Action: Consider potential on-site activities in near-term
Importance: High

On the DRA call today, I'm going to float the potential for either a smart sample or a TI to look at the following areas:

- Licensee verification of 50.54(hh)(2) current status and readiness;
- Licensee verification of SBO current status and readiness consistent with their coping strategy;
- Licensee verification of Internal and External Flooding design features consistency with their licensing basis; and
- Licensee verification that their 50.54(hh)(2) equipment would survive a seismic event undamaged.

If you have thoughts, I'd like to hear them, and you may want to prep your DRAs.

Thanks,
Fred

release

NAR

From: Nelson, Robert
To: Ruland, William
Cc: Glitter, Joseph; Boger, Bruce
Subject: Action: Family Contact Script
Date: Thursday, March 17, 2011 3:01:35 PM
Attachments: Family Contact Script.docx

REV

I was tasked with developing a protocol for use when the NRC needs to contact the family of a NRC staff member deployed to Japan. I developed the attached in consultation with our agency's EAP coordinator, Sarah Linnerooth. Although prepared as a script, all portions may not be applicable in every case. My suggestions for its use:

1. Contact should only be made by an NRC supervisor, preferably an SES.
2. Stress that the call is not an emergency.
3. Express appreciation for the employee's work and an understanding of the impact on the family
4. Mention EAP availability.
5. Ask for the info.
6. Close by asking the family member if he/she has any questions and concerns.
7. Although not stated in the script, provide a call back number.

Please review/comment/disseminate as appropriate. Let me know if there is anything more I need to do on this.

NELSON

4143

Good morning/afternoon/evening. My name is XXX. I'm calling from the U.S. Nuclear Regulatory Commission. Have I reached the home of [INSERT EMPLOYEE'S NAME]? If so, to whom am I speaking?

Please be assured that this not an emergency. I'm calling because [INSERT EMPLOYEE'S NAME] is working in Japan in support of the NRC's assistance to Japan in responding to the earthquake and resulting tsunami. We are very grateful for his/her support and the impact his/her absence may have on your family. In his/her absence, we want you to be aware of our Employee Assistance Program and its availability to you in the event you may want to use its services. An EAP consultant is available to you 24/7 at 1-800-869-0276. You may also visit NRC's EAP website at www.eapconsultants.com to learn more about the many services provided by our EAP; go to member access and click on EAP Employee Orientation: Your passcode is "nuclear". Do you have any questions?

In addition, we need some additional information concerning [NAME] and because of the time delay we are calling you directly. Again this is not an emergency.

Explain the nature of the info request.

Are there any questions that you have concerning his/her assignment.

MR
From: McGinty, Tim
To: Bowman, Eric; Thomas, Eric; Correia, Richard; Mathew, Roy
Cc: Rosenberg, Stacey; Hiland, Patrick; Westreich, Barry; Boger, Bruce; Leeds, Eric; Quay, Theodore; Blount, Tom; Skeen, David
Subject: RE: ACTION REQUESTED: Japanese Earthquake-related Information Notice
Date: Thursday, March 17, 2011 12:41:45 PM
Attachments: IN 11-xx B5b Earthquake.docx

My apologies. We have now been tasked to issue the IN tomorrow. Need your comments and concurrence by mid-afternoon today, COB at the latest. Tim

REL
MR
From: Bowman, Eric
Sent: Thursday, March 17, 2011 11:37 AM
To: Thomas, Eric; Correia, Richard; Mathew, Roy
Cc: Rosenberg, Stacey; McGinty, Tim; Hiland, Patrick; Westreich, Barry
Subject: ACTION REQUESTED: Japanese Earthquake-related Information Notice
Importance: High

All,

We plan to issue the attached Information Notice early next week on the implications of the recent Japanese Earthquake. In support of that effort, your comments and Divisional concurrence are requested by tomorrow afternoon.

Very many thanks in advance for your efforts.

V/R; R/ Eric

Eric E. Bowman
Sr. Project Manager
Generic Communications & Power Uprate Branch
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
301-415-2963
Eric.Bowman@nrc.gov

4/144

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
WASHINGTON, D.C. 20555-0001

NRC INFORMATION NOTICE 2011-##: TOHOKU-TAIHEIYOU-OKI EARTHQUAKE EFFECTS
ON JAPANESE NUCLEAR POWER PLANTS

ADDRESSEES

All holders of operating licenses for nuclear power reactors, except those who have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel.

PURPOSE

The U.S. Nuclear Regulatory Commission (NRC) is issuing this information notice (IN) to inform addressees of effects of the Tohoku-Taiheiyou-Okai Earthquake on nuclear power plants in Japan.. The NRC expects that recipients will review the information for applicability to their facilities and consider actions, as appropriate, to avoid similar problems. Suggestions contained in this IN are not NRC requirements; therefore, no specific action or written response is required.

DESCRIPTION OF CIRCUMSTANCES

On March 11, 2011, the Tohoku-Taiheiyou-Okai Earthquake occurred near the east coast of Honshu, Japan. This magnitude 9.0 earthquake and the subsequent tsunami caused significant damage to the six units of the Fukushima Daiichi nuclear power station, including damage to the cooling water systems, a sustained loss of off-site power, and a loss of spent fuel pooling cooling. Efforts to restore power to emergency equipment have been impacted by damage to the surrounding areas due to the tsunami and earthquake.

Tokyo Electric Power Company (TEPCO), the operator of the plant, resorted to injecting sea water and boric acid into the reactor vessels Units One through Three, which had been operating at the time of the earthquake and subsequently scrammed, in an effort to cool the fuel and ensure they remained shutdown. Hydrogen explosions from overheated fuel-water reaction damaged the secondary containment, apparently leaving the primary containment functional in all three units. In addition, all three units suffered from decreasing spent fuel pool levels.

Units Four through Six had been shutdown for refueling outages at the time of the earthquake, with the core for Unit Four offloaded to the spent fuel pool, which suffered a total loss of water

MLXXXXXX

along with an inability to retain water. The spent fuel pools for Units Five and Six appeared intact, but heating up.

The areas surrounding Fukushima Daiichi were evacuated under the instructions of the Government of Japan.

The damage to Fukushima Daiichi nuclear power station appears to have been caused by initiating events outside of the design basis for the facilities.

BACKGROUND

Appendix A to 10 CFR Part 50, General design criteria (GDC) 2, "Design Bases for Protection against Natural Phenomena," or, as appropriate, similar requirements in the licensing basis for a reactor facility requires that structures, systems, and components (SSCs) important to safety be designed to withstand the effects of natural phenomena such as earthquakes, tornadoes, hurricanes, floods, tsunami, and seiches without loss of capability to perform their safety functions. The design bases for these SSCs reflects: (1) Appropriate consideration of the most severe of the natural phenomena that have been historically reported for the site and surrounding area, with sufficient margin for the limited accuracy, quantity, and period of time in which the historical data have been accumulated, (2) appropriate combinations of the effects of normal and accident conditions with the effects of the natural phenomena and (3) the importance of the safety functions to be performed.

As a result of the events of September 11, 2001, the NRC issued EA-02-026, "Order for Interim Safeguards and Security Compensatory Measures" (the ICM Order) dated February 25, 2002, (designated safeguards information (SGI)), which modified then-operating licenses for commercial power reactor facilities to require compliance with specified interim safeguards and security compensatory measures. Section B.5.b of the ICM Order requires licensees to adopt mitigation strategies using readily available resources to maintain or restore core cooling, containment, and SFP cooling capabilities to cope with the loss of large areas of the facility due to large fires and explosions from any cause, including beyond-design-basis aircraft impacts. By letter dated February 25, 2005 the NRC staff provided guidance for implementing Section B.5.b of the ICM Order. This guidance is designated Safeguards Information (SGI) and is commonly referred to as the B.5.b Phase 1 Guidance.

Following issuance of the B.5.b Phase 1 Guidance, the NRC staff conducted inspections at operating reactor sites using Temporary Instruction (TI) 2515/164 (SGI) to gather information on actions taken in response to the February 25, 2005 guidance. The NRC staff then convened assessment panels to evaluate the adequacy of licensee actions taken to date. These assessment panels developed acceptance criteria to determine the adequacy of licensee responses to each of the 34 expectations identified in Attachment B to the B.5.b Phase 1 Guidance. On January 18 and 26, 2006, the NRC staff met with industry representatives and provided further clarifying information, including staff acceptance criteria on how licensees could meet Section B.5.b of the ICM Order. The NRC clarifying information for acceptance of each expectation was disseminated in Section 05.02.c and 05.02.d of TI 2515/168 (SGI). This clarifying information represents acceptable methods, along with staff acceptance criteria, for

satisfying the expectations. The staff used this clarifying information in developing its safety evaluation and inspection of current reactor licensee's compliance with Section B.5.b of the ICM Order.

In December 2006, NEI issued NEI 06-12, Revision 2, "B.5.b Phase 2 & 3 Submittal Guideline." NEI 06-12 is designated for Official Use Only – Security Related Information (OUO-SRI). The NRC endorsed NEI 06-12, Revision 2, by letter dated December 22, 2006, also designated OUO-SRI, as an acceptable means for developing and implementing the mitigation strategies requirement in Section B.5.b of the ICM Order. NEI 06-12, Revision 2 provides guidance for implementing a set of strategies intended to maintain or restore core cooling, containment, and SFP cooling capabilities under the circumstances associated with the loss of a large area of the plant due to explosions or fire, in the following areas:

- Adding make-up water to the SFP
- Spraying water on the spent fuel
- Enhanced initial command and control activities for challenges to core cooling and containment
- Enhanced response strategies for challenges to core cooling and containment

The specific strategies covered in NEI 06-12, Revision 2 were developed based on the results of assessments conducted at currently licensed power reactor facilities for the purpose of enhancing plant specific mitigation capability for damage conditions caused by a large explosion or fire. These assessments identified a wide spectrum of potential plant specific strategies. NEI 06-12, Revision 2 specifies one set of strategies applicable to all pressurized-water reactors (PWR) and another set applicable to all boiling-water reactors (BWR). Both sets are derived from the results of the plant specific assessments.

The B.5.b Phase 1 Guidance and NEI 06-12, Revision 2 were used by each licensee in preparing information submitted to the NRC that describes a plant specific approach to implementing mitigating strategies and supports each plant specific license condition. The NRC staff has completed its review of the information submitted by each licensee, as well as information obtained during prior NRC inspections, and has issued an OUO-SRI safety evaluation (SE) that documents the bases for its approval of the license condition for each facility. The SE issued for each licensee includes regulatory guidance in Section 3.0 of Appendix A, "Phase 1 Assessment," that recites the generic B.5.b Phase 1 Guidance of Reference 3, as clarified in TI 2515/168, in a form that is designated OUO-SRI rather than SGI.

On March 27, 2009, the NRC amended 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," and Part 73, "Physical Protection of Plants and Materials," with new requirements published in the *Federal Register* dated March 27, 2009 (74 FR 13926). This rulemaking added paragraph (i) to 10 CFR 50.34, "Contents of applications; technical information," to require submittal of a "description and plans for implementation of the guidance and strategies intended to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities under the circumstances associated with the loss of large areas of the plant due to explosions or fire as required by § 50.54(hh)(2) of this chapter." This rulemaking also added 10 CFR 50.54(hh)(2)

in order to impose the same mitigating strategies requirements on new reactor applicants and licensees as those imposed by the ICM Order and associated license conditions. The Statement of Considerations for this rulemaking specifically noted that the requirements described in Section 50.54(hh) are for addressing certain events that are the cause of large fires and explosions that affect a substantial portion of the nuclear power plant and are not limited or directly linked to an aircraft impact. In addition, the rule contemplates that the initiating event for such large fires and explosions could be any number of beyond-design basis events, including natural phenomena such as those described in GDC 2 (i.e., earthquakes, tornadoes, floods, tsunami, and seiches), without regard to the GDC 2 limitation in magnitude of the design bases for the natural phenomena.

NRC regulations at 10 CFR 50.63 require that light-water-cooled nuclear power plants be capable of withstanding for a specified duration and recovering from a station blackout (SBO).

DISCUSSION

As discussed in the Nuclear Energy Institute (NEI) Fact Sheet, "Industry Taking Action to Ensure Continued Safety at U.S. Nuclear Energy Plants," dated March 16, 2011, available at www.nei.org, the follow actions are underway at each licensed nuclear power reactor site:

1. Verification of the capability to mitigate conditions that result from sever adverse events, including the loss of significant operational and safety systems due to natural events, fires, aircraft impact and explosions.
2. Verification of the capability to mitigate a total loss of electric power to a nuclear power plant.
3. Verification of the capability to mitigate flooding and the impact of floods on systems inside and outside the plant.
4. Identification of the potential for loss of equipment's functions during seismic events appropriate for the site and development of mitigating strategies of potential vulnerabilities.

Assessment of the implications of beyond design-basis natural phenomena, including earthquakes, is continuing as more information becomes available. In the near term, the NRC will issue additional generic communications and take additional action that requests operating plants to provide specific information relating to their facilities to enable the NRC staff to complete the Regulatory Assessment. The NRC staff is currently developing a Temporary Instruction (TI) in order to perform independent assessment of nuclear power plant readiness to address beyond design-basis natural phenomena under the Reactor Oversight Process.

PAPERWORK REDUCTION ACT STATEMENT

This Information Notice does not contain any information collections and, therefore, is not subject to the requirements of the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.).

Public Protection Notification

The NRC may not conduct or sponsor, and a person is not required to respond to, a request for information or an information collection requirement unless the requesting document displays a currently valid OMB control number.

CONTACTS

This information notice requires no specific action or written response. Please direct any questions about this matter to the technical contact(s) listed below or the appropriate Office of Nuclear Reactor Regulation (NRR) project manager.

Timothy J. McGinty, Director
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

Technical Contact: Eric E. Bowman, NRR
301-415-2963
e-mail: Eric.Bowman@nrc.gov

Note: NRC generic communications may be found on the NRC public Web site, <http://www.nrc.gov>, under Electronic Reading Room/Document Collections.

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Timothy J. McGinty, Director
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

Technical Contact: Eric E. Bowman, NRR
301-415-2963
e-mail: Eric.Bowman@nrc.gov

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OGC

ADAMS Accession Number: MLXXXXXXXX

OFFICE	NRR/DPR/PGCB	TECH EDITOR	NRR/DIRS D	NRR/DE D
NAME	EBowman			
DATE	03/17/11	X/XX/11 email		
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NAME			SRosenberg	TMcGinty
DATE				

OFFICIAL RECORD COPY

NRR

From: Leeds, Eric
To: Williamson, Edward
Cc: Meighan, Sean; Craver, Patti; Grobe, Jack; Boger, Bruce
Subject: FOIA Request
Date: Thursday, March 17, 2011 3:30:07 PM

Ed –

NRR has received a FOIA request from the AP requesting all emails and internal communications with regard to the Japanese event. This will take each staff members hours for response, at a time where we are already stretched thin to support the OP Center, Japan, etc, etc.

REL
Any advice on how to proceed. Is there an OGC POC we can work with on this? Our POC is Sean Meighan.

As always, thanks for your help!

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

4/14/11

From: [NRC Announcement](#)
To: [NRC Announcement](#)
Subject: Employee Resources: When Times Get Tough, Remember Your EAP
Date: Thursday, March 17, 2011 10:13:35 AM

NRC Daily Announcements



Highlighted Information and Messages



Thursday March 17, 2011 -- Headquarters Edition

Employee Resources: When Times Get Tough, Remember Your EAP

Employee Resources: When Times Get Tough, Remember Your EAP

REL
NRC's Employee Assistance Program (EAP) supports employees and family members during these difficult times when NRC is responding to the tragic events in Japan. Free and confidential services are available include counseling, critical incident stress management (CISM), and more. CISM helps individuals and work groups return more readily to full productivity after traumatic events such as the recent catastrophe in Japan.

An EAP consultant is available to you 24/7 at 1-800-869-0276. You may also visit our contractor's [Website](#) to learn more about the services provided by your EAP; go to member access and click on EAP Employee Orientation: Your passcode is "nuclear".



(2011-03-17 00:00:00.0)

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4/14/6

From: Nuclear Plant Journal
To: Boger, Bruce
Subject: NPJ March 18, 2011 Japan Update
Date: Friday, March 18, 2011 2:51:52 PM

naa

REC

Having trouble viewing this email? [Click here](#)



Nuclear Plant Journal E-News

Japan Update
March 18, 2011

Dear BRUCE,

In this issue of NPJ E-News you'll find an update of the Fukushima Nuclear Plants in Japan. Information is current as of March 18, 2011, 13:00 CDT. All items are directly quoted, without any editing.

In this issue

Chief Cabinet Secretary

TEPCO

JAIF

Chief Cabinet Secretary's Update

Operation for filling the spent fuel pool with water at Unit-3 was conducted yesterday. It seems that water reached the pool. However, how much is unknown. Same operation will be conducted today.

- Operation for filling the spent fuel pool with water from the ground will be conducted at unit-1 also, if it doesn't affect the operation for unit-3.
- Operation for installing cables and distribution system to the power plant to provide AC power from the grid is going on.
- [Click for more...](#)

Status Updates of TEPCO Facilities

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

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

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

4/147

[Click for more...](#)

JAIF Status Update

A [single-page PDF document](#) provides a simple summary of each of the units at Fukushima nuclear power plants.



Quick Links...

[NPJ Website](#)

[Cost-free Subscription](#)

Contact Information

phone: 630-313-6739

email: NPJ@goinfo.com

Forward email to an associate.



This email was sent to bruce.boger@nrc.gov by anu@goinfo.com | [Update Profile/Email Address](#) | Instant removal with [SafeUnsubscribe™](#) | [Privacy Policy](#).

Nuclear Plant Journal | 1400 Opus Place, Suite 904 | Downers Grove | IL | 60515

REL

From: Gratton, Christopher , *NRA*
To: Anderson, James
Cc: Leeds, Eric; Howe, Allen; Gitter, Joseph; Boska, John; Boger, Bruce; Meighan, Sean
Subject: Slides for Commission Briefing on 3/21
Date: Friday, March 18, 2011 5:03:33 PM
Attachments: Staff Slides for March 21 Meeting (Japanese Event).pptx

Please remember to strip the talking points before send to Commission or SECY.

CG

2/148



Briefing on NRC Response to Recent Nuclear Events in Japan

Bill Borchardt

Executive Director for Operations

March 21, 2011

Agenda

- **Event Overview**
- **Immediate NRC Response**
- **Continuing NRC Response**
- **International Perspectives**
- **Domestic Reactor Safety**
- **NRC Activities**
- **Focus on Safety**

Event Overview

- **Discussion of initiating event**
- **Current status of reactors**
- **Current status of spent fuel pools**
- **Radiological consequences**

Immediate NRC Response

- **Activated Operations Center**
- **Dispatched NRC experts to Japan**
- **Areas of focus**
- **Extensive outreach to stakeholders**

Continuing NRC Response

- **Operations Center**
- **Support U.S. response**
- **Provide assistance**
- **Mobilize resources**

International Perspectives

- **Long-Standing Relationship**
- **Global Regulatory Response**

Domestic Reactor Safety

- **NRC oversight of U.S. plant safety**
- **Continuous improvement based on operating experience**

NRC Activities – Near Term

- **Inspection Activities**
- **Generic Communications**
- **Other regulatory actions**

NRC Activities – Longer Term

- **Lessons learned and recommendations**
- **Other regulatory actions**

Focus on Safety

From: Buchholz, Jeri , OHR
To: Boger, Bruce
Cc: Tracy, Glenn; Leeds, Eric; Nelson, Robert; Wert, Leonard; Lew, David; Miller, Mark; Cohen, Miriam
Subject: FW: Japan Situation
Date: Friday, March 18, 2011 10:09:49 AM

Bruce:

Glenn asked me to reply on his behalf.

REL
I have been in regular contact with Chuck Casto regarding support to the team in Japan and he assures me that everyone on the team is able to stay in contact with their families and appreciates the support that they have been receiving.

Yesterday, our EAP counselor, Sarah Linnerooth worked with Robert Nelson to develop a script for the NRC to use when contacting family members so as not to cause unnecessary alarm. Communications with family member requires a great deal of sensitivity. I would encourage you to use the EAP, specifically Sarah, for this purpose whenever possible.

Let me know if you have additional concerns or questions.

Jeri L. Buchholz

Associate Director for Human Resources
Policy and Operations
Office of Human Resources

From: Boger, Bruce , NRC
Sent: Thursday, March 17, 2011 8:31 AM
To: Tracy, Glenn
Cc: Leeds, Eric; Nelson, Robert; Wert, Leonard; Lew, David; Miller, Mark; Cohen, Miriam
Subject: Japan Situation

Glenn, Relative to the NRC folks in Japan, have folks been considering how to interact with their families to share information on what's going on in Japan? Perhaps the travelers have been able to achieve regular phone contact, but now with a voluntary evacuation a greater concern at home may exist. Your thoughts? Bruce

Zorn, Jason

From: Zorn, Jason
Sent: Friday, March 18, 2011 5:19 PM
To: Ostendorff, William; Kock, Andrea; Herr, Linda
Subject: RE: 2011-03-18- Briefing on NRC Response to Nuclear Events in Japan-WCO-opening.doc.docx

Sir – No comments. Looks good to me. -- Jason

From: Ostendorff, William
Sent: Friday, March 18, 2011 5:13 PM
To: Zorn, Jason; Kock, Andrea; Herr, Linda
Subject: 2011-03-18- Briefing on NRC Response to Nuclear Events in Japan-WCO-opening.doc.docx

Herr, Linda

From: Herr, Linda
Sent: Friday, March 18, 2011 4:10 PM
To: Bozin, Sunny; Franovich, Mike; Herr, Linda; Kock, Andrea; Nieh, Ho; Warnick, Greg; Zorn, Jason
Cc: Ostendorff, William
Subject: 3-18-2011 NY Times Article by Arthur Sulzberger, "Early Questions After Japan"
Attachments: 3-18-11 NY Times Early Questions After Japan.pdf

Pls find attached an article Cmr. Ostendorff wanted to share with his staff.

Linda



Please consider the environment before printing this e-mail.

The New York Times

ARTHUR OCHS SULZBERGER JR., Publisher

Early Questions After Japan

As Japan's nuclear crisis unfolds, nations around the world are looking at the safety of their nuclear reactors — as they should. But most are also waiting until all the facts are in before deciding whether or how to change their nuclear plans. The Obama administration has vowed to learn from the Japanese experience and incorporate new safety approaches if needed.

That makes sense to us — so long as there is rigorous follow-through. The operator of the stricken plant, the Tokyo Electric Power Company, and the Japanese government have been disturbingly opaque about what is happening at the Fukushima Daiichi complex and about efforts to prevent a meltdown and the potential public threat.

That has deepened anxieties in Japan and around the world and led the United States government to take the extraordinary step of announcing that the damage to at least one of the crippled reactors may be far worse than Tokyo had admitted — and urging Americans there to move further away from the official safety perimeter.

Still, enough is known to begin raising questions about our own nuclear operations. We hope regulators and industry leaders are equally forthcoming about this country's vulnerabilities and challenges.

One of the first questions is whether current evacuation plans are robust enough. The Nuclear Regulatory Commission requires plant operators to alert the public within a 10-mile radius if a dangerous plume of radioactivity will be heading their way, and local officials decide whether to order an evacuation. The American Embassy in Japan, based on advice from Washington regulators, has told Americans there to evacuate to a radius of about 50 miles from the Fukushima plant.

Why wouldn't a worst-case accident here merit the same caution? The difficulty, of course, is that some plants — including Indian Point north of New York City — are within 50 miles of millions of people. Regulators will need to clarify this discrepancy or start coming up

with more ambitious evacuation plans.

Regulators need to immediately review their safety analyses of two California plants, which, like the Fukushima plant, are located on the coast and near geological faults and might theoretically face the double calamity of an earthquake and tsunami.

The type of reactors used at the Fukushima plant — made by the General Electric Company, they are known as Mark 1 boiling-water reactors — have long been known to have weak containment systems. In Japan, they appear to have been ruptured by explosions of escaping hydrogen. American regulators will need to determine whether similar reactors in this country are vulnerable and whether modifications in newer versions have made them sufficiently safe.

The stricken Japanese complex housed six reactors in close proximity; explosions, fires and radiation spread damage among four of them and has made rescue efforts harder. Regulators will need to look at whether American nuclear plants with multiple reactors are vulnerable to the same cascading effects. In recent days, a new danger has emerged in the spent fuel pools adjacent to the reactors. At least one has apparently lost its cooling water and another is cracked and possibly losing water. If the fuel catches fire, it could spew radiation over a large area. Regulators here may need to expedite the removal of some spent fuel from pools to dry storage in casks.

So far, the all-important lesson would seem to be: have sufficient emergency power at hand to keep cooling water circulating in the reactors to prevent a meltdown.

The Japanese reactors seem to have survived one of the most powerful earthquakes ever recorded without major structural damage. The crisis developed because the plant lost electrical power from the grid and the tsunami knocked out its backup diesel generators. American regulators must ensure that all nuclear plants have enough mobile generators or other backup power in place if their first two lines of defense are disabled.

The U.C.L.A. Video

Ms. Wallace is the student at the University of California, Los Angeles, who made the video.

The video doesn't justify the basis on which U.C.L.A. is considering punishing her; that her words amount to a

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For mor Thank y

Learnin

To the Editor:
Re "U.S. Sees I tion Level at Pla Fuel's Impact"

From: [NRC Announcement](#)
To: [NRC Announcement](#)
Subject: Event: NRC Viewing of the Commission Meeting on the Japan Event
Date: Friday, March 18, 2011 3:49:30 PM

NRC Daily Announcements



Highlighted Information and Messages



Friday March 18, 2011 -- Headquarters Edition

Event: NRC Viewing of the Commission Meeting on the Japan Event

Event: NRC Viewing of the Commission Meeting on the Japan Event

On Monday, March 21, 2011, the NRC will hold a Commission Meeting to address the ongoing nuclear events at the Fukushima Nuclear Reactor site in Japan. The meeting is scheduled to convene at 9 a.m. in the One White Flint North (OWFN) Commission Hearing Room. Interested staff is encouraged to view the proceedings at one of the following locations:

- Two White Flint North (TWFN) auditorium
- TWFN exhibit area
- Cable Channel 46 and 47 throughout the White Flint North Complex
- TWFN Building O-2 B5
- OWFN Building - O-3 B4
- Executive Boulevard Building - 1B15
- Twinbrook Building - 5E01
- Church Street Building - 2C19
- Gateway Building - 04B2
- Region I*
- Region II*
- Region III*
- Region IV*
- Technical Training Center*

*Regional and TTC staff will be notified of the VTC viewing location by their VTC coordinator.

For more information about event viewing locations, contact Jason Wright at 415-5446 or Christine Kundrat at 415-6130.



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From: [NRC Announcement](#)
To: [NRC Announcement](#)
Subject: Daily: 9 New Items from Friday, March 18, 2011
Date: Friday, March 18, 2011 10:02:51 PM

NRC Daily Announcements

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Friday March 18, 2011 -- Headquarters Edition

[Event: RES Seminar: 25th Anniversary of Chernobyl - April 26, 2011](#)

[Event: RES Seminar on Seismic Research Postponed](#)

[General Interest: Latest Edition of FSME Quarterly Newsletter is Now Online](#)

[Event: NRC Viewing of the Commission Meeting on the Japan Event](#)

[General Interest: Security/Safety Reminder - Personal Evacuation Kits](#)

[Employee News: 2011 International Conference for Law Enforcement Agencies at the North Bethesda Marriott](#)

[Staff Changes: Reorganization in the Office of Administration](#)

[Event: Earth Day Celebration, Wednesday, April 20, 2011.](#)

[Employee News: Retirements and Farewells](#)

Event: RES Seminar: 25th Anniversary of Chernobyl - April 26, 2011

A RES Seminar on the 25th Anniversary of Chernobyl will be held in the TWFN auditorium on Tuesday, April 26, 2011, from 9:30 to 11:30 a.m. A summary of the RBMK reactor type, the accident, radiological impacts, and sarcophagus will be given by Brian Sheron, Director of the Office of Nuclear Regulatory Research, and Frank Congel (retired NRC employee), Former Director, Division of Incident Response Operations, NSIR and Former Director, OE.

This agenda gives the order of presentations and speakers:

Introduction – Mike Weber, Deputy Executive Director for Materials, Waste, Research, State, Tribal and Compliance Programs
RBMK Reactor Type – Brian Sheron
Summary of Chernobyl Accident – Brian Sheron
Radiological Impact – Frank Congel
Sarcophagus – Frank Congel

Details about VTCs will be provided when available.



(2011-03-18 00:00:00.0)

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2/150

Event: RES Seminar on Seismic Research Postponed

The upcoming RES Seminar scheduled for March 22, 2011, on Seismic Research at Lawrence Berkley National Laboratory is postponed. Key NRC staff involved with the seminar are currently heavily involved with the activities at the Incident Response Center. The RES intranet page will be updated and an announcement sent when the seminar is re-scheduled.



(2011-03-18 00:00:00.0)

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General Interest: Latest Edition of FSME Quarterly Newsletter is Now Online

The latest edition of the Office of Federal and State Materials and Environmental Management Programs (FSME) [Quarterly Newsletter](#) is now available. The Newsletter covers a variety of FSME activities and is one of the tools the Office uses to communicate with its stakeholders. For more information, or if you have comments about the content of the Newsletter, please contact Vanessa Cox, 301-415-8342.



(2011-03-18 00:00:00.0)

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Event: NRC Viewing of the Commission Meeting on the Japan Event

On Monday, March 21, 2011, the NRC will hold a Commission Meeting to address the ongoing nuclear events at the Fukushima Nuclear Reactor site in Japan. The meeting is scheduled to convene at 9 a.m. in the One White Flint North (OWFN) Commission Hearing Room. Interested staff is encouraged to view the proceedings at one of the following locations:

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- Church Street Building - 2C19
- Gateway Building - 04B2
- Region I*
- Region II*
- Region III*
- Region IV*
- Technical Training Center*

*Regional and TTC staff will be notified of the VTC viewing location by their VTC coordinator.

For more information about event viewing locations, contact Jason Wright at 415-

5446 or Christine Kundrat at 415-6130.



(2011-03-18 00:00:00.0)

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General Interest: Security/Safety Reminder - Personal Evacuation Kits

Yellow Announcement No. 035, "Security/Safety Reminder - Personal Evacuation Kits," is now available on the [internal Web site](#) under Yellow Announcements.

This announcement can also be found in the ADAMS 2011 Yellow Announcements folder in the Main Library of the ADAMS Document Manager. In the folder, Yellow Announcements are arranged in report number order.

If you have difficulty accessing a Web link in this announcement, contact the [NRC Announcement Coordinator](#), Beverly Martin, ADM/DAS, 301-492-3674.



(2011-03-18 00:00:00.0)

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Employee News: 2011 International Conference for Law Enforcement Agencies at the North Bethesda Marriott

The Commission on Accreditation for Law Enforcement Agencies will hold its 2011 International Conference at the North Bethesda Marriott from Tuesday, March 22, 2011, through Saturday, March 26, 2011. More than 1,000 law enforcement officers from around the world are expected to attend. Employees are advised that due to the nature of this conference, the surrounding area will experience a significant increase in law enforcement presence.

Please contact [Gary Simpler](#), Office of Administration, at (301) 415-7402 if you have any questions.



(2011-03-18 00:00:00.0)

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Staff Changes: Reorganization in the Office of Administration

Yellow Announcement No. 034, "Reorganization in the Office of Administration," is now available on the [internal Web site](#) under Yellow Announcements.

This announcement can also be found in the ADAMS 2011 Yellow Announcements folder in the Main Library of the ADAMS Document Manager. In the folder, Yellow Announcements are arranged in report number order.

If you have difficulty accessing a Web link in this announcement, contact the [NRC](#)

Announcement Coordinator, Beverly Martin, ADM/DAS, 301-492-3674.



(2011-03-18 00:00:00.0)

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Event: Earth Day Celebration, Wednesday, April 20, 2011.

The NRC will observe Earth Day on Wednesday, April 20, 2011. The environmental community of individuals, corporations, and governments will join together to mark the 1st Anniversary Earth Day Celebration. Earth Day 2011 will call attention to the progress that has been made as well as the work yet to be completed.

The first Earth Day celebration took place in 1970 as a spectacular grassroots movement of citizen leadership. Earth Day inspires us to save the land we love, to realize that global problems do have local solutions, and to make the preservation of the earth a personal commitment. Come celebrate Earth Day by participating in activities and learning more about the actions we can take to recycle, reduce waste, save energy, and protect our environment.

Earth Day will be held in the Two White Flint North exhibit area from 11:30 a.m. to 1:00 p.m. The planned activities are listed below.

Welcome to the Earth Day Resource Center. View special sculptures by the Georgetown Hill Schoolchildren illustrating how everyday products can be used more than once to reduce waste.

Composting Demonstration. Montgomery County composting experts will be on hand to demonstrate how to setup and compost at home. Learn about this fascinating process that reduces landfill waste while producing soil conditioner that helps plants flourish. The county does not sell compost bins or purchase them for county businesses but will have a few on hand to give away.

Geranium Sale. The Employee Welfare and Recreation Association (EWRA) Website will have plants for sale. You can find more details and [an order form](#) on the [EWRA Home Page](#) .

Flower and Gardening Tips. Representatives from the Maryland Master Gardeners will provide information on flowers and gardening. Get information on soil testing services, learn what plants flourish with minimal watering, and get answers to your personal gardening questions.

Commuting Services. Visit with transportation representatives from NRC and the North Bethesda Transportation Center to better understand commuting options in the local area.

Recycling and Waste Prevention. See NRC's recycling program exhibit and talk to Montgomery County representatives about recycling at home. View samples of the types of batteries that can be recycled at NRC.

Energy Saving. Visit a special display to learn how to save energy. NRC facilities staff and representatives from Montgomery County will provide information on how

you can save energy at work and at home. Also, learn more about how to report energy and water waste at NRC by using the "Fixit" system.



(2011-03-18 00:00:00.0)

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Employee News: Retirements and Farewells

Headquarters and Regional employees who are leaving the agency:

Retirements:

Brenda Ross, OIS (retiring on March 31, event on March 30)
Michael D. Tschiltz, NMSS (retiring on April 2, event on March 29)
Marie T. Miller, Region I (retiring on April 3, event on March 29)
Ted Quay, NRR (retiring in April, event on March 31)
Rex Wescott, NMSS (retiring on March 31, event on March 24)

For details, access the [Retirements and Farewells Web page](#).



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From: Platts Energy Week TV
To: Boger, Bruce
Subject: Japan's Tragedy Prompts New Look at Nuclear Energy
Date: Friday, March 18, 2011 4:36:36 PM

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REL



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www.PlattsEnergyWeekTV.com

Sunday's show [video](#) available online at 9am Eastern Time



[Click here](#) to see pictures from the Platts Energy Week Launch Reception at the Petroleum Club of Houston.

What's Happening on March 20th

[Streaming video](#) available at 9 a.m Eastern Time.

Japan's Tragedy Prompts New Look at Nuclear Energy



With the disaster in Japan, nuclear energy is coming under close scrutiny again as a safe and reliable power source for the U.S. Even pro-nuclear lawmakers are raising questions with the Nuclear Regulatory Commission and the

Department of Energy. Among them is **Representative Ed Whitfield, chairman of the House Energy and Power Subcommittee**, who tells Bill what Washington should do — and not do — when it comes to nuclear energy.

Could Another Nuclear Disaster Hit the U.S.?

How does nuclear technology and regulation in Japan and the U.S. compare? And is the U.S., 32 years after the Three Mile Island accident, any different when it comes to the potential for

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M/151-

another nuclear meltdown? The **director of Idaho National Laboratory and former nuclear submarine commander, John Grossenbacher**, gives Bill his insight.

Whither the Nuclear Renaissance?

With applications pending for 20 new reactors in the U.S., and more on the drawing board, the nuclear power industry has been anticipating a renewal. But will financing become more difficult in light of the nuclear catastrophe in Japan? **Dmitri Nikas, with Standard & Poor's utilities and infrastructure unit, and Benjamin Salisbury, with FBR Capital Markets**, offer Bill some answers.



bill@plattsenergyweektv.com

Fallout for Other Energy Commodities

Vandana Hari, Platts senior editorial director for Asia, discusses with Bill how Japan is making up for losses in nuclear power, and what it means for markets in liquefied natural gas, coal and oil.

Upcoming complimentary webinars

[Click here to register](#)

Trading LNG in a Changing Global Market

Tuesday, March 22, 2011 • 1 - 2 pm ET - [SPONSOR This Event](#)

Option Trading's Irresistible Modernization:

A Look At Energy and Precious Metals

Wednesday, March 23, 2011 • 3:30 - 4:30 pm ET

March 13th Show Now Online

Streaming Video at: www.PlattsEnergyWeekTV.com

Unrest in Libya — Is Risk of Oil Supply Disruption Enough to Get Uncle Sam Tapping?

What does it take to prompt the United States government to tap into its stockpile of "safety net" oil – the Strategic Petroleum Reserve – to increase supply and help temper prices at the pump for the consumer? Bill Loveless will speak with **Platts global director of news, John Kingston**, a long-time oil veteran, about the full factors behind the price spike and whether the U.S. should be tapping its SPR. [Watch Now](#)

Macondo Oil Spill One Year Later—Could We Contain Another Spill?

Despite lessons learned last year, there are only a couple of remedies for containing another offshore deep-water oil rig blowout. Hear from **Helix Energy's CEO, Owen Kratz**, about his company's solution to any future disasters in the U.S. Gulf

About Platts Energy Week

"Platts Energy Week" is part of the W*USA TV's Sunday Power Block lineup of respected news and information programming, including *CBS Sunday Morning, Face the Nation, This Week In Defense News, and The McLaughlin Group*. The 30-minute program airs on Sundays at 6:30 a.m. Central time on channel 11.1 (available on Comcast on channel 611) and on Mondays at 7:30 p.m. via channel 11.2 (Comcast channel 310). KHOU programming is also available via channel 11 on DIRECTV and DISH Network.

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About Platts

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of Mexico. [Watch Now](#)

What Does the Island State of Hawaii Know About Clean Energy That You Don't?

Hawaii is one of the few U.S. states that "lives" its dependence on oil, with crude providing nine-tenths of the state's energy consumption and three-quarters of its electricity generation.

CEO of Hawaiian Electric Connie Lau shares the secrets of success and her company's scorecard since reaching an agreement in 2008 to provide 70% of the state's energy needs from clean energy sources by 2030. [Watch Now](#)



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From: Quay, Theodore | *NA*
To: McGinty, Tim; Boger, Bruce
Subject: IN on Japanese Earthquake Impact on Nuclear Plants
Date: Friday, March 18, 2011 7:16:53 AM
Attachments: IN 11-xx B5b Earthquake.docx

REL

Early this morning Tom Blount called to tell me that the Executive Team at the Operation Center wanted changes in the IN. I talked to Scott Morris and some to Roy Zimmerman. They were questioning whether the IN appropriately reflected the INPO document. WE told Roy that we thought that we did appropriately reflect the content of the INPO document. Roy indicated that if Marty was O.K. with what we had he was O.K. with it. When we talked to Marty, he was O.K. with the INPO like discussion in the IN but he wanted to reflect the President's commitment to "do a comprehensive review" and let the industry know that NRC will be following up on the President's commitment. Eric Bowman has already added to the last paragraph of the IN to accomplish this objective.

4/15/2

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
WASHINGTON, D.C. 20555-0001

NRC INFORMATION NOTICE 2011-05: TOHOKU-TAIHEIYOU-OKI EARTHQUAKE
EFFECTS ON JAPANESE NUCLEAR POWER
PLANTS

ADDRESSEES

All holders of or applicants for operating licenses for nuclear power reactors under the provision of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," except those who have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel.

All holders of or applicants for a standard design certification, standard design approval, manufacturing license or combined license issued under 10 CFR Part 52, "Licenses, Certifications and Approvals for Nuclear Power Plants."

PURPOSE

The U.S. Nuclear Regulatory Commission (NRC) is issuing this information notice (IN) to inform addressees of effects of the Tohoku-Taiheiyou-Oki Earthquake on nuclear power plants in Japan. The NRC expects that recipients will review the information for applicability to their facilities and consider actions, as appropriate, to avoid similar problems. Suggestions contained in this IN are not NRC requirements; therefore, no specific action or written response is required.

DESCRIPTION OF CIRCUMSTANCES

On March 11, 2011, the Tohoku-Taiheiyou-Oki Earthquake occurred near the east coast of Honshu, Japan. This magnitude 9.0 earthquake and the subsequent tsunami caused significant damage to at least four of the six units of the Fukushima Daiichi nuclear power station, including damage to the cooling water systems, a sustained loss of both the off-site and on-site power systems, and a loss of spent fuel pooling (SFP) cooling. Efforts to restore power to emergency equipment have been impacted by damage to the surrounding areas due to the tsunami and earthquake.

Units One through Three, which had been operating at the time of the earthquake, scrammed automatically, inserting their neutron absorbing control rods to ensure immediate shutdown of the fission process. With the loss of electric power to normal and emergency core cooling

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systems and subsequent failure of back-up decay heat removal systems, Tokyo Electric Power Company (TEPCO), the operator of the plant, resorted to injecting sea water and boric acid into the reactor vessels of these three units, in an effort to cool the fuel and ensure they remained shutdown. During this process, the fuel became partially uncovered. Hydrogen gas built up in units 1 and 3 as a result of overheated fuel reacting with water. When the gas pressure was vented from the primary containment, hydrogen explosions occurred in both units and damaged the secondary containments. It appears that primary containments remain functional. In addition, units 1, 2, and 3 suffered from decreasing SFP levels due to loss of their SFP cooling systems. TEPCO cut a hole in the side of the unit 2 secondary containment to prevent hydrogen buildup following a sustained period when there was no water injection into the core.

Units Four through Six had been shutdown for refueling outages at the time of the earthquake. The fuel assemblies for Unit Four had been offloaded from the reactor core to the SFP. The Unit four SFP suffered a total loss of water along with structural damage affecting its ability to retain water. Significantly elevated radiation levels were measured outside of Unit 4. The SFPs for Units Five and Six appear intact, but have been heating up. Emergency power is available to provide cooling water flow through the SFPs for Units 5 and 6.

The Japanese Government ordered an evacuation out to 20 km for the area surrounding Fukushima Daiichi. Residents out to 30 km were ordered to shelter in place.

The damage to Fukushima Daiichi nuclear power station appears to have been caused by initiating events outside of the design basis for the facilities.

BACKGROUND

Appendix A to 10 CFR Part 50, General design criteria (GDC) 2, "Design Bases for Protection against Natural Phenomena," or, as appropriate, similar requirements in the licensing basis for a reactor facility requires that structures, systems, and components (SSCs) important to safety be designed to withstand the effects of natural phenomena such as earthquakes, tornadoes, hurricanes, floods, tsunami, and seiches without loss of capability to perform their safety functions. The design bases for these SSCs reflects: (1) appropriate consideration of the most severe of the natural phenomena that have been historically reported for the site and surrounding area, with sufficient margin for the limited accuracy, quantity, and period of time in which the historical data have been accumulated, (2) appropriate combinations of the effects of normal and accident conditions with the effects of the natural phenomena, and (3) the importance of the safety functions to be performed.

As a result of the terrorist events of September 11, 2001, the NRC issued EA-02-026, "Order for Interim Safeguards and Security Compensatory Measures" (the ICM Order) dated February 25, 2002, (designated safeguards information (SGI)), which modified then-operating licenses for commercial power reactor facilities to require compliance with specified interim safeguards and security compensatory measures. Section B.5.b of the ICM Order requires licensees to adopt mitigation strategies using readily available resources to maintain or restore core cooling, containment, and SFP cooling capabilities to cope with the loss of large areas of the facility due to large fires and explosions from any cause, including beyond-design-basis aircraft impacts.

By letter dated February 25, 2005 the NRC staff provided guidance for implementing Section B.5.b of the ICM Order. This guidance, designated as SGI, included best practices for mitigating losses of large areas of the plant and measures to mitigate fuel damage and minimize releases. Following issuance of the B.5.b Phase 1 Guidance, the NRC staff conducted inspections at operating reactor sites using Temporary Instruction (TI) 2515/164 (SGI) and subsequently TI 2515/168 (SGI) to ensure compliance with Section B.5.b of the ICM Order.

In December 2006, Nuclear Energy Institute (NEI) issued NEI 06-12, Revision 2, "B.5.b Phase 2 & 3 Submittal Guideline." NEI 06-12 is designated for Official Use Only – Security Related Information (OUO-SRI). The NRC endorsed NEI 06-12, Revision 2, by letter dated December 22, 2006, also designated OUO-SRI, as an acceptable means for developing and implementing the mitigation strategies requirement in Section B.5.b of the ICM Order. NEI 06-12, Revision 2 provides guidance for implementing a set of strategies intended to maintain or restore core cooling, containment, and SFP cooling capabilities under the circumstances associated with the loss of a large area of the plant due to explosions or fire, in the following areas:

- Adding make-up water to the SFP,
- Spraying water on the spent fuel,
- Enhanced initial command and control activities for challenges to core cooling and containment, and
- Enhanced response strategies for challenges to core cooling and containment.

The specific strategies covered in NEI 06-12, Revision 2, were developed based on the results of assessments conducted at currently licensed power reactor facilities for the purpose of enhancing plant specific mitigation capability for damage conditions caused by a large explosion or fire. These assessments identified a wide spectrum of potential plant specific strategies. NEI 06-12, Revision 2 specifies one set of strategies applicable to all pressurized-water reactors and another set applicable to all boiling-water reactors. Both sets are derived from the results of the plant specific assessments.

The B.5.b Phase 1 Guidance and NEI 06-12, Revision 2, were used by each licensee in preparing information submitted to the NRC that describes a plant specific approach to implementing mitigating strategies and supports each plant specific license condition. The NRC staff has completed its review of the information submitted by each licensee, as well as information obtained during prior NRC inspections, and has issued an OUO-SRI safety evaluation (SE) that documents the bases for its approval of the license condition for each facility. The SE issued for each licensee includes regulatory guidance in Section 3.0 of Appendix A, "Phase 1 Assessment," that recites the generic B.5.b Phase 1 Guidance of Reference 3, as clarified in TI 2515/168, in a form that is designated OUO-SRI rather than SGI.

On March 27, 2009, the NRC amended 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," and Part 73, "Physical Protection of Plants and Materials," with new requirements published in the *Federal Register* dated March 27, 2009 (74 FR 13926). This rulemaking added paragraph (i) to 10 CFR 50.34, "Contents of applications; technical information," to require

submittal of a “description and plans for implementation of the guidance and strategies intended to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities under the circumstances associated with the loss of large areas of the plant due to explosions or fire as required by § 50.54(hh)(2) of this chapter.” This rulemaking also added 10 CFR 50.54(hh)(2) in order to impose the same mitigating strategies requirements on new reactor applicants and licensees as those imposed by the ICM Order and associated license conditions. The Statement of Considerations for this rulemaking specifically noted that the requirements described in Section 50.54(hh) are for addressing certain events that are the cause of large fires and explosions that affect a substantial portion of the nuclear power plant and are not limited or directly linked to an aircraft impact. In addition, the rule contemplates that the initiating event for such large fires and explosions could be any number of beyond-design basis events, including natural phenomena such as those described in GDC 2 (i.e., earthquakes, tornadoes, floods, tsunamis, and seiches), without regard to the GDC 2 limitation in magnitude of the design bases for the natural phenomena.

NRC regulations at 10 CFR 50.63 require that light-water-cooled nuclear power plants be capable of withstanding for a specified duration and recovering from a station blackout.

DISCUSSION

The nuclear power industry has taken the actions listed below at each licensed reactor site. Additional information is available in the NEI Fact Sheet, “Industry Taking Action to Ensure Continued Safety at U.S. Nuclear Energy Plants,” dated March 16, 2011, available at www.nei.org.

1. Verification of the capability to mitigate conditions that result from severe adverse events, including the loss of significant operational and safety systems due to natural events, fires, aircraft impact and explosions.
2. Verification of the capability to mitigate a total loss of electric power to a nuclear power plant.
3. Verification of the capability to mitigate flooding and the impact of floods on systems inside and outside the plant.
4. Identification of the potential for loss of equipment functions during seismic events appropriate for the site and development of mitigating strategies of potential vulnerabilities.

As discussed in the President’s speech at the White House on March 17, 2011, the NRC will be performing a comprehensive review of the safety of nuclear plants in the United States in light of the natural disaster that unfolded in Japan. This review will focus on potential strategies and guidance for mitigation of the effects of beyond design-basis events from natural phenomena including seismic risk and extended station black out. The NRC staff is concurrently developing a TI in order to perform independent assessment of nuclear power plant readiness to address beyond design-basis natural phenomena under the Reactor Oversight Process.

PAPERWORK REDUCTION ACT STATEMENT

This Information Notice does not contain any information collections and, therefore, is not subject to the requirements of the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.).

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CONTACTS

This information notice requires no specific action or written response. Please direct any questions about this matter to the technical contact listed below or the appropriate Office of Nuclear Reactor Regulation (NRR) project manager.

Laura A. Dudes, Director
Division of Construction, Inspection,
and Operational Programs
Office of New Reactors

Timothy J. McGinty, Director
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

Technical Contact: Eric E. Bowman, NRR
301-415-2963
e-mail: Eric.Bowman@nrc.gov

Note: NRC generic communications may be found on the NRC public Web site, <http://www.nrc.gov>, under Electronic Reading Room/Document Collections.

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NAME	TFrye	CHawes	SRosenberg		TMcGinty
DATE		03/17/2011	03/17/2011		

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NAR

From: Grobe, Jack
To: Sheron, Brian; Uhle, Jennifer; Wiggins, Jim; Evans, Michele; Miller, Charles; Haney, Catherine; Dorman, Dan; Moore, Scott; Johnson, Michael; Holahan, Gary; Leeds, Eric; Boger, Bruce; Brenner, Eliot; Hayden, Elizabeth; Schmidt, Rebecca; Doane, Margaret; Mamish, Nader; Dyer, Jim; Brown, Milton; Hackett, Edwin; Piccone, Josephine; Wilson, George; Harrison, Donnie; Kammerer, Annie; Collins, Timothy; Milligan, Patricia; Salley, MarkHenry; Bowman, Eric
Cc: Borchardt, Bill; Weber, Michael; Virgilio, Martin; Ash, Darren; Burns, Stephen; Vietti-Cook, Annette; Andersen, James; Giitter, Joseph; Howe, Allen; Nelson, Robert; McGinty, Tim; Blount, Tom; Holian, Brian; Gallagher, Johanna; Cheok, Michael; Lee, Samson; Hiland, Patrick; Skeen, David; Ruland, William; Lubinski, John
Subject: Re: Support and Logistics for the Japan Commission Meeting
Date: Friday, March 18, 2011 6:17:34 PM

Oops - I made a mistake. Cathy Haney will be in France so Trish Milligan should also be expected to cover Radiological Consequence Assessment as well as Emergency Preparedness. Thanks.
Jack Grobe, Deputy Director, NRR

NAR

From: Grobe, Jack
To: Sheron, Brian; Uhle, Jennifer; Wiggins, Jim; Evans, Michele; Miller, Charles; Haney, Catherine; Dorman, Dan; Moore, Scott; Johnson, Michael; Holahan, Gary; Leeds, Eric; Grobe, Jack; Boger, Bruce; Brenner, Eliot; Hayden, Elizabeth; Schmidt, Rebecca; Doane, Margaret; Mamish, Nader; Dyer, Jim; Brown, Milton; Hackett, Edwin; Piccone, Josephine; Wilson, George; Harrison, Donnie; Kammerer, Annie; Collins, Timothy; Milligan, Patricia; Salley, MarkHenry; Bowman, Eric
Cc: Borchardt, Bill; Weber, Michael; Virgilio, Martin; Ash, Darren; Burns, Stephen; Vietti-Cook, Annette; Andersen, James; Giitter, Joseph; Howe, Allen; Nelson, Robert; McGinty, Tim; Blount, Tom; Holian, Brian; Gallagher, Johanna; Brown, Milton; Cheok, Michael; Lee, Samson; Hiland, Patrick; Skeen, David; Ruland, William; Sheron, Brian; Lubinski, John
Sent: Fri Mar 18 18:06:05 2011
Subject: Support and Logistics for the Japan Commission Meeting

Ladies and Gents,

We want to ask your support for several aspects of the Commission meeting on Monday morning regarding the situation in Japan.

First, the only staff at the Commission table will be Bill Borchardt.

In the well, we anticipate having the two available DEDOs (I understand that Mike Weber will be on shift) and one representative from the front office of each of the following offices (either the office director or deputy)

NRR, NRO, NSIR, RES, NMSS, FSME, OPA, OCA, OIP, CFO, ACRS

Annette Vietti-Cook has indicated that she will reserve the "quadrant" of seats nearest the microphone (on the left side of the room as the Commissioners would see it) for NRC staff. As I understand it, the right side will be for reporters and the central area will be open for general public.

In the area for NRC staff, there will be 39 seats.

From a staff perspective, we would like the highest priority available for the following individuals whom Bill will call upon to answer (on camera) any more detailed questions on the indicated subjects. Bill will have the list and ask for this person to respond to any question where he wants more detailed support. Some of these folks will likely already be in the well. The microphone has been moved to allow television camera access to any

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individual answering questions.

Protection Against Natural Disasters – Gary Holahan
Station Blackout – George Wilson
Severe Accident and Spent Fuel Pool Accident Progression – Jennifer Uhle
Radiological Consequence Analysis – Cathy Haney
Hydrogen Fires and Explosions – MarkHenry Salley
Public Stakeholder Outreach – Eliot Brenner
State Outreach – Josie Piccone
International Interactions – Margie Doane
10CFR50.54(hh)(2)/B.5.b – Eric Bowman
Seismic Issues, Tsunami Issues, GI-199 – Annie Kammerer
Mark I containment issues – Tim Collins
Emergency Preparedness – Trish Milligan
Emergency Operating procedures/SAMGs – Donnie Harrison

We understand that these people are available for the meeting. If not, please coordinate with Allen Howe to provide an equivalently capable individual.

That leaves 26 seats in the staff section for TAs and other Division Directors and above who should attend the meeting.

SECY is arranging for an e-mail to be sent out to the staff to indicate where televisions are available for other interested staff to observe the Commission meeting.

Thanks for your support.

Jack Grobe, Deputy Director
for Engineering and Corporate Support
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission

From: [MARION, Alex](#)
To: [MARION, Alex](#); [Leeds, Eric](#); [Boger, Bruce](#)
Subject: RE: INPO Event Report L1-11-1
Date: Friday, March 18, 2011 2:47:35 PM

Didn't complete the email. Can you confirm?? We have daily calls with industry executives and we would like to keep them apprised of new developments. Thanks!

From: MARION, Alex
Sent: Friday, March 18, 2011 2:44 PM
To: 'Leeds, Eric'; 'Boger, Bruce'
Subject: INPO Event Report L1-11-1

I understand that NRC is developing a temporary instruction for oversight of industry actions in addressing the recommendations in the event report.



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Sent through mail.messaging.microsoft.com

4/15/4

Bozin, Sunny

From: Zorn, Jason
Sent: Monday, March 21, 2011 3:55 PM
To: Franovich, Mike; Ostendorff, William; Nieh, Ho; Warnick, Greg; Kock, Andrea
Cc: Herr, Linda; Bozin, Sunny
Subject: FW: FOIAs 11-0118, 119,120,and 121

FYI. More info on the FOIAa.

From: Champ, Billie
Sent: Monday, March 21, 2011 3:22 PM
To: Clark, Lisa; Reddick, Darani; Davis, Roger; Bupp, Margaret; Zorn, Jason
Cc: Mike, Linda; Hart, Ken
Subject: FOIAs 11-0118, 119,120,and 121

Note received from the FOIA Branch....FYI
Good afternoon.

I wanted to inform you of the following with regard to the FOIA requests from the Associated Press on Japan:

1. A reminder that these requests cover records from March 11th thru March 16th only (the date the NRC received the FOIA requests).
2. FYI, the requester is not willing to narrow the scope of the requests.
3. NRR will be providing all the OPE daily event emails from March 11-16, 2011. You do not need to provide these emails.
4. You do not need to provide e-mails and other records relating to who at the NRC is available to travel to Japan and other administrative travel documents.
5. Please let me know ASAP if other offices should have been assigned FOIA's 2011-00118, 119 and 120. The assignments were made to EDO, NSIR, IP, PA and SECY for 2011-0118 and 120. Assignments were made to EDO, NSIR, NRR, IP, PA, RES and SECY for 2011-0119.

Thanks

Good afternoon,

It is requested that these FOIAs be expedited. For your information, the Office of the Secretary did not identify any documents subject to these requests.

Billie A. C-Lopes
March 21, 2011

Bozin, Sunny

From: Zorn, Jason
Sent: Monday, March 21, 2011 7:32 AM
To: Ostendorff, William; Nieh, Ho; Kock, Andrea; Franovich, Mike; Warnick, Greg
Subject: Yucca and Japan

I noticed over the weekend that there were a number of editorials, perhaps picking up on questions posed during last week's House hearing, that have used the Japan situation as a call for Obama to reconsider his decision regarding Yucca. Here's a few that I saw, when you get a chance to read.

<http://chronicle.augusta.com/opinion/editorials/2011-03-20/safetys-sake>

http://www.nctimes.com/news/opinion/editorial/article_6f2fae3c-8821-551c-942e-0bcb2d50c800.html

http://www.chicagotribune.com/news/opinion/editorials/ct-edit-yucca-20110319_0_4049532.story

Kock, Andrea

From: Zorn, Jason
Sent: Monday, March 21, 2011 2:59 PM
To: Ostendorff, William; Franovich, Mike; Warnick, Greg; Nieh, Ho; Kock, Andrea
Cc: Herr, Linda; Bozin, Sunny
Subject: Recent FOIA Requests

All

As you probably heard me discuss, we received a number of FOIA requests last week related to the Japan event. I will warn you at the outset that requestors (the Associated Press) have requested an "expedited" review, and secondly, that the request appears to be extensive and could be burdensome for some of you to produce emails on this subject. We have been asked to provide a response by **March 24th – this Thursday**. There are 4 requests:

1. All documents created between March 11, 2011, and March 16, 2011 (including emails) referencing the words "Vogtle and Japan" or "Summer and Japan."
2. Communications from March 11, 2011, to March 16, 2011, between the NRC and DOE, GE Energy and Hitachi-GE Nuclear Energy pertaining to the Japanese nuclear incident.
3. "Internal" NRC communications from March 11, 2011, to March 16, 2011, between the Chairman, the 4 Commissioners, their staffs, the Office of Public Affairs, and staff offices such as NRR, NSIR, and the Ops Center pertaining to the Japanese nuclear incident. In my view, this only includes communications that go to or originate from outside of this office, not communications internal to this office. For example, emails from Mike with his summary of the daily meetings to the Commissioner and others would not be included. But, if anyone has communicated to others outside of the office by email, that would be included.
4. Communications between the NRC and "government counterparts" in Japan pertaining to the Japanese nuclear incident. This is specified to communications between the Commission or their staffs.

Please remember that this is an initial scoping review to identify documents. It may be that a FOIA exception applies to the document, so it would be identified to the requestor, but still withheld. I will bring this up for discussion at tomorrow's morning meeting so we can get some alignment, and I can also provide copies of the original request if you need further clarification.

Jason

Jimenez, Manuel

NRN

From: Conatser, Richard
Sent: Wednesday, March 23, 2011 8:26 AM
To: Werner, Greg; Henderson, Pamela; Dickson, Billy; Bonser, Brian
Cc: Garry, Steven; Pedersen, Roger; Jimenez, Manuel; Clemons-Webb, Candace; Shoop, Undine
Subject: RE: REMP Reporting Levels and Fukushima

All,

I just wanted to send a follow up email to clarify a particular nuance in the email below that may not be obvious on a casual reading. The licensee is only required to report exceeding the REPORTING LEVELS in the Radiological Environmental Monitoring Program when the activity is due to effluents from their facility and it is averaged over a calendar quarter. This is why my original email says:

If a nuclide concentration exceeds the REPORTING LEVES (averaged over a calendar quarter), the licensee may be required to report the data to the NRC within 30 days. The licensee should take the actions listed in their ODCM.

Because the I-131 (and possibly other radionuclides) from Fukushima will elevate the "background," it will reduce the licensee's ability to differentiate releases from their site. Strong data evaluation and analyses are appropriate at all times, and are particularly applicable at this time.

Here is the nuance that may (or may not) be obvious on a casual reading. If the licensee knows that all the activity in a REMP sample is from the Fukushima facility, then a 30-day report is not required. If, however, the licensee is not able to discern whether the activity is from their facility or not, then they would need to follow their ODCM and take the appropriate actions, which may include a 30-day report to the NRC. Lastly, if the activity is from their facility, then the licensee would be required to make a 30-day report to the NRC.

The key issues are summarized below:

1. licensees need to be aware of their REPORTING LEVELS in their ODCMs,
2. the licensee's data evaluation is extremely important to discern plant-related activity from non-plant related activity,
3. licensees should not immediately assume all activity in REMP samples is from Fukushima,
4. licensees need to take the actions as outlined in their ODCMs (this is always true),
5. if a licensee is unable to make a determination whether the activity is plant-related or not, they may choose to make a 30-day Special Report as listed in their ODCM, and
6. if a licensee knows that all the activity is due to Fukushima, then a 30-day Special Report is not required (as listed in their ODCM).

You may wish to pass this along to the Inspectors in your Regions.

Best Regards,

Richard L. Conatser
Health Physicist
Nuclear Regulatory Commission
301-415-4039
Richard.Conatser@NRC.gov

Thorp, John

NRK

From: Thompson, John
Sent: Wednesday, March 23, 2011 11:14 AM
To: Thomas, Eric
Cc: Sigmon, Rebecca; Thorp, John
Subject: Installation of a Hardened Wetwell Vent GL 89-16

Eric,

You might find the following interesting taken from the GE blog website. I deduce that hardened vents weren't installed at Fukushima Daiichi based on the discussion below. Rebecca, any comment?

John

Surfing the GE Reports website, I found these comment made by GE engineers:

1. *Ed Dykes* says:

March 18, 2011 at 11:13 am

The diesels at the Fukushima site are not GE diesels. They are Japan sourced diesels.

The owner of these plants is TEPCO, not GE. GE is a nuclear steam supply system and turbine system supplier, not a plant owner or Architect-Engineering firm. The GE supplied items worked well and proved robust.

TEPCO and the Japanese regulatory authorities are responsible for the plant configurations and design bases as they exist today. It is many years since these plants were constructed.

Concerning GE engineers, when the full story about the Fukushima nuclear plant problems is published, you will find that TEPCO did not make certain modifications although they were more than adequately informed by GE many years ago. In particular, the venting system, as was discussed in a previous posting at this website, was a major factor. Additionally, there are some significant human errors involved.

The reluctance to release any radioactive isotopes into the air, regardless of how benign, apparently led them to not vent early on and they waited until things had gone too far with substantial hydrogen generation that led to blowing the roofs off of the reactor buildings.

A major unanswered question at this point is why they did not have water trucks going to the plant and filling up the condensate storage tank so that the RCIC system could keep going injecting cold water. Even with major devastation, the surface water sources still existed for filling up tankers.

Note that in spite of all the abuse and a situation well beyond the design specifications, the containments are hanging in there doing what they are supposed to do.

2. *Al* says:

4/15/11

March 18, 2011 at 6:46 pm

@Ed Dykes

I don't believe the issue of refilling the CST would have made any difference.

First, that portion of the system is not designed as safety-related, and consequently not designed with seismic criteria. The tank being outside, it is highly especulative that it could withstand the combined effect of quake+tsunami.

The backup suction source is the suppression pool or torus. In a SBO its temperature can only go up, because the exhaust of the RCIC turbine goes there, even without considering additional safety/relief valves discharges. Just because of that temperature increase, the available NPSH will go down and the pump will end up cavitating and tripping.

Another cause of RCIC inoperability is also related to the suppression pool, and is again its temperature: when it reaches saturation conditions, the backpressure in the turbine exhaust will be too high and it will trip.

Thus, even if the batteries for I&C had been recharged or replaced (which may have been the case, since there were early reports that they were airlifted and the fact that some monitoring capabilities were maintained backs this assumption), it would have not mattered: RCIC was lost.

Interestingly, Unit 1 which was a BWR/3 instead of BWR/4, had an Isolation Condenser. This only provides 1 hour autonomy without replenishing water to the secondary side, but the tank holding the heat exchanger is located in the Reactor Building and quite probably survived the quake+tsunami. If it had been possible to replenish water on time, this reactor would have weathered the storm really well, since none of the problems related to supression pool temperature increase would have affected it. This is quite ironic, being the oldest reactor.

By a cruel twist of fate the 1-hour limit was almost exactly the time that the tsunami needed to reach the site, and the window of opportunity to replenish the secondary side was lost. Even at that time, if the reactor had been quickly depressurized and water injected via fire truck, the reactor could have been saved. In the aftermath of the tsunami, this was evidently impossible. Once this point was reached, there was no other way than core damage in a much faster fashion than the other reactors (that still had RCIC for around 8 hours). No surprise Unit 1 was the first to blow up.

1. *J.D. Monty* says:

March 18, 2011 at 3:28 pm

Thank you for the information on how the Mark 1 containment system works. I'm sure it is a technical marvel and the work of many engineering and test hours, and until last week it looked like a great system. We now have "Captain Hindsight's" input into the matter and it would seem to say the following:

The last line of defense containment measure against a catastrophe is not the place for the concepts of steamlined, compact, efficient and lightweight innovative design. Brute force, impenetrable, and Fort Knox are more the concepts that should apply. Having been inside the containment structure at the Seabrook nuclear plant, I would say that the latter set of concepts apply to that structure. This plant uses the traditional domed structure, of which the visible part is the tip of the iceberg. The remainder is a pit

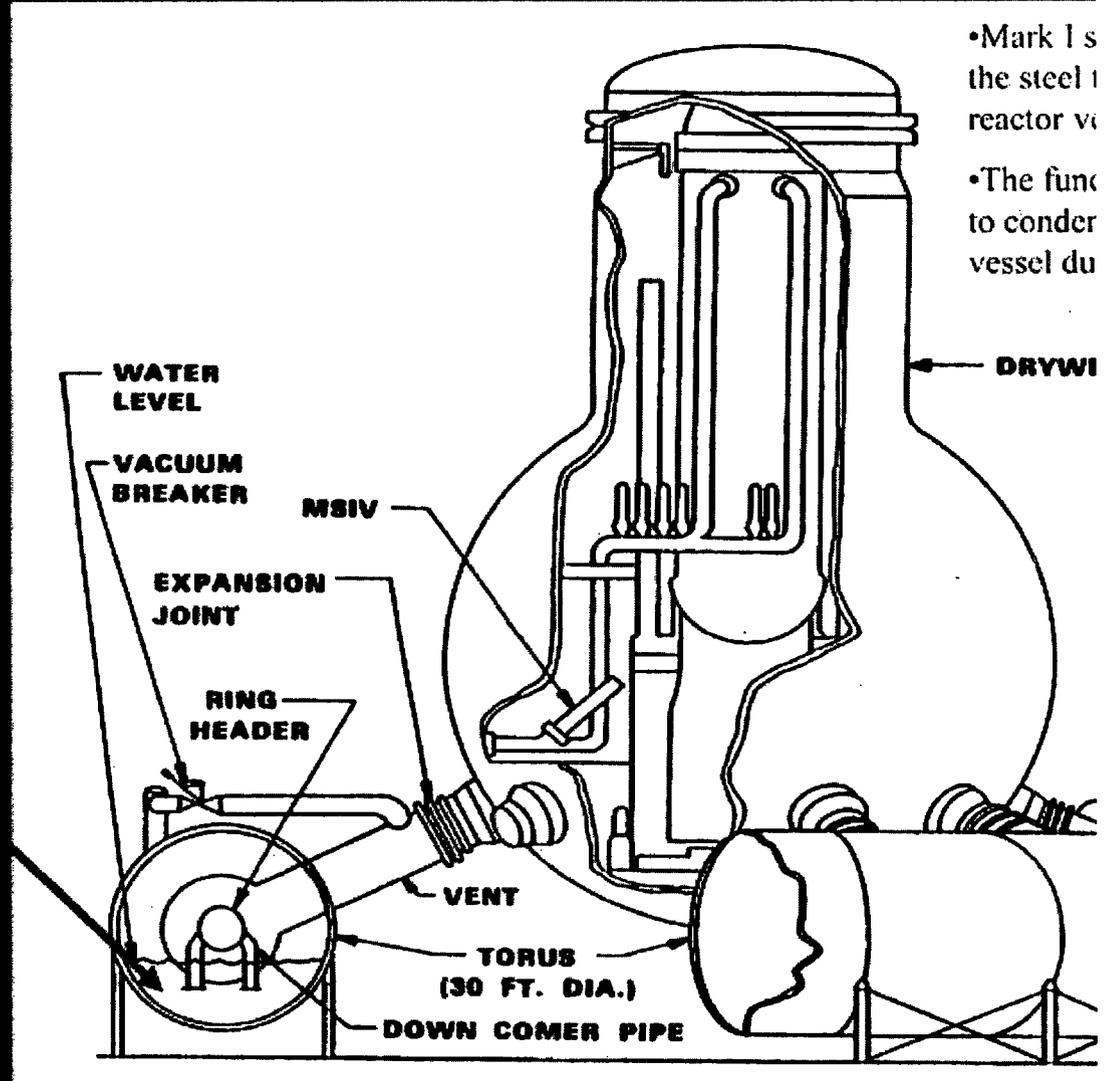
bored into solid granite bedrock. The dome itself is several feet of concrete reinforced with crisscrossed 3" rebar. There is an additional inner dome providing another layer of defense. While this event teaches us that nothing is 100% foolproof, I know which system I would bet on for containing a total reactor meltdown the longest.

The steam suppression system in the Mark 1 appears to be effective only against a transient steam release event unless active cooling is provided for the quenching pool, which is obviously not there in this incident. The sustained heat load and steam release of this event would render the quenching system ineffective in a matter of hours, and apparently has. With the fuel assembly having months worth of decay heat to get rid of, a sustained heat and steam load has to be assumed in the event of a serious failure of the core vessel, for which the containment is presumably designed. The complex shape of the structure provides many more potential failure points in the event of an overpressure event or hydrogen explosion. If this event teaches us anything, it is that the last ditch emergency systems have to be totally passive and hold things in a safe condition indefinitely with no operator intervention or outside power supply. This means brute force containment. I think that going forward, systems like the Mark I will be hard to justify in light of this incident.

Pretty good pic. Following diagram courtesy of [GE Reports](#)

Containment Types – Mark I

Suppression Pool



GL 89-16, Installation of a Hardened Wetwell Vent GL 89-16, was issued to BWR Mark I holders to reduce the vulnerability of BWR Mark I containments to severe accident challenges, of the kind experienced in Japan. With one exception, the GL asked licensees to evaluate for a hardened wetwell vent capability, as part of the Individual Plant Examination (IPE) Program.

I also found interesting statements in the staff's SER on Brunswick's position in the IPE. Don't know if this is current information.

The licensee (Brunswick) evaluated the "Mark I Containment Performance Improvements (CPI)" discussed in GL 88-20, Supplement 1. Subsequent to the August 1992 IPE submittal (with a freeze date of January 1, 1992) CP&L installed a hardened wetwell vent in both Brunswick units in response to GL 89-16, "Installation of a Hardened Wetwell Vent." The August 1992 IPE did not take credit for this modification. The supplemental letters informed us that in the updated PRA, the hardened vent reduced the total CDF by approximately 10%. CP&L had adopted Revision 4 of the BWR Owners Group Emergency Procedure Guidelines (BWROG EPGs). The IPE took credit for the revised emergency operating procedures (EOPs) and augmented operator training. With respect to the use of the firewater system as an alternate water supply for drywell spray/vessel injection recommended by the CPI program, the licensee indicates that the firewater system for Brunswick will result in minimum benefit. The licensee's analysis shows that the potential use of the firewater system would be in accident sequences involving station blackout, which contribute about 70 percent of the plant total CDF. During these accidents, the drywell and vessel pressure will maintain at a relatively high value in comparison with the shutoff head of the firewater pump. Consequently, the flow of the firewater system is reduced, and the potential fission product scrubbing by the firewater becomes ineffective. Further, during certain periods of the transients, the drywell and vessel will repressurize. As such, firewater injection into the drywell or vessel will be precluded. Based on this analysis, the licensee is not committed to the use of the firewater system as an alternative water source for drywell spray/vessel injection

Some unique plant safety features identified at Brunswick are:

1. Ability to cross-tie the **IE** buses between units.
2. Ability to vent containment using the containment atmospheric control system and the standby gas treatment system. (Isn't this what the Japanese decided to do when they got the explosions?)
3. Ability to flood the core and containment with service water pumps or the diesel-driven fire pump via the RHR system.

(Eric, I wonder if others have taken same approach? Maybe B.5.b addressed this, but it may be a possible area for US plants to look at?)

King, Mark

NRC

From: King, Mark
Sent: Wednesday, March 23, 2011 7:34 AM
To: Bernardo, Robert; Robles, Jesse; Haskell, Russell
Cc: Thorp, John
Subject: Regarding Hillary's statement concerning coolant shipment to Japan

Regarding Hillary Clinton's statement concerning "coolant shipment" to Japan: I think this is what she was trying to communicate
- FYI

NRC continues to work with other Federal agencies to deliver temporary cooling equipment to the Daiichi site. Initial shipments of equipment arrived in Japan on March 21 and 22. A third is anticipated to arrive on March 24.

2/160

King, Mark

MM

From: King, Mark
Sent: Wednesday, March 23, 2011 7:20 AM
To: Garmon-Candelaria, David
Cc: Thorp, John
Subject: FW: coordination of Japan event response between OpE Branch and NRO - plan on a 2:15 to 2:30 meeting every day.

Dave, The real reason we are suppose to be having this meeting - the Information Notice that came out by NRR was not run by NRO until two hours before it was to be issued. They rightly felt pinched / cut out of the loop by the development/ review process having only two hours to review and sign it out late on a Friday. Not sure this meeting would have prevented that since IOEB / you were not involved in the IN development.

I think we are looking for you to step up and be more involved with the Japan events / perhaps stop by the IRC once a day, maybe shortly before the 2:15 meeting to get the latest and greatest info / updates... and keep up with the on-going developments... and maybe have more frequent updates of your OpE COMM(s) - as needed.

FYI,
Thanks
Mark

MM

From: Thorp, John
Sent: Wednesday, March 23, 2011 7:15 AM
To: King, Mark; Garmon-Candelaria, David; Rosenberg, Stacey; Frye, Timothy
Subject: RE: coordination of Japan event response between OpE Branch and NRO - plan on a 2:15 to 2:30 meeting every day.

I'm not sure these meetings will answer the questions you identified Mark, but it makes sense to begin documenting all the OpE questions we do have so we can begin answering them as the information becomes available. I think the meeting is going to be a fairly short, "touch base" and compare notes meeting to discuss what we know and what if anything else needs to be done, especially as it can relate to updating and considering information for sharing with staff and for proposing as inputs to new/updated generic communications, perhaps even discuss how to best break down the event into more manageable IFR's to address the significantly different aspects of the event, if that makes sense.

Tim Frye and Stacey Rosenberg, I ask for your specific thoughts and expectations on agenda of the quick 10-15 minute meeting at the end of each screening meeting.

Thanks,

John

MM

From: King, Mark
Sent: Tuesday, March 22, 2011 5:07 PM
To: Thorp, John; Garmon-Candelaria, David
Subject: RE: coordination of Japan event response between OpE Branch and NRO - plan on a 2:15 to 2:30 meeting every day.

RE: Let me know what you think; is 2:15 a good time for folks to begin discussing the Japan response... short term 30-day quick look, middle term response 90 day response and long and very long term studies/ investigation needs.

2/26/11

Weaver, Tonna

From: Kolb, Timothy *in rkr*
Sent: Wednesday, March 23, 2011 5:53 AM
To: LIA03 Hoc; Liaison Japan
Cc: O'Donnell, John
Subject: RE: Dosimeter Numbers

I provided the paperwork for the Japan team to Roger Pedersen on Monday with the appropriate signatures. He should have what you need.

Thank you,
Tim Kolb

From: LIA03 Hoc
Sent: Tuesday, March 22, 2011 8:50 PM
To: Liaison Japan
Cc: O'Donnell, John
Subject: RE: Dosimeter Numbers

Dear Team – As a follow-up to our previous email, we only need the dosimeter numbers from the original team members in Japan, not the relief team arriving there over the next few days. As well, you can find your dosimeter number on the back of your dosimeter if you snap it out of its holder. There are two numbers on the back. Please send us both, as we are not sure which number the RSO is requesting.

Please let us know if you have any additional questions,
NRC International Liaison Team

From: LIA03 Hoc
Sent: Tuesday, March 22, 2011 7:56 PM
To: Liaison Japan
Cc: O'Donnell, John
Subject: Dosimeter Numbers

Dear Team – When you get the chance, please email the International Liaison Team your dosimeter number. In our haste to get you out to Japan, we neglected to get that information from you and the RSO needs it for NRC records. In addition, if you are planning to stay past the end of March, please let us know, as we will need to get you a new dosimeter. The ones you have now are only for use during the second quarter.

Thank you for your help.
The International Liaison Team

Weaver, Tonna

From: Leeds, Eric *MLR*
Sent: Wednesday, March 23, 2011 7:45 AM
To: Westreich, Barry; Bahadur, Sher; Blount, Tom; Brown, Frederick; Cheok, Michael; Evans, Michele; Galloway, Melanie; Giitter, Joseph; Givvines, Mary; Hiland, Patrick; Holian, Brian; Howe, Allen; Lee, Samson; Lubinski, John; McGinty, Tim; Nelson, Robert; Quay, Theodore; Ruland, William; Skeen, David
Cc: Grobe, Jack; Boger, Bruce; Nguyen, Quynh; Meighan, Sean; Wertz, Trent
Subject: Heads up: Near Term Review

Please see email below. Note that Jack will be a key member of this review group and that it will take him out of his current position for at least the first month fulltime and then on a part time basis until it concludes. I plan to discuss with Bruce and Marty before we make a decision on how to backfill for Jack.

All the HQ program offices are contributing to the agency's efforts with regard to Fukushima, so person-power is challenged. I'll keep you informed.

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

From: Virgilio, Martin *VED*
Sent: Wednesday, March 23, 2011 3:05 AM
To: nucfed@aol.com; Miller, Charles; Holahan, Gary; Grobe, Jack; Sanfilippo, Nathan
Cc: Borchardt, Bill; Weber, Michael; Muessle, Mary; Andersen, James; Ash, Darren
Subject: Near Term Review

All

Let me start by thanking you for agreeing to participate on the Task Group that will be chartered to identify near term actions in response to the ongoing accident at Fukushima Daiichi reactors.

Yesterday, I spoke with Bill Borchardt and Charlie Miller about this assignment. Bill expects that you will be working on this project full time at least until the 30 day quick look report is developed and the Commission is briefed on its contents.

While the specifics of the actions are still being finalized through the SRM development, it is likely that we will be asked to consider whether NRC should take actions to improve NRC and licensee programs to enhance safety; and, identify specific topics/areas for longer term assessment.

I have suggested to Charlie that we have a kick off meeting on Thursday morning. This would be an opportunity to align on the charter of the group, expected products and methods for conducting the review and developing recommendations.

One item that I would like to see us address on Thursday is internal stakeholder involvement. We may want to have a session early next week with the folks who have been serving on the site team and in the ops center to gather their insights.

I have periodically pulsed Chuck Casto about areas that we should consider as part of our near term lessons learned. Chuck has suggested we look at B5b and in particular the location of the equipment, environmental conditions where actions will have to be taken, and whether there will be sufficient number of licensee staff needed to execute the recovery strategies. He also suggested we consider multiple simultaneous accidents at

a single site, NPPs where fire coping strategies include an induced SBO, and that we look at our SBO requirements.

Marty

Weaver, Tonna

From: Lehning, John *nrk*
Sent: Wednesday, March 23, 2011 7:50 AM
To: Klein, Paul
Subject: RE: Question on boric acid solubility in seawater

Paul,

Thanks for the quick reply. I stopped down a minute ago but missed you. I saw some curves of the temperature-solubility effect. Weather should be warming up there. Although they have only looked at salt, and the actual injected boron quantity is hard to estimate, after 9-11 days, they surely have built up some reasonable quantity of boron in the core as well, given that they have been mixing additional boric acid with the seawater prior to injection.

Relative to the actual available volume, I'm thinking there is a pretty good sized salt lick inside those vessels even now (versus the end of the month).

- John L.

From: Klein, Paul *nrk*
Sent: Wednesday, March 23, 2011 7:09 AM
To: Lehning, John; Yoder, Matthew
Subject: RE: Question on boric acid solubility in seawater

John,

Seawater contains about 4 to 5 ppm boron. Compared to pure water, seawater has many dissolved solids already. For this reason, and due to the common ion effect, we would expect less solubility of boron in seawater compared to fresh water. That said, however, the temperature at which the boron dissolves should be a much more dominant effect than seawater compared to pure water. The unknowns associated with how much boron was added, in what form the boron was added, the mixing conditions, and whether additional boron dissolved inside the reactor core overwhelm the solubility differences.

The lack of information makes it difficult to draw a conclusion on solubility. I will give you a call to discuss.

Paul

From: Lehning, John
Sent: Tuesday, March 22, 2011 4:46 PM
To: Klein, Paul; Yoder, Matthew
Subject: Question on boric acid solubility in seawater

Paul or Matt,

If either of you have a minute to reply to this – I am wondering from the standpoint of recriticality whether one should expect a difference or significant difference in boron solubility in fresh water as opposed to sea water.

I don't remember from chemistry classes whether a firm rule could be established, such as decreased solubility for individual species with multiple salts in solution (my semi-ignorant expectation), or whether such a rule of thumb can't really be depended on in generality. I seem to remember a similar question was one of the chemical PIRT unknown items. I guess experiments would probably be needed in any case to determine coefficients or actual limits?

Thanks.

- John L.

Weaver, Tonna

From: Ruland, William *WRK*
Sent: Wednesday, March 23, 2011 9:44 AM
To: Giitter, Joseph
Cc: Hiland, Patrick
Subject: FW: Need Final SRM for Congressional Briefing

Just fyi about Eric's information needs.

From: Leeds, Eric *ERL*
Sent: Wednesday, March 23, 2011 9:43 AM
To: Wittick, Brian
Cc: Grobe, Jack; Ruland, William
Subject: Need Final SRM for Congressional Briefing

Brian –

If you can, please keep on top of the SRM for our near term and long term actions with regard to the Fukushima event. I have to brief Congresswoman Hayworth (NY) tomorrow at 10 am and I'd like to give her the direction we've received from the Commission.

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

2/1/11

Weaver, Tonna

From: Mendiola, Anthony *INRR*
Sent: Wednesday, March 23, 2011 11:03 AM
To: Attard, Anthony; Heller, Kevin; Kaizer, Joshua; Lehning, John; Orechwa, Yuri; Panicker, Mathew; Proffitt, Andrew; 'Tony Attard (HOME)'; Ward, Leonard; Wu, Shih-Liang
Subject: FW: URGENT
Importance: High

Very Short turn around.

Give me by email anything that has been delayed due to Japan for any reason. Need RIGHT NOW!

Thanks,
Tony

From: Bahadur, Sher *INRR*
Sent: Wednesday, March 23, 2011 9:47 AM
To: Bailey, Stewart; Dennig, Robert; Casto, Greg; Mendiola, Anthony; Purciarello, Gerard; Miranda, Samuel
Cc: Titus, Brett
Subject: URGENT
Importance: High

Please email to Brett Titus a list of items not being done (or delayed) in your branch because of Japan event.
Examples: licensing activities, training, travel,
Provide your input to Brett Today by 11:30am.
Thanks.

- Sher

SHER BAHADUR; DEPUTY DIRECTOR NRR/DSS
301-415-3283
sher.bahadur@nrc.gov

2/11/11

Weaver, Tonna

From: Giitter, Joseph *NRK*
Sent: Wednesday, March 23, 2011 11:24 AM
To: Ruland, William
Cc: Howe, Allen; Nelson, Robert
Subject: Response to what are we not getting done.

Bill- As noted below we have put the brakes on several of the initiatives that we were working on. To date, licensing actions have not been held up even though we have implemented a process to screen selected near-term licensing actions and make a determination if additional scrutiny is appropriate.

1. We canceled the meeting with NEI's Licensing Action Task Force on 3/17 and we informed the LATF that we will not undertake any new initiatives at this time.
2. We informed NEI that we could no longer actively support its LAR pre-submittal meeting improvement initiative.
3. The NRR LT Subcommittee on Office Reorg has temporarily suspended its activities.
4. DORL has internally reduced its emphasis on the one-year licensing action timeliness metric.
5. We have temporarily suspended activities to improve the SER/RAI process.
6. Concurrence/non-concurrence on the memo providing guidance to the staff on EP/EAL reviews has been delayed.
7. SER/RAI training for NSIR has been delayed.
8. Full implementation of the pilot for standard timelines for routine licensing actions may have been delayed. Unable to confirm in time to meet the deadline for this response.

Joseph G. Giitter
Director
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

4/16/11

Weaver, Tonna

From: Mendiola, Anthony *AMR*
Sent: Wednesday, March 23, 2011 11:25 AM
To: Bahadur, Sher; Titus, Brett
Subject: RE: URGENT

Brett,

Off the top of my head:

Not Done

Difficult Conversations training for Me (Tony Ulses as well)

Delayed

Reviews for AREVA topicals (Realistic LBLOCA)
Reviews for WEC topicals (Full Spectrum LOCA)
Reviews for GEH topicals
NRR part of Topical Report Reviews for ABWR (Fast Transit, SAFIR/BISON)
Licensing Reviews (Watts Bar 2)
Review Support for the B&W MIPS, their aqueous homogeneous reactor (AHR) design used in their Medical Isotope Production System (MIPS)

Done but delayed due to Japan event

Licensing Reviews (Brunswick, DC Cook)
Support for NRO's ACRS Presentation on RLBLOCA

I am sure there are more, but that is what I have for now....

From: Bahadur, Sher *AMR*
Sent: Wednesday, March 23, 2011 9:47 AM
To: Bailey, Stewart; Dennig, Robert; Casto, Greg; Mendiola, Anthony; Purciarello, Gerard; Miranda, Samuel
Cc: Titus, Brett
Subject: URGENT
Importance: High

Please email to Brett Titus a list of items not being done (or delayed) in your branch because of Japan event.
Examples: licensing activities, training, travel,
Provide your input to Brett Today by 11:30am.
Thanks.

- Sher

SHER BAHADUR; DEPUTY DIRECTOR, NRR/DSS
301-415-3283
sher.bahadur@nrc.gov

2/168

Weaver, Tonna

From: Miranda, Samuel *NRK*
Sent: Wednesday, March 23, 2011 11:28 AM
To: Titus, Brett
Cc: Bahadur, Sher; Uises, Anthony; Nakanishi, Tony
Subject: SRXB delayed items

Items delayed due to Fukushima situation:

- 1 Issuing the final DSS Interim Staff Guidance on SFP Nuclear Criticality Safety (NCS) analysis
- 2 Revising the NRR Action Plan on SFP NCS analysis
- 3 Watts Bar SE, Section 15.2.4, due April 15
- 4 St. Lucie EPU RAIs, due March 31

Tony Nakanishi's work -- not yet delayed

- 5 GG EPU/Fuel Storage Muhammad has the RAIs. Probably okay for a couple of weeks. (contact: Kent/Muhammad)
- 6 NMP2 EPU probably okay for a while (contact: Kent)
- 7 St Lucie EPU/Fuel Storage probably okay for a few weeks (contact: Kent).
- 8 M+ ATWS – probably okay until I return.

Samuel Miranda, Sr Reactor Sys Engr
U.S. Nuclear Regulatory Commission
NRR/DSS/SRXB - (301) 415-2303

Weaver, Tonna

From: Cheok, Michael *in RPL*
Sent: Wednesday, March 23, 2011 11:35 AM
To: Ruland, William
Cc: Titus, Brett; Meighan, Sean; Lee, Samson; Galloway, Melanie
Subject: RE: Input on what is delayed or not getting done

Bill – 2 impacts from DRA:

As a result of John Parillo participation in the PMT: The Davis-Besse SAMA RAI schedule (due to DLR on 3/25) will be delayed 2-5 days. DLR (Dave Wrona) notified yesterday. We may also have a little bit of delay in developing RAIs for the STP SAMA review. We have assigned an additional staff member to the Davis Besse and STP reviews. (Melanie – you are on cc as a FYI)

As a result of Jeff Circle's RST participation: 1 missed required Project Management training class.

Three other DRA staff/BC's have also participated in RST watches, however no short term tasks were impacted and longer term adjustments/schedules can be worked out with other division staff, etc.

From: Ruland, William
Sent: Wednesday, March 23, 2011 11:11 AM
To: Hiland, Patrick; Cheok, Michael; Giitter, Joseph; Lund, Louise; Quay, Theodore; Bahadur, Sher; Ferrell, Kimberly; Lubinski, John; Thomas, Brian
Cc: Titus, Brett; Meighan, Sean
Subject: Input on what is delayed or not getting done? I need input by noon. <eom>

2/170

Weaver, Tonna

From: Purciarello, Gerard *MPK*
Sent: Wednesday, March 23, 2011 11:37 AM
To: Titus, Brett
Cc: Casto, Greg; Gardocki, Stanley
Subject: Delayed Projects due to the Japan Event

Brett,

The following projects could be delayed due to SBPB coverage in the Ops Center (G. Casto since Mar 11 and S. Gardocki starting soon)

- 1) Peach Bottom LAR for Nitrogen Storage –Final SER could be delayed (Gardocki will be assigned to Ops Center)
- 2) TMI Main Steam Safety License Amendment Request –SER delayed (Gardocki will be assigned to Ops Center)
- 3) Palo Verde LAR for ADV change-Possible delay (Gardocki in Ops Center)
- 4) Update RG 1.137, Diesel Generator Fuel Oil, (delay due to Purciarello as Acting BC) NRO contacted to take the lead
- 5) Limerick License Amendment SER –possible delay due to Purciarello as Acting BC)
- 6) Seabrook License Renewal SER, final approval- delay due to Casto in Ops Center, Purciarello Acting
- 7) Ft Calhoun Ultimate Heat Sink License Amendment Request-possible delay due to Purciarello as Acting BC)
- 8) Callaway Extension of Completion time for BOP ESFAS (delay due to Casto and Gardocki in Ops Center)

Jerry Purciarello
Senior Reactor Systems Engineer
Balance of Plant
NRR, Division of Safety Systems
301-415-1105

4/17/11

Weaver, Tonna

From: Ruland, William *NR*
Sent: Wednesday, March 23, 2011 11:41 AM
To: Titus, Brett
Subject: FW: Response to what are we not getting done.

From: Giitter, Joseph *NR*
Sent: Wednesday, March 23, 2011 11:24 AM
To: Ruland, William
Cc: Howe, Allen; Nelson, Robert
Subject: Response to what are we not getting done.

Bill- As noted below we have put the brakes on several of the initiatives that we were working on. To date, licensing actions have not been held up even though we have implemented a process to screen selected near-term licensing actions and make a determination if additional scrutiny is appropriate.

1. We canceled the meeting with NEI's Licensing Action Task Force on 3/17 and we informed the LATF that we will not undertake any new initiatives at this time.
2. We informed NEI that we could no longer actively support its LAR pre-submittal meeting improvement initiative.
3. The NRR LT Subcommittee on Office Reorg has temporarily suspended its activities.
4. DORL has internally reduced its emphasis on the one-year licensing action timeliness metric.
5. We have temporarily suspended activities to improve the SER/RAI process.
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8. Full implementation of the pilot for standard timelines for routine licensing actions may have been delayed. Unable to confirm in time to meet the deadline for this response.

Joseph G. Giitter
Director
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Weaver, Tonna

From: Hiland, Patrick *in reply*
Sent: Wednesday, March 23, 2011 11:43 AM
To: Ruland, William
Cc: Titus, Brett; Meighan, Sean
Subject: More details in examples fyi

Importance: High

1. Due to time spent to answer questions and develop one pagers and Q's & A's there is a growing backlog of licensing actions requiring DE review and concurrence (e.g. slight delay [about week] in SER input for the Beaver Valley Unit 2 spent fuel pool re-rack license amendment, Slight delays for issuing RAls for Browns Ferry EDG AOTs, SE for Prairie Island AST, Point beach AST, TSTF 500 final changes, etc.).
2. Meetings postponed, cancelled, or not attended (e.g. TAG for DI&C, Wolf Creek EDG testing, Watts Bar EQ support, NIST Cable Research, Agency First-Line Supervisor and Team Leader Meeting with the EDO; Long term plant operation - NRC activities to prepare for 2nd license renewals (60 to 80 year period of extended operation).
3. Allegation Review Delay – seismic pertaining to Diablo Canyon.
4. DE received two 2.206 petitions that are directly related to the Japanese event. It's expected that there will be a rise in 2.206 petitions, and the impact on current workload is unknown.
5. Training cancelled (e.g. Difficult Conversations).

Weaver, Tonna

From: Hackett, Edwin *ACKS*
Sent: Wednesday, March 23, 2011 11:43 AM
To: Ruland, William
Subject: RE: RST Director

Will do – see you then.

Ed

From: Ruland, William *INRR*
Sent: Wednesday, March 23, 2011 11:42 AM
To: Hackett, Edwin
Subject: RE: RST Director

Yes. See you then. Could you show up about 15 minutes early?

From: Hackett, Edwin *ACKS*
Sent: Wednesday, March 23, 2011 11:35 AM
To: Ruland, William
Subject: RST Director

Hey!

I would appreciate the Bill Ruland short course on being an RST director sometime before 3/29. I am signed-up for several shifts as RST director starting on 3/29.

See you at the seminar today?

Thanks,

Ed

*Ed Hackett
Executive Director
Advisory Committee on Reactor Safeguards
U.S. Nuclear Regulatory Commission*

*Phone: 301-415-7360
E-mail: Edwin.Hackett@nrc.gov*

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Weaver, Tonna

From: Valentine, Nicholee *NRR*
Sent: Wednesday, March 23, 2011 11:43 AM
To: Nguyen, Quynh; Meighan, Sean; Titus, Brett
Cc: Blount, Tom
Subject: Question for the Impacts on Japan re: to OT

Since we were previously in a state of conducting business without OT, should Divisions consider the use of OT an impact?

Thanks-

Nikki Valentine

Technical Assistant
Division Policy and Rulemaking, NRR
Phone 301-415-1386

4/17/11

Weaver, Tonna

From: Galloway, Melanie *MGK*
Sent: Wednesday, March 23, 2011 11:47 AM
To: Ruland, William
Cc: Holian, Brian; Cheok, Michael; Lubinski, John
Subject: Impact on work from Japanese event response

License Renewal Delays:

- Follow-up safety RAIs for Seabrook will be delayed by two weeks. Potential to delay SER issuance.
- Draft of Information Notice related to torus degradation issues will be delayed by one month.
- Contractor-developed NUREG on structures degradation issues will be delayed by one month.

Impacts to LR from other Divisions (which you may have been provided separately by those Divisions):

- Pilgrim supplemental SER issuance will be delayed from April 11 to mid-May. (DCI)
- SAMA RAIs for Davis-Besse will be delayed by one week. Should not delay SEIS issuance. (DRA)

Weaver, Tonna

From: Westreich, Barry *INER*
Sent: Wednesday, March 23, 2011 11:51 AM
To: Ruland, William
Cc: Brown, Frederick; Franovich, Rani; Kobetz, Timothy; Thorp, John; McHale, John; Shoop, Undine; Klett, Audrey; Elliott, Robert; Meighan, Sean
Subject: DIRS work Impacted by Japan event response

As requested, below is a consolidated list of DIRS activities that have been impacted by support for the Japan event:

Operating Experience Branch

Items that are being delayed:

1. Delayed preparations for an upcoming June WGOE-WGIP workshop,
2. OpE analysis activities have been delayed or slowed, especially in looking for trends and patterns. Particularly the study on (a) ineffective use of Vendor technical recommendations/information and (b) a study on operating experience insights on corrective actions -- prioritization/timeliness of response to longstanding/repetitive issues (roof leaks, etc.). The analysis team has been trying to put the finishing touches on the vendor recommendations study. It is close to being completed. The corrective action study requires more work and includes efforts by analysis team staff.
3. Staff work on two proposed OpE Smart Samples (OpESSs) have been put on hold due to the Japan crisis.
4. Some lower priority staff work has been slowed, but not yet to the point of jeopardizing its completion. This includes one IN development task and some other work activities (i.e., support for an inspector training module development).

Operator Licensing Branch

(IOLB and IRIB) had just started working with NSIR on a TI for aircraft impact [50.54(hh)(1)]. This effort will involve the HOOs, and although we're just getting started and are doing some preliminary work on our own, The Japan events will likely interfere with participation by NSIR folks.

Performance Assessment Branch

1. There may be a delay in submitting the security re-integration Vote SECY.
2. There will be a delay in submitting the Public Radiation Safety Cornerstone Enhancement Vote SECY (assuming it is still needed), the Metric Report, and the consolidated response to the CY 2010 internal survey.
3. There will be a delay in issuing IMC 0609 revisions and in closing a number of feedback forms.

Reactor Inspection Branch

1. The ROP realignment
2. IRIB will not be sending out revisions to IMCs and IPs for regional for review and comment
3. Update to IMC-0620 is being delayed.
4. Delayed revision of IMC-0612 and development of the maintenance rule Reg Guide.

Technical Specification Branch

Currently no Impact

Health Physics and Human Performance Branch

Currently no Impact

Weaver, Tonna

From: Valentine, Nicholee *NV*
Sent: Wednesday, March 23, 2011 11:55 AM
To: Ruland, William; Titus, Brett; Nguyen, Quynh; Meighan, Sean
Cc: McGinty, Tim; Blount, Tom; Quay, Theodore
Subject: DPRs IMPACT ON NORMAL ACTIVITY
Attachments: IMPACT ON NORMAL ACTIVITY WHILE RESPONDING TO JAPAN NP CRISIS.docx

IMPACT ON NORMAL ACTIVITY WHILE RESPONDING TO JAPAN NP CRISIS

** Staff is working OT to cover Japan event therefore base activities continue and may not be reflected as impacts.

IMMEDIATE IMPACTS

- Delay the safety inspection and security inspection for University of Maryland Reactor (PROB)
- Delay the safety inspection of AFFRI Reactor (PROB)
- March 24 – Commission meeting on 50.46a - delayed indefinitely (PRMB)
- May 12 – Commission meeting on Cumulative Effects of Regulation - delayed indefinitely (PRMB)
- May 12 – new date for Commission meeting on EP rule (originally scheduled for June, 2011) (PRMB)
- Deferral of 1.5 FTE routine reviews and tracking of non-power reactor security and emergency preparedness plans and interactions with other Federal agencies (PRPB)
- Deferral of one Ops Center training session for non-power reactor incident response staff (PRPB)
- Deferred implementation of revised incident response program; however, the April 30 target for completion still looks possible. (PRPB)
- Fingerprint rulemaking package may be a few days late entering concurrence but should not impact final delivery to OEDO. (PRPB)
- Delay to October 2011 for RTR License Renewal Rulemaking (PRLB)
- Delay of Florida Digital I&C (PRLB)
- Delay to October 2011 Florida License Renewal (PRLB)
- Delay of Moly Working Group activities and HEU/LEU Conversion qualification (PRLB)
- Delay of TR ANP-10301P, "Statistical Universal Power Reconstruction with Fixed Margin Technical Specifications"-Lead Reviewer involved in response at Ops Center (PLPB)
- Delay of TR EMF-2103, "Realistic LBLOCA Methodology"- Lead Reviewer involved in response at Ops Center (PLPB)
- Delay of Revision of LIC-503, "Generic Communications Affecting Nuclear Reactor Licensees." The extent of the delay is not fully known at this time. It will depend on the extent of B.5.b related work that will be needed in the upcoming months. Eric Bowman was working on LIC-503 and has been pulled away on tasks related to the Japan event. Eric is also the lead on the generic letter associated with GI-199. Depending on the extent of his B.5.b work, I may need to shift that assignment to another member of the branch, which will impact their GC work to a certain extent. (PGCB)
- Delay of Revision to MD 8.11, "Review Process for 10CFR 2.206 Petitions." This will depend on the number of additional 2.206 petitions we receive due to the Japan event. Tanya Mensah has been working on the MD and has had to put it on the back burner for now due to the uptick in 2.206 petitions. (PGCB)
- Training and development have also been impacted. Eric Bowman has had to withdraw from two training classes so far: 1) Perspectives on Reactor Safety (R-800), and 2) NRC and Its Environment, due to his work on the Japanese event IN and Qs&As associated with B.5.b. Andrea Russell has had to pull out of a training trip to Peach Bottom. (PGCB)
- Delay of AREVA Fuel Performance Meeting may need to be pushed back from May 4/5. (PLPB)

- Delay of TR ANP-10307P, Revision 0, "AREVA MCPR Safety Limit Methodology for Boiling Water Reactors"-Final SE will need Tom's signature in ~ 1 week). (PLPB)
- Delay of TR WCAP-10216-P-A, Revision 1A, Addendum 1, "FQ Surveillance Technical Specification: Axial Offset Validity and Part-Power Surveillance Guidance," – We are in a middle of deciding on final approach (most likely withdrawal of this TR by Westinghouse), but cannot reach final conclusion without concurrence of the technical branch chief, Tony Ulses, who currently is in Japan. (PLPB)
- Delay of budget responses for FY 2013 budget formulation and other TA taskings (DPR TA)

FUTURE IMPACTS

- University of Wisconsin (Safety Inspection) April 2011 (PROB)
- International Activities - Multilateral and Bilateral support (PFIB)
- Delayed PRM-50-93/95 (PRMB)
- The impact of the 30-day quick look and 90-day evaluation discussed at the March 14th Commission meeting is not yet known as whom may be assigned to these task forces. (PLPB)
- Issuance of Information Notices may be delayed resulting in an average time to completion of 5 to 6 months instead of 4 months. Due to fast turnaround GCs that have been requested so far (government shutdown RIS, Japan event IN), and the expectation that there will be more, some of the staff that work on the more routine INs have been diverted and are just getting back to their regular workload. In addition, I have been periodically working in the Operations Center. PGCB staff have had to act for me on many occasions lately which has pulled them away from their work on generic communications. (PGCB)
- NRR Performance Metrics for RISs and INs may also be affected if we receive a lot of additional 2.206 petitions because we will need these same staff to coordinate the 2.206 petitions. (PGCB)

Weaver, Tonna

From: Lehning, John
Sent: Friday, March 11, 2011 12:53 PM
To: Klein, Paul
Subject: Airlifted Coolant

Wonder about the details of how this played out. I still see stories talking about the primary pressure rising, now going on 13 hours after the event initiated.

Quote from:

<http://ecocentric.blogs.time.com/2011/03/11/japan-quake-causes-nuclear-fears/>

Later on Friday Hillary Clinton said the U.S. had assisted in the emergency by sending coolant to the plant. "We just had our Air Force assets in Japan transport some really important coolant to one of the nuclear plants," Clinton said, according to Reuters. "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."

Weaver, Tonna

From: Lehning, John
Sent: Friday, March 11, 2011 1:00 PM
To: Klein, Paul
Subject: RE: Airlifted Coolant

Yeah, no kidding. It also looks like externally, the Lochbaums and Lymans are being quoted versus officials, since official sources can't or won't comment.

Another site says this:

Kyodo news agency quoted the company as saying that the radiation level was rising in the turbine building and the pressure had risen to 1.5 times the designed capacity.

I hope that's not correctly interpreted as 1.5x design pressure of the RPV...

From: Klein, Paul
Sent: Friday, March 11, 2011 12:54 PM
To: Lehning, John
Subject: RE: Airlifted Coolant

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Weaver, Tonna

From: Lehning, John
Sent: Friday, March 11, 2011 3:00 PM
To: Klein, Paul
Subject: RE: Airlifted Coolant

I assume first story is controlled venting of primary containment – high pressure in primary system must have lifted SRVs and pressurized the containment to the point where venting has become an option? Wow...

<http://www.latimes.com/news/nationworld/world/la-fgw-japan-quake-nuclear-20110312,0,3015818.story>

Cooling soon to be restored -

<http://www.platts.com/RSSFeedDetailedNews/RSSFeed/ElectricPower/6900698>

From: Klein, Paul
Sent: Friday, March 11, 2011 2:13 PM
To: Lehning, John
Subject: RE: Airlifted Coolant

<http://e.nikkei.com/e/fr/tnks/Nni20110311D11JF351.htm>

From: Lehning, John
Sent: Friday, March 11, 2011 1:00 PM
To: Klein, Paul
Subject: RE: Airlifted Coolant

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Weaver, Tonna

From: Ferrell, Kimberly *mk*
Sent: Wednesday, March 23, 2011 12:15 PM
To: Ruland, William; Hiland, Patrick; Cheok, Michael; Giitter, Joseph; Lund, Louise; Quay, Theodore; Bahadur, Sher; Lubinski, John; Thomas, Brian
Cc: Titus, Brett; Meighan, Sean; Givvines, Mary
Subject: RE: Input on what is delayed or not getting done? I need input by noon. <eom>

Bill,

PMDA work that is not getting done:

Communications – HIGNFY – no impact as communication has taken place outside of this vehicle. The next HIGNFY is scheduled for April.

Human Capital – Operations activities have been delayed but no major impact as we currently do not have any urgent actions.

IT – Delays to work on the RPS database replatform – don't know the impact but have queried Bryan and will provide his response as a follow-up.

Please let me know if you have any questions.

Thanks!
Kimberly

From: Ruland, William *mk*
Sent: Wednesday, March 23, 2011 11:11 AM
To: Hiland, Patrick; Cheok, Michael; Giitter, Joseph; Lund, Louise; Quay, Theodore; Bahadur, Sher; Ferrell, Kimberly; Lubinski, John; Thomas, Brian
Cc: Titus, Brett; Meighan, Sean
Subject: Input on what is delayed or not getting done? I need input by noon. <eom>

Weaver, Tonna

From: Titus, Brett *MBR*
Sent: Wednesday, March 23, 2011 12:34 PM
To: Ruland, William; Hiland, Patrick; Cheok, Michael; Giitter, Joseph; Lund, Louise; Quay, Theodore; Bahadur, Sher; Ferrell, Kimberly; Lubinski, John; Thomas, Brian
Cc: Meighan, Sean
Subject: RE: Input on what is delayed or not getting done? I need input by noon. <eom>
Attachments: Impacts of Japanese Events on NRR Activities.docx

Thanks so much to everyone for contributing to this very short-fuse task. We did our best to consolidate the information given the timeframe. Apologies if some of the items (or perhaps part of the descriptions) you sent were shortened or omitted. The list which went up with Eric is attached.

The list is going to be a living document for the short term, so keep this in mind as you manage your workload.

Thanks again,

Brett Titus
301-415-3075

From: Ruland, William *MBR*
Sent: Wednesday, March 23, 2011 11:11 AM
To: Hiland, Patrick; Cheok, Michael; Giitter, Joseph; Lund, Louise; Quay, Theodore; Bahadur, Sher; Ferrell, Kimberly; Lubinski, John; Thomas, Brian
Cc: Titus, Brett; Meighan, Sean
Subject: Input on what is delayed or not getting done? I need input by noon. <eom>

Early Assessment of the Effects of Japanese Events on NRR Activities (Preliminary)

Growing Backlog of Licensing Actions

- SER input for the Beaver Valley Unit 2 spent fuel pool re-rack license amendment (slight delay – about 1 or 2 weeks)
- Slight delays for issuing RAIs for Browns Ferry EDG AOTs
- SE for Prairie Island AST
- Point beach AST
- TSTF 500 final changes
- Issuing the final DSS Interim Staff Guidance on SFP Nuclear Criticality Safety (NCS) analysis
- Revising the NRR Action Plan on SFP NCS analysis
- Watts Bar SE, Section 15.2.4,
- St. Lucie EPU RAIs
- TMI Main Steam Safety License Amendment Request –SER delayed
- Update RG 1.137, Diesel Generator Fuel Oil, NRO contacted to take the lead
- Seabrook License Renewal SER, final approval- delay
- Callaway Extension of Completion time for BOP ESFAS
- DORL has internally reduced its emphasis on the one-year licensing action timeliness metric.
- We have temporarily suspended activities to improve the SER/RAI process.
- Concurrence/non-concurrence on the memo providing guidance to the staff on EP/EAL reviews has been delayed.
- Davis-Besse SAMA RAI schedule (due to DLR on 3/25) will be delayed 2-5 days

Travel/Training

- Difficult Conversations
- SER/RAI training for NSIR has been delayed.
- 1 missed required Project Management training class.
- TAG for DI&C
- Deferral of one Ops Center training session for non-power reactor incident response staff (PRPB)

Allegations

- Allegation Review Delay – seismic pertaining to Diablo Canyon

Other Items of Note

- DE received two 2.206 petitions that are directly related to the Japanese event. It's expected that there will be a rise in 2.206 petitions, and the impact on current workload is unknown
- Meetings postponed, cancelled, or not attended (e.g. TAG for DI&C, Wolf Creek EDG testing, Watts Bar EQ support, NIST Cable Research, Agency First-Line Supervisor

Early Assessment of the Effects of Japanese Events on NRR Activities (Preliminary)

and Team Leader Meeting with the EDO; Long term plant operation - NRC activities to prepare for 2nd license renewals (60 to 80 year period of extended operation).

- We canceled the meeting with NEI's Licensing Action Task Force on 3/17 and we informed the LATF that we will not undertake any new initiatives at this time.
- We informed NEI that we could no longer actively support its LAR pre-submittal meeting improvement initiative.
- The NRR LT Subcommittee on Office Reorg has temporarily suspended its activities.

Early Assessment of the Effects of Japanese Events on NRR Activities (Preliminary)

DPR's Abbreviated List

** Staff is working OT to cover Japan event therefore base activities continue and may not be reflected as impacts.

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Weaver, Tonna

From: Thomas, Brian *NRB*
Sent: Wednesday, March 23, 2011 12:35 PM
To: Williams, Shawn; Ruland, William
Cc: Lubinski, John; Cusumano, Victor; Hardies, Robert; Karwoski, Kenneth; Lupold, Timothy; McMurtray, Anthony; Mitchell, Matthew; Taylor, Robert
Subject: Japan Impact DCI.docx
Attachments: Japan Impact DCI.docx

Shawn, Bill,
As requested, here is the DCI impacts due to the Japan event related activities. We based our list on a few assumptions as noted in the front of the list.

...brian

4/18/2

Assessment of Impact of Responding to the Japanese Events on DCI Resources, Deliverables, Work Products and Activities

Assumptions:

DCI will be providing support to the Ops Center for the duration of the event

The Ops Center staffing will continue for 90 days

DCI will provide approximately two staff who may travel to Japan for two weeks each

NRR Divisions and NRC Offices whose interface with DCI is essential for DCI work processes will be impacted by the Japanese event to varying degrees

Japan issues to date have not been materials related so there has not been a severe drain on DCI resources. There have been two quick turnaround questions that have been answerable with fewer than six man-hours of work, each. We assume that the situation will continue in this manner. If materials issues become important then DCI resources impacts will be much more severe.

There may be emergency diesel generator issues arising from the Japanese event that would impact DCI resources.

Probable impacts:

Alternative deployment of branch chiefs will impact certain administrative goals such as completing mid-year reviews by specific dates.

The current 50.55(a) rulemaking may be delayed by resource issues in other divisions and offices. We assume the delay will be one month.

Work on the new 50.55(a) rulemaking will be impacted with an expected delay of at least one month.

The diversion of staff can be accommodated by delaying or deferring certain lower priority activities. We will continue to focus on satisfying metrics. Our assessment of direct impacts to DCI productivity include:

- Several licensing reviews and safety evaluations may be delayed by up to one month.
- Several reviews of RES products may be delayed by up to one month.
- One or more topical report review schedules may be delayed by up to one month.

- Travel and bi-lateral activities associated with Japan, will be delayed several months
- Most other bi-laterals will be similarly affected with delays and cancellation of travel
- If Japan actions must be funded out of the current budget, certain research activities, Codes and Standards activities and travel to various meetings would need to be significantly delayed.

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Weaver, Tonna

From: World Nuclear News [wnn=world-nuclear-news.org@mail265.us2.mcsv.net] on behalf of World Nuclear News [wnn@world-nuclear-news.org]
Sent: Wednesday, March 23, 2011 1:51 PM
To: Panicker, Mathew
Subject: WNN Daily: Fukushima faced 14-metre tsunami

[View the WNN Daily in your browser.](#)

WNN DAILY
world nuclear news

Today's top stories

23 March 2011

REGULATION & SAFETY: Fukushima faced 14-metre tsunami
Tokyo Electric Power Company has revised the estimated size of the earthquake and tsunami that hit the Fukushima Daiichi nuclear power plant.

REGULATION & SAFETY: Warning on Tokyo tap water
Parents in Tokyo have been recommended to avoid giving tap water to infants under one year of age, although no health effect would be expected. Restrictions on food have also been expanded.

REGULATION & SAFETY: Ministers authorise nuclear 'stress tests'
European Union ministers have agreed to launch a safety assessment of Europe's 143 nuclear power reactors, re-checking their safety in the light of the Fukushima nuclear accident.

INDUSTRY TALK: UK government introduces carbon floor price
The UK has become the first country in the world to introduce a carbon price floor for the power generation sector. Chancellor George Osborne announced in his budget speech today that the government will introduce a floor price for carbon from 1 April 2013, aimed at "driving investment in the low-carbon power sector."

An archive of all WNN's reporting on the Japanese earthquake and subsequent tsunami and their effects on the Fukushima Daiichi and Daini plants can be found on the WNA website.

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Weaver, Tonna

From: Nuclear Plant Journal [anu@goinfo.com]
Sent: Wednesday, March 23, 2011 3:14 PM
To: Panicker, Mathew
Subject: NPJ E-News March 23, 2011 Fukushima Update

Having trouble viewing this email? [Click here](#)



Nuclear Plant Journal

An International Publication
Published in the United States

Nuclear Plant Journal E-News

Japan Update
March 23, 2011

Dear MATHEW,

In this issue of NPJ E-News you'll find an update of the Fukushima Nuclear Plants in Japan. Information is current as of March 23, 2011, 13:00 CDT. All items are directly quoted, without any editing.

In this issue

[TEPCO Update](#)

[JAIF Status Update](#)

[Status Document](#)

TEPCO Update

From the [TEPCO website](#):

- At 11:00 am on March 23rd, the injection of sea water to spent fuel pool was conducted, and finished approximately at 1:20 pm on the same day.
- At 4:20 pm on March 23rd, light gray smoke was observed belching from Unit 3 building. The situation was reported to the fire department at 4:25 pm on March 23rd. The parameters of the reactor, the reactor containment vessel of Unit 3, and monitored figures around the site's immediate surroundings remained stable without significant change. To be safe, workers in the main control room of Unit 3 and around Unit 3 evacuated to a safe location.
- From approximately 10:00 am on March 23rd, water discharge from the concrete pumping vehicle was conducted and ended at approximately 1:00 pm on the same day.

[Click for more...](#)

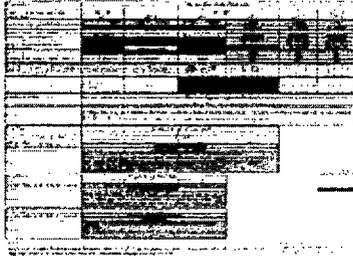
Status Updates of TEPCO Facilities (from the [JAIF website](#))

- Tokyo Fire Department will spray water to Unit-3 in this afternoon through cooperation with

Osaka Fire Department.

- The operation to inject water to the spent fuel pool of Unit-4 was started with special vehicle around 10:00. This vehicle has a long arm that enables to pour water to a target. (11:10, March 23).
- TEPCO will conduct test operation for pumps, which are to inject water into the reactor at unit-3. External AC power to the main control room of Unit-3 became available at 13:43 of March 22. (10:55, March 23).

[Click for more...](#)



JAIF Status Update

A [PDF document](#) provides a simple summary of each of the units at Fukushima nuclear power plants. This is a multi-page document that also provides a chronology of events and a map that details the status of each of the Japanese nuclear units.

Quick Links...

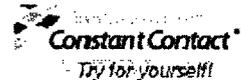
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- [Cost-free Subscription](#) (to NPJ)
- [JAIF](#)
- [TEPCO](#)
- [U.S. NRC Actions on Japan](#)

Contact Information

phone: 630-313-6739
email: NPJ@goinfo.com

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Nuclear Plant Journal 1400 Opus Place, Suite 904 : Downers Grove IL 60515

Weaver, Tonna

From: Helton, Shana *SHR*
Sent: Wednesday, March 23, 2011 3:53 PM
To: Ruland, William
Cc: Blount, Tom; McGinty, Tim; Dudley, Richard; Quay, Theodore; Bahadur, Sher; Mendiola, Anthony; Collins, Timothy; Valentine, Nicholee
Subject: Input for EDO tracking of delays: Delay of Petition for Rulemaking 50-93/95 due to Japan events

Bill,

Dick Dudley, the project manager for the subject petition (PRM), was discussing staff availability with Tim Collins, Sher Bahadur, and Tony Mendiola. Sher recommended we alert you to the fact that all cognizant NRR/DSS staff, who would be qualified to serve on the working group for PRM-50-93/95, are otherwise occupied in various capacities responding to the recent events in Japan.

Therefore, this PRM will be significantly delayed. Our understanding is that the draft SRM regarding activities studying the Japan events would involve staff efforts up to 9 months from issuance of the SRM. We will evaluate what the new schedule for this PRM might be, but in the meantime, are providing this info to you for any list of delayed/deferred activities you are providing/have provided to the EDO.

-Shana

Shana Helton, Chief
Rulemaking Branch (PRMB)
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
301-415-7198; shana.helton@nrc.gov

2/185

Weaver, Tonna

From: Gray, Kathy *mk*
Sent: Wednesday, March 23, 2011 4:02 PM
To: Case, Michael; Skeen, David; Uhle, Jennifer; Brown, Frederick; Ruland, William; Hiland, Patrick; Holian, Brian
Cc: Thorp, John; Thomas, Eric; Cunningham, Liza
Subject: RE: ACTION: Confirmation requested for RST Director Schedule - 3/26-4/2/2011

Yes, I will. Thanks!

From: Case, Michael *MS*
Sent: Wednesday, March 23, 2011 2:28 PM
To: Skeen, David; Gray, Kathy; Uhle, Jennifer; Brown, Frederick; Ruland, William; Hiland, Patrick; Holian, Brian
Cc: Thorp, John; Thomas, Eric; Cunningham, Liza
Subject: RE: ACTION: Confirmation requested for RST Director Schedule - 3/26-4/2/2011

Sounds great. Kathy can you make that change?

From: Skeen, David *mk*
Sent: Wednesday, March 23, 2011 1:59 PM
To: Case, Michael; Gray, Kathy; Uhle, Jennifer; Brown, Frederick; Ruland, William; Hiland, Patrick; Holian, Brian
Cc: Thorp, John; Thomas, Eric; Cunningham, Liza
Subject: RE: ACTION: Confirmation requested for RST Director Schedule - 3/26-4/2/2011

Thanks for being flexible, Mike.

In that case, I'll take mid-shift on 3/26-3/29, and you can take it from 3/30-4/2.

From: Case, Michael
Sent: Tuesday, March 22, 2011 2:54 PM
To: Skeen, David; Gray, Kathy; Uhle, Jennifer; Brown, Frederick; Ruland, William; Hiland, Patrick
Cc: Thorp, John; Thomas, Eric; Cunningham, Liza
Subject: RE: ACTION: Confirmation requested for RST Director Schedule - 3/26-4/2/2011

It looks like I'm very moveable since we're both on mids. Just propose which ones you want to do and I'll do the rest.

From: Skeen, David
Sent: Tuesday, March 22, 2011 2:48 PM
To: Gray, Kathy; Uhle, Jennifer; Brown, Frederick; Ruland, William; Hiland, Patrick; Case, Michael
Cc: Thorp, John; Thomas, Eric; Cunningham, Liza
Subject: RE: ACTION: Confirmation requested for RST Director Schedule - 3/26-4/2/2011

All,

I will be unable to support the RST from April 1 – April 14, since I will be in Vienna for the Convention on Nuclear Safety. I can swap with someone and take one of the shifts earlier in the week, if someone would care to swap (maybe Fred or Mike?).

Thanks!

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From: Gray, Kathy *inrc*
Sent: Tuesday, March 22, 2011 12:04 PM
To: Skeen, David; Uhle, Jennifer; Brown, Frederick; Ruland, William; Hiland, Patrick; Case, Michael
Cc: Thorp, John; Thomas, Eric; Cunningham, Liza; Gray, Kathy
Subject: ACTION: Confirmation requested for RST Director Schedule - 3/26-4/2/2011
Importance: High

Please confirm that you are available to provide coverage in the Ops Center, as the RST Director, as follows:

Reactor Safety Team (RST) Director Schedule

March 26 – April 2, 2011

Shift	3/26 (Sat)	3/27 (Sun)	3/28 (Mon)	3/29 (Tues)	3/30 (Wed)	3/31 (Thur)	4/1 (Fri)	4/2 (Sat)
7am–3pm	Pat Hiland	Pat Hiland	Pat Hiland	Jennifer Uhle	Jennifer Uhle	Jennifer Uhle	Jennifer Uhle	Brian Holian
3pm–11pm	Bill Ruland	Fred Brown	Fred Brown	Fred Brown	Fred Brown	Bill Ruland	Bill Ruland	Bill Ruland
11pm–7am	Mike Case	Mike Case	Mike Case	Mike Case	Dave Skeen	Dave Skeen	Dave Skeen	Dave Skeen

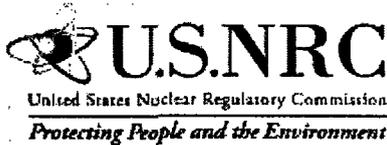
Thanks very much.

Kathy A. Gray

Information Management Asst.
 Operating Experience Branch, DIRS/NRR
 Rm. O-7F04, Phone: 301-415-1166
Kathy.Gray@nrc.gov

Weaver, Tonna

From: EDO Update [nrc.announcement@nrc.gov]
Sent: Wednesday, March 23, 2011 4:21 PM
To: Taylor, Renee
Subject: EDO Update



EDO Update

Wednesday, March 23, 2011



The NRC (as well as many other parts of the U.S. government) is continuing to provide assistance to Japan. Nearly every NRC employee has been affected, in one way or another, by our response to the Japan tragedy. We are beginning to send replacement staff to Japan for our team of NRC experts and 24/7 staffing of the operations center continues. I thank you for your adaptability, flexibility and willingness to contribute your efforts to our important work. Despite the fact that so much public attention is being directed to our Japan efforts, we continue to meet our primary responsibility of ensuring U.S. public health and safety.

Fukushima Event and Normal NRC Operations

Although the situation is still dynamic, events at the Fukushima reactor site appear to be on the road to stabilizing. A wide range of complex technical challenges are being addressed in Japan including the restoration of "normal" electric power to the reactor plant equipment. I would like to reiterate my thanks and those of the Chairman and Commission both to those of you who are responding to the events in Japan and to those of you who continue to carry out our mission of ensuring the safe and secure civilian uses of nuclear materials in the U.S. I am impressed by the commitment and flexibility you have shown in challenging circumstances. Nearly everyone in the agency has had to step up with extra effort as many managers and staff have taken on additional duties. I would ask you all to continue demonstrating the same dedication for a bit longer, and to continue upholding the NRC Values and the principles of an Open, Collaborative Work Environment.

The Office of Human Resources has distributed information to supervisors and timekeepers to summarize the options and guidelines for determining work schedules and premium pay for employees serving in and supporting the Operations Center, or working in Japan. I ask supervisors to exercise flexibility and understanding as they accommodate responders' often unpredictable work schedule and premium pay needs.

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For those who did not have a chance to watch last Friday's All Employees meeting, the video is available here:

<http://r2.nrc.gov/videoarchive/ViewVideo.cfm?vlink=275>

The video, as well as the PowerPoint files and transcript, of Monday's Commission meeting are available on this NRC public website page dedicated to the Fukushima events. I encourage the staff to periodically check this link for other updated information on the event.

<http://www.nrc.gov/japan/japan-info.html>

Continuing Resolution

Congress has passed, and the President signed, another Continuing Resolution, extending federal government funding through April 8th. We continue to be prepared for a variety of scenarios.

Ann Thomas Retirement

Ann Thomas, a long-time NRC employee known to many of you as the editor of the *NRC Reporter* (and before that, the *NR&C* newsletter) and a pillar of the Employees Welfare and Recreation Association, will be retiring at the end of this month. Please join me in extending to Ann our best wishes for an enjoyable retirement in her new home.



Bill Borchardt, EDO

Weaver, Tonna

From: opa administrators [opa@nrc.gov]
Sent: Wednesday, March 23, 2011 6:48 PM
To: Panicker, Mathew
Subject: Nuclear Regulatory Commission Directs Staff on Continuing Agency Response to Japan Events; Adjusts Commission Schedule
Attachments: 11-055.pdf

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NRC NEWS

U.S. NUCLEAR REGULATORY COMMISSION

Office of Public Affairs Telephone: 301/415-8200

Washington, D.C. 20555-0001

E-mail: opa.resource@nrc.gov Site: www.nrc.gov

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

No. 11-055

March 23, 2011

NUCLEAR REGULATORY COMMISSION DIRECTS STAFF ON CONTINUING AGENCY RESPONSE TO JAPAN EVENTS; ADJUSTS COMMISSION SCHEDULE

The Nuclear Regulatory Commission has voted to launch a two-pronged review of U.S. nuclear power plant safety in the aftermath of the March 11 earthquake and tsunami and the resulting crisis at a Japanese nuclear power plant.

The Commission supported the establishment of an agency task force, made up of current senior managers and former NRC experts with relevant experience. The task force will conduct both short- and long-term analysis of the lessons that can be learned from the situation in Japan, and the results of their work will be made public.

“Our focus is always on ensuring the health and safety of the American people through our licensing and oversight of plants and radioactive materials in this country,” Chairman Jaczko said. “Examining all the available information from Japan is essential to understanding the event’s implications for the United States. We will perform a systematic and methodical review to see if there are changes that should be made to our programs and regulations to ensure protection of public health and safety.”

The Commission set an aggressive schedule for the task force to provide formal updates on the short-term effort in 30, 60 and 90 days. NRC senior technical staff provided the Commission a 90-minute briefing on Monday, as a first step. The staff reiterated their conclusions that the United States and its territories will avoid any harmful radiation levels as a result of the ongoing events at the Fukushima Daiichi plant damaged by the quake and subsequent tsunami.

NRC inspectors who are posted at every U.S. nuclear power plant will also support the task force’s short-term effort, supplemented as necessary by experts from the agency’s regional and headquarters offices.

“This work will help determine if any additional NRC responses, such as Orders requiring immediate action by U.S. plants, are called for, prior to completing an in-depth investigation of the information from events in Japan,” said NRC Executive Director for Operations Bill Borchardt.

The longer-term review will inform any permanent NRC regulation changes determined to be necessary. The Commission said it hopes the task force can begin the long-term evaluation in no later than 90 days, and added that the task force should provide a report with recommended actions within six months of the beginning of that effort.

The Commission also decided to revise its schedule for meetings and briefings to allow ample focus on the agency's response to events in Japan. Open Commission meetings on the status of the NRC response to the Japan earthquake are scheduled for April 14 and 28, a meeting on the staff's 30-day response is planned for May 3 and a meeting on the staff's 60-day response is planned for June 16. A revised Commission meeting schedule will be posted shortly on the NRC website.

###

News releases are available through a free *listserv* subscription at the following Web address: <http://www.nrc.gov/public-involve/listserver.html>. The NRC homepage at www.nrc.gov also offers a SUBSCRIBE link. E-mail notifications are sent to subscribers when news releases are posted to NRC's website.

Cheok, Michael

From: Cheok, Michael
Sent: Wednesday, March 23, 2011 9:54 AM
To: Laur, Steven; Tate, Travis; Harrison, Donnie; Rodriguez, Veronica
Cc: Lee, Samson
Subject: Impact statement

All – a quick request (due by noon today, sorry). We have been asked to provide an “impact statement” for our support to the Ops center and related events tied to the Japanese earthquake. So if we had to delay an SE, cancel a public meeting, put off training or travel, etc. these could count as impacts. I kind of remember Jeff canceling a PM training because of duty at the Ops Center. Anything else?

DRA participants at the Ops Center: John Parillo, Jerry Dozier, Jeff Circle, Steve Laur
Commission mtg: Donnie

Nguyen, Quynh

From: Markley, Michael
Sent: Wednesday, March 23, 2011 12:10 PM
To: Nguyen, Quynh; Meighan, Sean
Subject: FW: Query: Plants on Coastal Waterways

Any answer wrt to our Sharepoint site?

From: Hiland, Patrick
Sent: Wednesday, March 23, 2011 11:11 AM
To: Markley, Michael
Subject: RE: Query: Plants on Coastal Waterways

How do we know which Qs and As are OK'd by OPA?

From: Markley, Michael
Sent: Wednesday, March 23, 2011 10:49 AM
To: Hiland, Patrick; Nelson, Robert; Oesterle, Eric
Subject: RE: Query: Plants on Coastal Waterways

This was cleared by OPA

From: Hiland, Patrick
Sent: Wednesday, March 23, 2011 10:23 AM
To: Nelson, Robert; Markley, Michael; Oesterle, Eric
Subject: RE: Query: Plants on Coastal Waterways

Nelson, I found the below on the NRR TA sharepoint site. Can I (or you) provide this to NEI for their info?

"Which reactors are along coastal areas that could be affected by a tsunami?"

Many nuclear plants are located in coastal areas that could potentially be affected by a tsunami. Two nuclear plants, Diablo Canyon and San Onofre, are on the Pacific Coast, which is known to have a tsunami hazard. Two nuclear plants on the Gulf Coast, South Texas and Crystal River, could also be affected by tsunami. There are many nuclear plants on the Atlantic Coast or on rivers that may be affected by a tidal bore resulting from a tsunami. These include St. Lucie, Turkey Point, Brunswick, Oyster Creek, Millstone, Pilgrim, Seabrook, Calvert Cliffs, Salem/Hope Creek, and Surry. Tsunami on the Gulf and Atlantic Coasts occur, but are very rare. Generally the flooding anticipated from hurricane storm surge exceeds the flooding expected from a tsunami for nuclear plants on the Atlantic and Gulf Coast. Regardless, all nuclear plants are designed to withstand a tsunami."

From: Nelson, Robert
Sent: Wednesday, March 23, 2011 10:20 AM
To: Markley, Michael; Oesterle, Eric
Cc: Hiland, Patrick
Subject: Query: Plants on Coastal Waterways
Importance: High

Do we have a Q&A that identifies plants on coastal waterways? Pat Hiland needs this info to compare with a list prepared by NEI. I'd appreciate if you could give this a high priority.

Nguyen, Quynh

NRR

From: Nguyen, Quynh
Sent: Wednesday, March 23, 2011 10:05 AM
To: Harrison, Donnie
Cc: Thomas, Eric
Subject: RE: Japan support

Heather was collecting for Ops and going to Japan.

From: Harrison, Donnie
Sent: Wednesday, March 23, 2011 10:03 AM
To: Nguyen, Quynh
Subject: FW: Japan support

FYI – volunteering to help, as best meets the needs of the agency. Didn't know who was the point of contact on volunteering.

From: Harrison, Donnie
Sent: Wednesday, March 23, 2011 9:50 AM
To: Astwood, Heather
Subject: RE: Japan support

If there is technical support needed here or in Japan, is there someone else handling volunteers for that?

From: Astwood, Heather
Sent: Wednesday, March 23, 2011 9:24 AM
To: Harrison, Donnie
Subject: RE: Japan support

Thanks Donnie,

I was collecting names for the request to assist OIP and have not heard back from them yet. I do not know what other requests for assistance I might get in the future but you are now on the list. Thanks!

From: Harrison, Donnie
Sent: Wednesday, March 23, 2011 9:10 AM
To: Astwood, Heather
Subject: Japan support

Heather,

This e-mail is to let you know that I am available to support the Japan event activities in whatever way is appropriate. I am the branch chief for the probabilistic risk assessment licensing (APLA) branch in NRR. Let me know if you want my assistance.

Thanks!

Donnie

4/19/11

Nguyen, Quynh

TKH

From: Kobetz, Timothy
Sent: Wednesday, March 23, 2011 9:10 AM
To: Nguyen, Quynh
Cc: Westreich, Barry
Subject: Bullets for EDO call with RAs
Attachments: TI Objectives.docx

Quynh,

Attached are my bullets on the TI being prepared for followup of the Japanese event.

Let me know if you have any questions.

Tim

Overview of TI 2515/183, "FOLLOWUP TO THE FUKUSHIMA DAIICHI NUCLEAR STATION
FUEL DAMAGE EVENT"
March 23, 2011

TI Objectives

- The objective of this TI is a high-level, independent assessment, of the adequacy of actions taken by licensees in response to the Fukushima Daiichi nuclear station fuel damage event.
- The inspection results from this TI will be used to evaluate the industry's readiness for a similar event and to aid in determining whether additional regulatory actions warranted.

TI Focus Areas

1. Assess the licensee's capability to mitigate conditions that result from beyond design basis events (e.g., B.5.b and 10 CFR 50.54(hh)).
2. Assess the licensee's capability to mitigate station blackout (SBO) conditions, as required by 10 CFR 50.63.
3. Assess the licensee's capability to mitigate internal and external flooding events required by station design.
4. Assess the thoroughness of the licensee's walkdowns and inspections of important equipment needed to mitigate fire and flood events to identify the potential that the equipment's function could be lost during seismic events possible for the site.

TI Inspection Methods

- Use existing inspection procedures and TIs for guidance
- Where applicable, inspectors should credit the baseline inspection program for samples reviewed during this TI assessment.
- Resources: 40 hours per site.

Other Issues

- Each site will complete the inspection by April 29, 2011 and issue a stand-alone report by May 13, 2011
- An inspection report template is being prepared (and should be available mid-next week) to assist in documentation.
- The short inspection and documentation timeline could have a significant impact on regional resources.

Caponiti, Kathleen

From: Silk, Anne
Sent: Wednesday, March 23, 2011 5:16 PM
To: Thomas, Brian
Cc: Katoski, Alice; Lubinski, John
Subject: FW: LT Task List - Staff for third team to Japan has been assigned to you

Hi Brian,

I am trying to find out who needs to add you to the LT SharePoint site. In the meantime, can you please respond directly to Bill Ruland with CC to myself and Alice Katoski. Either Alice or I can go into the system and change the item to complete if we still haven't gotten you in the system by that time.

Thanks,
Anne

From: Lubinski, John
Sent: Wednesday, March 23, 2011 5:04 PM
To: SharePoint Help; Silk, Anne; Thomas, Brian; Katoski, Alice
Subject: RE: LT Task List - Staff for third team to Japan has been assigned to you

Anne, Alice,

Not sure who has lead for these. If not you, can you forward to appropriate lead. I will be out rest of this week. Please assign to Brian Thomas.

Thanks

From: Leadership Team Portal [<mailto:sharepoint-help@nrc.gov>]
Sent: Wednesday, March 23, 2011 4:55 PM
To: Lubinski, John
Subject: LT Task List - Staff for third team to Japan has been assigned to you
SharePoint Tasks List: LT Task List
<http://portal.nrc.gov/edo/nrr/ltmeeting/Lists/Tasks>

[Leadership Team Portal](#)

Staff for third team to Japan has been assigned to you

[Modify my alert settings](#) : [View Staff for third team to Japan](#) [View LT Task List](#) [Mobile View](#)

Title:	Staff for third team to Japan
Priority:	(2) Normal
Date Assigned:	3/18/2011
Description:	Divisions must identify staff for third team to Japan and provide to LT Chair.
Due Date:	3/25/2011
Assigned To:	Lubinski, John
Division:	DCI

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Date Completed:

Comments on Current Status:

Task Status: Open

Modified: 3/23/2011 4:51 PM

Created: 3/23/2011 4:51 PM

Last Modified 3/23/2011 4:51 PM by Silk, Anne

Galloway, Melanie

NMK

From: Galloway, Melanie
Sent: Wednesday, March 23, 2011 11:47 AM
To: Ruland, William
Cc: Holian, Brian; Cheok, Michael; Lubinski, John
Subject: Impact on work from Japanese event response

License Renewal Delays:

- Follow-up safety RAIs for Seabrook will be delayed by two weeks. Potential to delay SER issuance.
- Draft of Information Notice related to torus degradation issues will be delayed by one month.
- Contractor-developed NUREG on structures degradation issues will be delayed by one month.

Impacts to LR from other Divisions (which you may have been provided separately by those Divisions):

- Pilgrim supplemental SER issuance will be delayed from April 11 to mid-May. (DCI)
- SAMA RAIs for Davis-Besse will be delayed by one week. Should not delay SEIS issuance. (DRA)

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Susco, Jeremy

From: Susco, Jeremy - *WJG*
Sent: Wednesday, March 23, 2011 11:41 AM
To: Galloway, Melanie
Subject: RE: Input on what is delayed or not getting done? I need input by noon. <eom>

License Renewal Delays:

- Pilgrim supplemental SER issuance will be delayed from April 11 to mid-May.
- SAMA RAIs for Davis-Besse will be delayed by one week. Should not delay SEIS issuance.
- Follow-up safety RAIs for Seabrook will be delayed by two weeks. Potential to delay SER issuance.
- Draft of Information Notice related to torus degradation issues will be delayed by one month.
- Contractor-developed NUREG on structures degradation issues will be delayed by one month.

From: Galloway, Melanie
Sent: Wednesday, March 23, 2011 11:26 AM
To: Susco, Jeremy
Subject: FW: Input on what is delayed or not getting done? I need input by noon. <eom>

Now the deadline has moved up 30 minutes. If you don't have all, could you track down? Thanks.

From: Lund, Louise
Sent: Wednesday, March 23, 2011 11:13 AM
To: Galloway, Melanie
Subject: FW: Input on what is delayed or not getting done? I need input by noon. <eom>

From: Ruland, William
Sent: Wednesday, March 23, 2011 11:11 AM
To: Hiland, Patrick; Cheok, Michael; Giitter, Joseph; Lund, Louise; Quay, Theodore; Bahadur, Sher; Ferrell, Kimberly; Lubinski, John; Thomas, Brian
Cc: Titus, Brett; Meighan, Sean
Subject: Input on what is delayed or not getting done? I need input by noon. <eom>

Valentine, Nicholee

From: Bowman, Eric - *Nick*
Sent: Wednesday, March 23, 2011 4:34 PM
To: Rosenberg, Stacey; Alexion, Thomas
Subject: RE: ACTION - ISSUE AN UPDATE IN ON REPORTING RADIOACTIVITY MEASUREMENTS ATTRIBUTED TO FUKUSHIMA-DAIICHI

Stacey/Tom,

I would suggest using a RIS rather than an IN if we are going to ask for the voluntary submittal of information. MD 8.18 doesn't allow requesting information, either mandatory or voluntary, from licensees. Based on the timeframe she put together the furlough ones, I think she could get a RIS done quickly enough.

E

From: Rosenberg, Stacey
Sent: Wednesday, March 23, 2011 4:28 PM
To: Bowman, Eric; Alexion, Thomas
Subject: FW: ACTION - ISSUE AN UPDATE IN ON REPORTING RADIOACTIVITY MEASUREMENTS ATTRIBUTED TO FUKUSHIMA-DAIICHI

Eric and Tom,

Please see e-mail string. I was thinking of asking Andrea Russell to PM this when she returns to the office on Monday.

Your thoughts?

Stacey

From: Blount, Tom
Sent: Wednesday, March 23, 2011 4:23 PM
To: Rosenberg, Stacey
Cc: McGinty, Tim; Quay, Theodore; Alexion, Thomas
Subject: RE: ACTION - ISSUE AN UPDATE IN ON REPORTING RADIOACTIVITY MEASUREMENTS ATTRIBUTED TO FUKUSHIMA-DAIICHI

Great...I think that will work...

From: Rosenberg, Stacey
Sent: Wednesday, March 23, 2011 4:22 PM
To: Blount, Tom
Cc: McGinty, Tim; Quay, Theodore; Alexion, Thomas
Subject: RE: ACTION - ISSUE AN UPDATE IN ON REPORTING RADIOACTIVITY MEASUREMENTS ATTRIBUTED TO FUKUSHIMA-DAIICHI

Tom,

I will be in the ops center tomorrow and then off on Friday. Tom Alexion will be acting for me tomorrow and Friday.

I will ask Tom A. to arrange a meeting with Nelson.

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Valentine, Nicholee

WMM

From: Purdie, Michael
Sent: Wednesday, March 23, 2011 12:48 PM
To: Regan, Christopher; Gran, Zachary; Clayton, Brent
Subject: drinking water contamination

Info is from NEI...

Japanese authorities have advised Tokyo residents not to provide municipal drinking water to infants or use it in mixing powdered milk for infants because of abnormal levels of radioactive iodine (I-131) detected in the drinking water. One water sample (5,700 picocuries per liter) indicated approximately twice the Japanese government guideline and prompted the restriction for infants

Michael Purdie
NRR/DPR/PFIB (Rotation)
O-12E13
415-0244

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Nelson, Robert

From: Nelson, Robert *MRK*
Sent: Wednesday, March 23, 2011 3:40 PM
To: Lara, Julio; Roberts, Darrell; Croteau, Rick; Kennedy, Kriss
Cc: West, Steven; Shear, Gary; Markley, Michael; Oesterle, Eric
Subject: FYI: New Qs & As Available

We've updated the NRR internal website with 31 additional Qs & As. Hope these help in your public meetings.

If you have additional Q&A needs, please forward to me with a cc to Mike Markley.

NELSON

Nelson, Robert

From: Nelson, Robert. *NR*
Sent: Wednesday, March 23, 2011 3:28 PM
To: Simms, Sophonia
Subject: RE: Non-Technical Volunteers for the OPS Center

Approval granted.

NELSON

From: Simms, Sophonia *NR*
Sent: Wednesday, March 23, 2011 2:59 PM
To: Nelson, Robert
Subject: Non-Technical Volunteers for the OPS Center

Nelson,

I have been informed that the OPS Center needs non-technical volunteers. I would like to volunteer (on a limited basis) – maybe over a weekend. I think this will be a worthwhile experience. Your approval is needed.

Please advise.

Sophonia

Sophonia M. Simms, Chief
Center for Planning and Analysis Branch
Office of Nuclear Reactor Regulation
US Nuclear Regulatory Commission
301-415-0601

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Nelson, Robert

From: Nelson, Robert *NRK*
Sent: Wednesday, March 23, 2011 11:33 AM
To: Howe, Allen; Giitter, Joseph
Subject: RE: proposed message to staff

Looks good.

NELSON

From: Howe, Allen *NRK*
Sent: Wednesday, March 23, 2011 11:29 AM
To: Giitter, Joseph; Nelson, Robert
Subject: proposed message to staff

DORL Staff –

First of all let me thank all of you for your continued focus, teamwork and excellence following the events in Japan. The Japanese people suffered a terrible natural disaster that is significantly complicated by the damage to multiple reactors at the Fukushima Daiichi site. Since the initial earthquake and tsunami, NRC has been engaged via 24/7 coverage at the Operations Center. Many DORL staff have already been on shift rotation in support of the Operations Center. We also provided significant support to prepare for the March 21, 2011, Commission briefing. Also, Nelson is the NRR Coordinator for External Communications related to NRR's response to the recent events in Japan. I expect that inquires and requests for information will continue from our stakeholders for some time as events unfold. Many of you have also been impacted by backing up staff who were pulled away from their normal responsibilities in support of the many extra activities currently taking place.

I want to reiterate the EDO's message from March 15, 2011, regarding the events in Japan: "we still have our domestic mission to carry out, and with the exception of the small number of people who have been directly called upon to respond to this situation we should all proceed with previously planned activities. We will continue to process licensing actions, conduct inspections, and fulfill our regulatory responsibilities." What this means for DORL is that we need to continue our focus on protecting public health, safety, and the environment by managing our nuclear power plant licensing actions.

Going forward we need to be sensitive to the issues in Japan and we should continue to be prudent in our decision-making in support of licensing activities. In that light, the Branch Chiefs developed a screening process to evaluate selected licensing actions. The intent of this process is to ensure appropriate treatment of licensing activities that may be affected by the evolving situation in Japan. If this screening process kicks an action out of our normal processing we will examine the specific issues, determine the next steps, coordinate and communicate as appropriate.

There may also be situations where technical staff are impacted and not able to deliver RAIs or safety evaluations as planned. If this situation arises, please work with your branch chief to resolve the issue. DORL leadership is committed to working with the NRR leadership to keep things flowing.

Again, my thanks to the DORL staff that have supported both the Operations Center and our other actions since the earthquake in Japan. My thanks also to those who have backed up your co-workers that were called away from their regular duties.

I will keep you informed of ongoing developments.

Nelson, Robert

From: Nelson, Robert *nr*
Sent: Wednesday, March 23, 2011 11:20 AM
To: Mahoney, Michael
Subject: FYI: Action: Work That's Not Getting Done or Delayed
Importance: High

The delay on Item 8 below has been confirmed

NELSON

From: Nelson, Robert *nr*
Sent: Wednesday, March 23, 2011 11:14 AM
To: Mahoney, Michael
Cc: Giitter, Joseph; Howe, Allen; Meighan, Sean; Broaddus, Doug; Campbell, Stephen; Carlson, Robert; Chernoff, Harold; Kulesa, Gloria; Markley, Michael; Pascarelli, Robert; Salgado, Nancy; Simms, Sophonia; Wall, Scott
Subject: Action: Work That's Not Getting Done or Delayed
Importance: High

My input:

1. We canceled the meeting with NEI's Licensing Action Task Force on 3/17 and we informed the LATF that we will not undertake any new initiatives at this time.
2. We informed NEI that we could no longer actively support its LAR pre-submittal meeting improvement initiative.
3. The NRR LT Subcommittee on Office Reorg has temporarily suspended its activities.
4. DORL has internally reduced its emphasis on the one-year licensing action timeliness metric.
5. We have temporarily suspended activities to improve the SER/RAI process.
6. Concurrence/non-concurrence on the memo providing guidance to the staff on EP/EAL reviews has been delayed.
7. SER/RAI training for NSIR has been delayed.
8. Full implementation of the pilot for standard timelines for routine licensing actions may have been delayed. Unable to confirm in time to meet the deadline for this response.

NELSON

Nelson, Robert

From: Nelson, Robert *1/10/11*
Sent: Wednesday, March 23, 2011 10:20 AM
To: Markley, Michael; Oesterle, Eric
Cc: Hiland, Patrick
Subject: Query: Plants on Coastal Waterways

Importance: High

Do we have a Q&A that identifies plants on coastal waterways? Pat Hiland needs this info to compare with a list prepared by NEI. I'd appreciate if you could give this a high priority.

NELSON

Nelson, Robert

From: Nelson, Robert *NR*
Sent: Wednesday, March 23, 2011 9:23 AM
To: Markley, Michael; Thadani, Mohan
Cc: Oesterle, Eric
Subject: FYI: question from public. Can either of you write up an answer?
Attachments: Response to - Query: question from public. Can either of you write up an answer?

Harold has already responded to OPA on this Q.

NELSON

From: Markley, Michael *MR*
Sent: Wednesday, March 23, 2011 9:18 AM
To: Thadani, Mohan
Cc: Nelson, Robert; Oesterle, Eric
Subject: RE: Query: question from public. Can either of you write up an answer?

Eric Oesterle, myself, and Nelson.

From: Thadani, Mohan *MR*
Sent: Wednesday, March 23, 2011 8:54 AM
To: Markley, Michael
Subject: RE: Query: question from public. Can either of you write up an answer?

Mike:

Which communication team should get the query?

Mohan

From: Markley, Michael *MR*
Sent: Tuesday, March 22, 2011 11:11 AM
To: Thadani, Mohan
Subject: FW: Query: question from public. Can either of you write up an answer?

Mohan,

Please forward these questions to the Communications team.

Mike

From: Nelson, Robert *NR*
Sent: Tuesday, March 22, 2011 9:27 AM
To: Chernoff, Harold; Miller, Ed
Cc: Markley, Michael
Subject: Query: question from public. Can either of you write up an answer?

Is the answer a simple yes? Can you help?

NELSON

From: Burnell, Scott *LOPA*
Sent: Tuesday, March 22, 2011 9:21 AM
To: Thadani, Mohan
Cc: Harrington, Holly; Anderson, Brian; Nelson, Robert; Collins, Timothy
Subject: RE: question from public. Can either of you write up an answer?

Mohan;

Based on our e-mails yesterday, I'm thinking the answer is yes and that I can rely on what we agreed on, but please correct me if needed. Thanks.

Scott

From: Harrington, Holly *LOPA*
Sent: Tuesday, March 22, 2011 9:19 AM
To: Burnell, Scott; Anderson, Brian
Subject: question from public. Can either of you write up an answer?

Question:

Do all US Boiling Water Reactors with Mark 1 Containments have hard pipe vents from both the Suppression Pool, and Primary Containments to the Elevated Release Point so the Reactor Building will not accumulate hydrogen during venting .

Nelson, Robert

From: Nelson, Robert *NRK*
Sent: Wednesday, March 23, 2011 9:15 AM
To: Markley, Michael
Subject: FYI: Electrical System Design for Japanese Plants

I've forwarded this request to the Ops Center. No action for you.

NELSON

From: Mathew, Roy *NRK*
Sent: Wednesday, March 23, 2011 9:10 AM
To: Nelson, Robert
Cc: Hiland, Patrick; Wilson, George; Skeen, David; Thomas, Eric
Subject: Electrical System Design for Japanese Plants

EEEB is preparing for a Commission meeting in April 28, 2011, to discuss the status of Japanese event and to provide an overview of the SBO rule.

Presently, we do not have any insights on the Japanese electrical power system design. If possible, we would like to get the following information through the NRC team in Japan.

1. How many offsite power circuits are provided to the safety buses? Are they independent and redundant and have sufficient capacity and capability to support cold shutdown capability for all postulated events at the plant?. How many of these sources are immediately available after a unit trip?. Are the offsite circuits shared with adjacent units?
2. How many loss of offsite power events have occurred in the last 20 years at each plant? What is the duration of loss of offsite power? How many loss of power events to one safety bus have occurred at the plant? In the last 20 years, has there been a station blackout event at any plants?
3. How many standby power sources (diesel generators or other power sources) are provided for each unit? How many are required as a minimum to support safe shutdown of the unit? What is the reliability of the standby power source?
4. Are standby power systems including the support systems (fuel oil, cooling water, switchgear, control power, raceways, cables etc.) protected from natural phenomena such as tsunami, flood, and earthquakes?
5. Are AC and DC power sources shared between units at a site?
6. DC System (Class 1E)
 - o How many battery systems are provided per unit?
 - o Are they redundant and independent?
 - o What are the duty cycle (s) ? Provide manufacturer name and the types of batteries used (e.g., lead acid)
 - o How often is the battery capacity test performed?
 - o What is the amp-hour and nominal voltage rating of the batteries?
 - o Is there load shedding required if the DC system has to be used for loss of all AC events? If yes, what percentage of the loads are shed?

7. Are there any regulatory requirements to withstand and recover from a station blackout event? (loss of all offsite and onsite Class 1E AC power sources with turbine trip).
- 8.
9. If there are requirements, Is AC independent system used (DC) or Alternate AC power source used for coping with station blackout? Are these power sources protected from natural phenomena such as tsunami, flood, and earthquakes? Is there any specific analysis required by the licensees and do they have to update the analysis if assumptions change? What are the typical coping time(s)? How is the coping duration determined? Are there plant procedures and operator training provided for a station blackout scenario? Is station blackout assumed to occur in more than one unit at a multi-unit site?

Howe, Allen

From: Howe, Allen 
Sent: Wednesday, March 23, 2011 3:59 PM
To: NRR_DORL Distribution
Subject: Message on the Event in Japan

(Sent for Joe Giitter; he is currently in the Ops Center.)

DORL Staff –

First of all on behalf of Nelson, Allen and me, I want to thank all of you for your continued focus, teamwork and excellence following the events in Japan. The Japanese people suffered a terrible natural disaster that is significantly complicated by the damage to multiple reactors at the Fukushima Daiichi site. Since the initial earthquake and tsunami, NRC has been engaged via 24/7 coverage at the Operations Center. Many DORL staff have already been on shift rotation in support of the Operations Center. We recently provided significant support to prepare for the March 21, 2011, Commission briefing on the event. Also, Nelson is the NRR Coordinator for External Communications related to NRR's response to the recent events in Japan. I expect that inquiries and requests for information will continue from our stakeholders for some time as events unfold. Many of you have also been impacted by backing up staff who were pulled away from their normal responsibilities in support of the many extra activities currently taking place.

I want to reiterate the EDO's message from March 15, 2011, regarding the events in Japan: "we still have our domestic mission to carry out, and with the exception of the small number of people who have been directly called upon to respond to this situation we should all proceed with previously planned activities. We will continue to process licensing actions, conduct inspections, and fulfill our regulatory responsibilities." What this means for DORL is that we need to continue our focus on protecting public health, safety, and the environment by managing our nuclear power plant licensing actions.

Going forward we need to be sensitive to the issues in Japan and we should continue to be prudent in our decision-making in support of licensing activities. In that light, the Branch Chiefs developed a screening process to evaluate selected licensing actions. The intent of this process is to ensure appropriate treatment of licensing activities that may be affected by the evolving situation in Japan. If this screening process kicks an action out of our normal licensing process, we will examine the specific issues, determine the next steps, coordinate and communicate as appropriate.

There may also be situations where technical staff are impacted and not able to deliver RAIs or safety evaluations as planned. If this situation arises, please work with your branch chief to resolve the issue. DORL leadership is committed to working with the NRR leadership to keep things flowing.

Again, my thanks to the DORL staff that have supported both the Operations Center and our other actions since the earthquake in Japan. My thanks also to those who have backed up your co-workers that were diverted from their regular duties.

I will keep you informed of ongoing developments.

Joseph G. Giitter

Director
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Howe, Allen

From: Howe, Allen *MR*
Sent: Wednesday, March 23, 2011 11:56 AM
To: Carlson, Robert
Subject: RE: proposed message to staff

Ok – I did not want to distract too much from the central message. I will ponder.

Allen

From: Carlson, Robert *MR*
Sent: Wednesday, March 23, 2011 11:53 AM
To: Howe, Allen
Subject: RE: proposed message to staff

Allen –

I think this looks good. I also might suggest that per your reference below regarding the “screening process”, you may want to attach and reference Nelson’s previous e-mail & form describing this process in more detail (never hurts to reinforce what’s already been stated).

Bob

Robert D. Carlson, Chief

Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission

(O) 301-415-1995

From: Howe, Allen
Sent: Wednesday, March 23, 2011 11:44 AM
To: Carlson, Robert
Subject: FW: proposed message to staff

From: Howe, Allen
Sent: Wednesday, March 23, 2011 11:29 AM
To: Giitter, Joseph; Nelson, Robert
Subject: proposed message to staff

DORL Staff –

First of all let me thank all of you for your continued focus, teamwork and excellence following the events in Japan. The Japanese people suffered a terrible natural disaster that is significantly complicated by the damage to multiple reactors at the Fukushima Daiichi site. Since the initial earthquake and tsunami, NRC has been engaged via 24/7 coverage at the Operations Center. Many

2/200

DORL staff have already been on shift rotation in support of the Operations Center. We also provided significant support to prepare for the March 21, 2011, Commission briefing. Also, Nelson is the NRR Coordinator for External Communications related to NRR's response to the recent events in Japan. I expect that inquiries and requests for information will continue from our stakeholders for some time as events unfold. Many of you have also been impacted by backing up staff who were pulled away from their normal responsibilities in support of the many extra activities currently taking place.

I want to reiterate the EDO's message from March 15, 2011, regarding the events in Japan: "we still have our domestic mission to carry out, and with the exception of the small number of people who have been directly called upon to respond to this situation we should all proceed with previously planned activities. We will continue to process licensing actions, conduct inspections, and fulfill our regulatory responsibilities." What this means for DORL is that we need to continue our focus on protecting public health, safety, and the environment by managing our nuclear power plant licensing actions.

Going forward we need to be sensitive to the issues in Japan and we should continue to be prudent in our decision-making in support of licensing activities. In that light, the Branch Chiefs developed a screening process to evaluate selected licensing actions. The intent of this process is to ensure appropriate treatment of licensing activities that may be affected by the evolving situation in Japan. If this screening process kicks an action out of our normal processing we will examine the specific issues, determine the next steps, coordinate and communicate as appropriate.

There may also be situations where technical staff are impacted and not able to deliver RAIs or safety evaluations as planned. If this situation arises, please work with your branch chief to resolve the issue. DORL leadership is committed to working with the NRR leadership to keep things flowing.

Again, my thanks to the DORL staff that have supported both the Operations Center and our other actions since the earthquake in Japan. My thanks also to those who have backed up your co-workers that were called away from their regular duties.

I will keep you informed of ongoing developments.

Bamford, Peter

From: Chernoff, Harold *nick*
Sent: Wednesday, March 23, 2011 5:42 PM
To: NRR_DORL Distribution
Subject: FW: Final Process - Near-term considerations for selected licensing activities

Importance: High

PMs:

For those that may not have gotten a copy of this e-mail directly from their BC, I am forwarding to you the discussion of the Selected Licensing Activities process that we initiated last week. We have now run over 20 items through this process. Going forward, we should be able to support next day if not same day processing.

We have also scheduled a standup meeting at 10 am in O8B2 on 3/24/2011. This is intended to provide a forum to discuss any questions you might have about this process or Allen Howe's e-mail from earlier today concerning overall work processing concurrent with the agency support for the events in Japan.

Thanks in advance for your attendance,

hkc

From: Chernoff, Harold
Sent: Wednesday, March 16, 2011 4:41 PM
To: Broaddus, Doug; Campbell, Stephen; Carlson, Robert; Chernoff, Harold; Kulesa, Gloria; Markley, Michael; Pascarelli, Robert; Salgado, Nancy; Singal, Balwant; Pickett, Douglas; Boska, John
Cc: Meighan, Sean; Mahoney, Michael; Nelson, Robert; Howe, Allen; Glitter, Joseph
Subject: Final Process - Near-term considerations for selected licensing activities

BCs:

What follows is the finalized process for enhanced handling of selected near-term licensing activities along with a proposed list of subject areas where enhanced handling measures would be applied. The intent of this process is to ensure appropriate treatment of licensing activities that may be affected by the evolving situation in Japan subsequent to the March 11, 2011 earthquake/tsunami.

Please communicate this process with your staff and ask them to apply this process to all Selected Licensing Activities (see definition of this term below).

Effective immediately - each Selected Licensing Activity shall be screened using the pdf form located at:

G:\ADRO\DORL\DORL TAJapan work screening\Enhanced Handling Final.pdf

As we discussed, the form is intended to be completed with brief responses. The form should be filled-in by the PM up to the demarcation line above the BC block. At this point the PM should click on the submit button at the top of the form. This will forward the form to me. I will have the form processed through the BC and DORL Director and inform the affected parties of the final disposition.

Definitions

Licensing Activities – This term includes all licensing actions, as well as, controlled correspondence (e.g., 2.206 issues and Congressional correspondence). This does not include meeting notices or RAIs.

2/207

Selected Licensing Activities – Any Licensing Activity that directly involves one of the subjects in the Selected Licensing Activities Subject Reference List.

Near-term – Any Licensing Activity with a planned completion and/or issuance on or before April 8, 2012 (note that this initial period of applicability may be modified by the Director DORL).

DORL Director Notice (DDN) – Concise summary of the anticipated disposition of a Selected Licensing Activity. This summary shall include:

1. the facility name;
2. a description of the Selected Licensing Activity;
3. a recommendation from the applicable PM and BC regarding the Selected Licensing Activities processing method (i.e., normal processing or deferred processing);
4. an assessment of the affect of the recommendation on the licensee and other stakeholders;
5. a discussion of potential insights that may be gained from deferred processing; and,
6. a discussion of any adverse impact on agency performance.

Process

1. PM shall develop a DORL Director Notice (DDN) as soon as practicable but at least one week prior to intended disposition of a Selected Licensing Activity.
2. PM shall complete the DDN up to the demarcation line above the BC block and click on the submit button.
3. Designated DORL staff will process the DDN through the BC and DORL Director.
4. DORL Director shall either endorse the recommendation or direct another processing method. Designated DORL staff will document this determination on the DDN and inform the affected parties of the final disposition.

Selected Licensing Activities Subject Reference List

1. Containment design issues (e.g., containment peak pressure, primary/secondary ventilation and filtration, cooling, and leak rate testing).
2. Containment combustible gas control.
3. AC/DC power (e.g., emergency diesel generators, Station Blackout (SBO) and batteries)
4. Seismic issues
5. Flooding (tsunami, seiche, and river system)
6. Emergency core cooling systems
7. Ultimate heat sink
8. Fuel design (e.g., structural capacity and seismic design)
9. Spent fuel pool design (cooling, criticality, rack strength, and structural capacity)
10. Peak cladding temperature limits
11. Emergency planning

Nelson, Robert

From: Nelson, Robert *NR*
Sent: Wednesday, March 23, 2011 9:03 AM
To: Howe, Allen
Subject: RE: Action: Qs and As March 21 Commission Meeting

OK

NELSON

From: Howe, Allen *NR*
Sent: Wednesday, March 23, 2011 8:58 AM
To: Nelson, Robert
Subject: RE: Action: Qs and As March 21 Commission Meeting

As far as I know, they were not part of an OPA review nor were they checked for duplication with existing material.

Allen

From: Nelson, Robert
Sent: Wednesday, March 23, 2011 8:57 AM
To: Markley, Michael; Oesterle, Eric
Cc: Burnell, Scott; Howe, Allen; Meighan, Sean; Nguyen, Quynh
Subject: Action: Qs and As March 21 Commission Meeting

I don't believe that these Qs & As were reviewed by OPA in prep for the 3/21 Commission meeting. I want to finalize these. Please check for duplicates and work to finalize, including OPA review.

I should have forwarded these to you yesterday but I forgot, sorry.

NELSON

From: Howe, Allen
Sent: Tuesday, March 22, 2011 1:28 PM
To: Mahoney, Michael; Nelson, Robert
Subject: FW: Qs and As March 21 Commission Meeting

Resending because Joe said you were not sure that you had received.

Mike, Nelson – attached are the Qs and As as of Saturday night. Mark Salley and Annie Kammerer also updated some Qs and As and I will send that separately. How do we get this into the information pool that is being developed so that it can be captured and maintained?

Thanks - Allen

From: Sola, Clara *NR*
Sent: Saturday, March 19, 2011 6:13 PM
To: Holahan, Gary; Wilson, George; Uhle, Jennifer; Milligan, Patricia; Salley, MarkHenry; Brenner, Eliot; Piccone, Josephine; Doane, Margaret; Bowman, Eric; Kammerer, Annie; Collins, Timothy; Harrison, Donnie

Cc: Howe, Allen; Glitter, Joseph

Subject: Qs and As March 21 Commission Meeting

Thadani, Mohan

From: Thadani, Mohan *MR*
Sent: Wednesday, March 23, 2011 3:26 PM
To: Collins, Timothy; Burnell, Scott
Cc: Nelson, Robert
Subject: FW: Impact of Japan events on DORL

FYI

From: Markley, Michael *MR*
Sent: Wednesday, March 23, 2011 3:20 PM
To: Thadani, Mohan
Cc: Nelson, Robert
Subject: RE: Impact of Japan events on DORL

Mohan,

This should have little or no impact on you. Please seek authorization from the acting branch chief before responding to any inquiries. Also, please forward any existing inquiries through the Communications Team before expending time on them.

Mike

From: Thadani, Mohan *MR*
Sent: Wednesday, March 23, 2011 1:06 PM
To: Hall, Randy; Gibson, Lauren; Kalyanam, Kaly; Polickoski, James; Singal, Balwant; Wang, Alan; Wilkins, Lynnea
Cc: Burkhardt, Janet; Lent, Susan; Markley, Michael
Subject: RE: Impact of Japan events on DORL

Randy:

I agree with your assessment. When we have operated in this mode for a while, we can specify the impact.

Mohan

From: Hall, Randy *MR*
Sent: Wednesday, March 23, 2011 12:59 PM
To: Gibson, Lauren; Kalyanam, Kaly; Polickoski, James; Singal, Balwant; Thadani, Mohan; Wang, Alan; Wilkins, Lynnea
Cc: Burkhardt, Janet; Lent, Susan; Markley, Michael
Subject: Impact of Japan events on DORL

LPL4 PMs,

Our current direction is to maintain focus on our day-to-day Licensing activities, while supporting requests related to the Japan events as needed. Management is trying to assess the impacts on our work; specifically, what activities are not being done due to the emergent work? In my mind, this list could include cancelling travel or training, declining to support regional activities, or deferring periodic tasks like FSAR update reviews or commitment audits. Obviously, it is taking each of us longer to complete our assigned licensing actions as we are diverted to addressing event-related issues or questions.

Please let me know if there are any activities that you have deferred or cancelled due to the emergent work. It's still early, so we might not have reached that point yet, but if you have any questions, let's discuss them.

Nelson, Robert

From: Nelson, Robert *NRK*
Sent: Wednesday, March 23, 2011 8:43 AM
To: Meighan, Sean; Markley, Michael
Subject: RE: G20110196

I understand but someone needs to take charge of these to ensure we (SES) make a decision.

NELSON

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

From: Meighan, Sean *NRK*
Sent: Wednesday, March 23, 2011 8:16 AM
To: Nelson, Robert; Markley, Michael
Subject: RE: G20110196

Nelson:

Both of the GTs were annotated by the EDOs office as "for appropriate action". He will need DORL SES direction on how/if to handle those items.

Very Respectfully
Sean

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

From: Nelson, Robert
Sent: Wednesday, March 23, 2011 8:14 AM
To: Markley, Michael; Meighan, Sean
Subject: FYI: G20110196

I forwarded this to Mahoney

NELSON

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

From: RidsNrrMailCenter Resource
Sent: Tuesday, March 22, 2011 5:04 PM
To: RidsNrrDorl Resource
Cc: Nelson, Robert; Meighan, Sean
Subject: G20110196

Attached is a green ticket on Concerns Related to NPSH Credit for BWR Mark 1's, for appropriate action.

Please e-mail FAST resources if you plan to respond or not. If you decide to respond, please include a due date you would like assigned to the ticket.

Thanks,
Patti

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

From: Clayton, Kathleen

Sent: Tuesday, March 22, 2011 2:26 PM
To: RidsNrrMailCenter Resource
Cc: RidsOgcMailCenter Resource; Wittick, Brian
Subject: ACTION: G20110196

Attached is an appropriate action green ticket. The ADAMS version will be sent after DPC processes.

Pedersen, Roger

NRC

From: Conatser, Richard
Sent: Thursday, March 24, 2011 1:31 PM
To: Pedersen, Roger
Subject: Japan RIS
Attachments: 110324_RLC_Snippets for RIS.docx

Here it is

Richard L. Conatser
Health Physicist
Nuclear Regulatory Commission
301-415-4039
Richard.Conatser@NRC.gov

4/2/11

Here's some additional information. Positive results from REMP samples are required to be reported in the Annual REMP Report. If plant-related activity exceeds the NRC's reporting levels (as specified in the licensee's ODCMs), the licensee must take the actions listed in their ODCM, which may include a Special Report to the NRC within 30 days. These are the licensing requirements. See my earlier email on this. It is my understanding the NRC management is asking licensees to take additional actions, but I have not heard what those actions are.

Some REMP samples will show positive results from Fukushima at many, if not all US facilities. These indications are expected and are a demonstration of the extremely sensitive detection capabilities the NRC requires from the licensees' REMPs. The amount of materials detected in the US thus far are extremely small, and the levels are expected to be reduced with time. Analysis of rainwater samples have indicated positive for I-131 in some locations in the US, and analysis of cow's milk is a much more sensitive technique since iodine is concentrated in cow's milk. As a result, we should expect to see I-131 in cow's milk at some locations. Other sampling media may see other nuclides, and we may see in some locations, the plume may be elevated but may be brought to ground by rain or other meteorological conditions. As a result, some variability in the sample results is expected. In all cases, the results are expected to be at extremely low levels, which are not linked to health effects. The dose to a typical member of the public is less than that received from a dental x-ray, or from living in a brick home, or from having granite kitchen countertops. No health effects have ever been linked to radioactive materials at the very low levels that are being seen in the US from the Fukushima event.

You may want to pass this along to your Inspectors who will be on inspections during the next couple of months.

The NRC's REMP REPORTING LEVELS may be exceeded as a result of plumes from Fukushima passing over REMP sampling stations. This email contains some unit conversions for your use. The table below shows the default NRC REPORTING LEVEL for I-131 in REMP samples listed in NUREG-1301 (PWRs) and NUREG-1302 (BWRs). It also converts the REPORTING LEVELS to those units commonly used at the plant sites.

I-131 Reporting Level in NUREG 1301 and NUREG-1302

	I-131	Units	I-131	Units
Drinking Water	2	pCi/L	2E-09	uCi/ml
Non-Drinking Water	20	pCi/L	2E-08	uCi/ml
Air	0.9	pCi/m3	9E-13	uCi/cc

These are default values, and the site-specific values will be in the licensees' ODCMs. The REMP REPORTING LEVELS may be exceeded as a result of plumes from Fukushima passing over REMP sampling stations. The REMP results may vary as various puffs/plumes traverse the US. If a nuclide concentration exceeds the REPORTING LEVELS (averaged over a calendar quarter), the licensee may be required to report the data to the NRC within 30 days. The licensee should take the actions listed in their ODCM.

Because the I-131 (and possibly other radionuclides) from Fukushima will elevate the "background," it will reduce the licensee's ability to differentiate releases from their site. Strong

data evaluation and analyses are appropriate at all times, and are particularly applicable at this time. This is also a good verification of licensee's analytical detection capabilities.

I just wanted to send a follow up email to clarify a particular nuance in the email below that may not be obvious on a casual reading. The licensee is only required to report exceeding the REPORTING LEVELS in the Radiological Environmental Monitoring Program when the activity is due to effluents from their facility and it is averaged over a calendar quarter. This is why my original email says:

If a nuclide concentration exceeds the REPORTING LEVELS (averaged over a calendar quarter), the licensee may be required to report the data to the NRC within 30 days. The licensee should take the actions listed in their ODCM.

Because the I-131 (and possibly other radionuclides) from Fukushima will elevate the "background," it will reduce the licensee's ability to differentiate releases from their site. Strong data evaluation and analyses are appropriate at all times, and are particularly applicable at this time.

Here is the nuance that may (or may not) be obvious on a casual reading. If the licensee knows that all the activity in a REMP sample is from the Fukushima facility, then a 30-day report is not required. If, however, the licensee is not able to discern whether the activity is from their facility or not, then they would need to follow their ODCM and take the appropriate actions, which may include a 30-day report to the NRC. Lastly, if the activity is from their facility, then the licensee would be required to make a 30-day report to the NRC.

The key issues are summarized below:

1. licensees need to be aware of their REPORTING LEVELS in their ODCMs,
2. the licensee's data evaluation is extremely important to discern plant-related activity from non-plant related activity,
3. licensees should not immediately assume all activity in REMP samples is from Fukushima,
4. licensees need to take the actions as outlined in their ODCMs (this is always true),
5. if a licensee is unable to make a determination whether the activity is plant-related or not, they may choose to make a 30-day Special Report as listed in their ODCM, and
6. if a licensee knows that all the activity is due to Fukushima, then a 30-day Special Report is not required (as listed in their ODCM).

You may wish to pass this along to the Inspectors in your Regions.

From: Cheok, Michael *MRC*
Sent: Thursday, March 24, 2011 6:04 PM
To: NRR_DRA_AADB Distribution; NRR_DRA_AFPB Distribution; NRR_DRA_APLA Distribution; NRR_DRA_APOB Distribution; NRR_DRA_DO Distribution
Cc: Lee, Samson
Subject: FW: Regulatory Response
Attachments: Regulatory path forward-3-23.docx

All - Please note that the attached is a very early and preliminary working copy of some potential regulatory response given the events in Japan (compiled by Barry Westreich and Tim Collins who were tasked by the LT to come up with such a list). Note the many DRA items in the attached – looks like we could be busy. This e-mail is mostly a FYI at this point, but if you have comments or suggestions, please provide them to Sam or I (because of the large number of people on this distribution, please do not "reply all"). Comments could include additional items we should consider (e.g., maybe considering combination scenarios and multi-unit sites in external events PRAs), or items which you think may be over-reactions.

Note that the "Senior Level Task Force" mentioned below right now consists of Charlie Miller as lead, Jack Grobe, Gary Holahan, and Nathan Sanfilipo. I am guessing that others will be asked to support.

Mike

From: Westreich, Barry *MRC*
Sent: Thursday, March 24, 2011 9:07 AM
To: McGinty, Tim; Blount, Tom; Quay, Theodore; Galloway, Melanie; Holian, Brian; Lund, Louise; Nelson, Robert; Gitter, Joseph; Howe, Allen; Brown, Frederick; Cheok, Michael; Ruland, William; Bahadur, Sher; Lubinski, John; Hiland, Patrick; Skeen, David; Lee, Samuel; Thomas, Brian
Cc: Boger, Bruce; Grobe, Jack; Collins, Timothy; Leeds, Eric
Subject: Regulatory Response

Attached is a table of our preliminary thoughts related to the Regulatory Response following the events in Japan. I have been working with Tim Collins to identify potential areas that may need evaluation, current requirements or initiatives in the identified area, technical points of contact, and priority of the issues.

We plan to discuss this effort at the next LT meeting on March 29, 2011. As I indicated, this is a preliminary list and as a result, I would appreciate your review and insights into additional areas that should be included. I would also appreciate identification of POCs for the identified areas.

We plan to coordinate this effort with the newly establish Senior Level Task Force reviewing NRC processes.

Barry

Topic	Current Requirement	Inspection verification	Assistance	Near Term/Long term actions	Priority
B.5.b actions - Spent Fuel - Reactor - Containment - locations of equipment *distance from site and ability to withstand external events – * means and manpower to get equipment to site. *enough equipment to supply all units and SFPs with required coolant - Extreme condition Fresh Water supplies	- Orders - 10CFR50.54hh	B.5.b inspection TIs 2006-2008	Eric Bowman Barry Westriech	Orders/Rule E valuate B5.b. efficacy for other initiators especially tsunami/floods	highest

Topic	Current Requirement	Inspection verification	Assistance	Near Term/Long term actions	Priority
Station Black Out - Coping times -Living requirement? -equipment damage assumption	10CFR50.63 NUREG-1032, "Evaluation of Station Blackout at Nuclear Power Plants," June 1988 RG 1.155, "Station Blackout	Temporary Instruction 2515/120, ?Inspection of Implementation of Station Blackout Rule, Inspection Procedure 62706, "Maintenance Rule," December 31, 1997, Section 3.05, "Effectiveness of Emergency Diesel Generator (EDG) Maintenance Activities	DSS/SRXB DE/George Wilson	Evaluate adequacy of coping times Are coping times periodically reconfirmed in light of new LOOP data? Do prior evaluations envelope Japan events, or are there new considerations that need regulatory actions?	high
Seismic Analysis	GDC 2 Design Bases for Protection Against Natural Phenomena GI 199 - Generic Communication being developed Part 50 appendix S		NRO/DSER Tom Blount – Gen Comm	GI-199 impact	Longer term
Flooding/Tsunami	GDC 2		NRO/DSER	Should we enhance tsunami criteria?	
Other External Events			FIRE-DRA		

Topic	Current Requirement	Inspection verification	Assistance	Near Term/Long term actions	Priority
Spent Fuel Management dry cask storage - power supplies			DSS –Steve Jones	Do prior evaluations envelope Japan events, or are there new considerations that need regulatory actions? Additional limits on pool storage?	High?
SAMG/ESAMG Adequacy -Extreme Damage Mitigating Guidelines (NEI-06-12) (B.5.b)		TI 171 triennial fire inspection	DRA/RES	Status at all plants? Need for enhancements?	high
Siting Criteria (number of units onsite)	10CFR100		DRA NRO/DSER	Should we limit # units per site?	later
EP - Effects of power uprates -population - Command and Control (external) for extreme events	Appendix E		NSIR	Do prior evaluations envelope Japan events, or are there new considerations that need regulatory actions?	
10E-4 planning basis	Safety Goals/ RG 1.174		DRA	Balance of prevention/mitigation Do we need more emphasis on mitigation in achieving safety goals?	later

Topic	Current Requirement	Inspection verification	Assistance	Near Term/Long term actions	Priority
Containment integrity (failure probability) - LERF			DRA	Do we need to beef up capability to contain molten core?	later
Hydrogen Control			DRA	Confirm current status Do prior evaluations envelope Japan events, or are there new considerations that need regulatory actions?	high
Combustible/Fuel Loading Material Control			DRA (Fire)		
Post Accident sampling Systems	Requirement eliminated following staff review that found that the information provided by PASS is either unnecessary or is effectively provided by other indications of process parameters or measurement of radiation levels				
Emergency Event operations staffing					

Topic	Current Requirement	Inspection verification	Assistance	Near Term/Long term actions	Priority
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Haskell, Russell

NRK

From: King, Mark
Sent: Thursday, March 24, 2011 4:10 PM
To: Haskell, Russell; Bernardo, Robert
Subject: RE: RIS to licensees on radioisotopes that are detected from the Japanese event

Bob / Russ

I think that should be left up to the team developing the RIS, what do they want? -I'd talk with Dave Garmon, Tanya (other Generic Communications) / technical contact(s) for the RIS --- ask them...
I don't think there is any problems letting our internal folks this is coming...in the summary.

But...in the long run it will be the licensees who have to supply the requested info... so it probably makes little difference either way. In other words, do as you see fit, but I would see this as having little upside for putting it in the summary ..

But a potential downside if you put it in and then it changes / you say something wrong and it gets out.

Based on that I would leave it out unless directed otherwise... **once the RIS is approved / "finalized" certainly, fair game to link to it or attach it so that everyone on distribution is aware of the new RIS.**

Mark

NRK

From: Haskell, Russell
Sent: Thursday, March 24, 2011 2:48 PM
To: Bernardo, Robert; King, Mark
Subject: RE: RIS to licensees on radioisotopes that are detected from the Japanese event

Should this message be included in the C/H summary tomorrow.....? Or is that somebody else's domain.....

NRK

From: Bernardo, Robert
Sent: Thursday, March 24, 2011 2:45 PM
To: King, Mark
Cc: Haskell, Russell
Subject: FW: RIS to licensees on radioisotopes that are detected from the Japanese event

FYI, more information on the RIS. By the way, now Limerick and TMI are reporting having found I-131 in rainwater samples. I've passed along results to Richard Conatser.

NRK

Bob Bernardo
Reactor Systems Engineer
US Nuclear Regulatory Commission
NRR/DIRS/IOEB
Mail Stop: O-7C02A
301-415-2621
Robert.Bernardo@nrc.gov

NRK

From: Shoop, Undine
Sent: Thursday, March 24, 2011 2:16 PM
To: Dickson, Billy; Henderson, Pamela; Werner, Greg; Bonser, Brian
Cc: Burnell, Scott; Giitter, Joseph; Brown, Frederick; Westreich, Barry; Nelson, Robert
Subject: RIS to licensees on radioisotopes that are detected from the Japanese event

All,

Bozin, Sunny

From: Zorn, Jason
Sent: Thursday, March 24, 2011 11:10 AM
To: Ostendorff, William; Nieh, Ho
Cc: Kock, Andrea
Subject: NYT Article on HLW

Not sure if you saw this in the NY Times this morning, but a pretty thorough discussion of the impact of Japan on the HLW debate. A lot of coverage the exchange between GBJ and Shimkus at last week's hearing.

<http://www.nytimes.com/2011/03/24/us/24yucca.html?emc=tnt&tntemail1=y>.

Bozin, Sunny

From: Franovich, Mike
Sent: Thursday, March 24, 2011 8:29 AM
To: Ostendorff, William
Cc: Nieh, Ho; Warnick, Greg; Kock, Andrea; Zorn, Jason; Herr, Linda; Bozin, Sunny
Subject: FW: PBS Video recommendation - last night on Fukushima

Sir,

In case you did not catch the airing last night, the video is posted on the PBS website. The video has interview with Marv Fertel, Ed Lyman, Westinghouse executives, mention of Congressman Markey, and notes that the NRC Commission voted to conduct a safety review of U.S. plants. There is also a posted PBS interview (on 3/22) with Ambassador Fujisaki that is noteworthy, especially the question on the U.S. recommendation for a 50 mile evacuation for U.S. citizens (he was polite but a very touchy subject).

<http://video.pbs.org/video/1855597902>

Mike

Bernardo, Robert

From: King, Mark
Sent: Thursday, March 24, 2011 9:18 AM
To: Bernardo, Robert; Garmon-Candelaria, David; Haskell, Russell
Cc: Thorp, John; Robles, Jesse
Subject: FW: Summary of Sample Results at Nine Mile Point and Ginna --- possible very low level detection of iodine-131 in the US --- from Japan is suspected

FYI

From: Howe, Allen
Sent: Thursday, March 24, 2011 9:12 AM
To: King, Mark
Subject: FW: Summary of Sample Results at Nine Mile Point and Ginna

From: Nelson, Robert
Sent: Wednesday, March 23, 2011 8:45 AM
To: Giitter, Joseph; Howe, Allen
Cc: Burnell, Scott
Subject: FW: Summary of Sample Results at Nine Mile Point and Ginna

From: Pickett, Douglas
Sent: Wednesday, March 23, 2011 8:16 AM
To: Salgado, Nancy
Cc: Guzman, Richard
Subject: FW: Summary of Sample Results at Nine Mile Point and Ginna

Small amounts of **iodine-131** have been detected at the **Nine Mile Point** and **Ginna** sites this week. While site personnel believe it is fallout from the events in Japan, the licensee has not informed the public or the state of New York as they continue their investigation of the source. Please note in the email below that the term outfall was erroneously used. The email should have stated that the contamination was observed in storm-drains. According to Glenn Dentel, **iodine-131** has only been observed at Diablo Canyon and the two New York sites below.

From: Dentel, Glenn
Sent: Tuesday, March 22, 2011 2:14 PM
To: Henderson, Pamela; Roberts, Darrell; Clifford, James; Wilson, Peter; Weerakkody, Sunil; Rogge, John
Cc: Patel, Amar; Dempsey, Douglas; Kolaczyk, Kenneth; Hunegs, Gordon; Casey, Lauren; Screnci, Diane; Sheehan, Neil; McNamara, Nancy; Tiff, Doug; Pickett, Douglas; Bellamy, Ronald; Perry, Neil; Ibarrola, Sherlyn; Cronk, Kevin
Subject: Summary of Sample Results at Nine Mile Point and Ginna

The following environmental sample results were observed at Nine Mile Point and Ginna in upstate New York.

<u>Date</u>	<u>Site</u>	<u>Location</u>	<u>Activity</u>
March 21	Nine Mile Point	Unit 1 outfall	19.1 pCi/l
March 21	Nine Mile Point	Unit 2 outfall	8.6 pCi/l
March 21	Nine Mile Point	Oswego Co. Airport	approximately 10 pCi/l (offsite sample)
Confirmatory samples			
March 22	Nine Mile Point	Unit 1 outfall	18 pCi/l
March 22	Nine Mile Point	Unit 2 outfall	10.3 pCi/l
March 22	Nine Mile Point	Oswego Co. Airport	9.7 pCi/l (offsite sample)
March 22	Ginna	Orchard area rainwater	26.8 pCi/l (owner control area)

2/216

Bernardo, Robert

NRR
From: Haskell, Russell
Sent: Thursday, March 24, 2011 2:48 PM
To: Bernardo, Robert; King, Mark
Subject: RE: RIS to licensees on radioisotopes that are detected from the Japanese event

Should this message be included in the C/H summary tomorrow.....? Or is that somebody else's domain.....

From: Bernardo, Robert
Sent: Thursday, March 24, 2011 2:45 PM
To: King, Mark
Cc: Haskell, Russell
Subject: FW: RIS to licensees on radioisotopes that are detected from the Japanese event

FYI, more information on the RIS. By the way, now Limerick and TMI are reporting having found I-131 in rainwater samples. I've passed along results to Richard Conatser.

Bob Bernardo
Reactor Systems Engineer
US Nuclear Regulatory Commission
NRR/DIRS/IOEB
Mail Stop: O-7C02A
301-415-2621
Robert.Bernardo@nrc.gov

NRR
From: Shoop, Undine
Sent: Thursday, March 24, 2011 2:16 PM
To: Dickson, Billy; Henderson, Pamela; Werner, Greg; Bonser, Brian
Cc: Burnell, Scott; Giitter, Joseph; Brown, Frederick; Westreich, Barry; Nelson, Robert
Subject: RIS to licensees on radioisotopes that are detected from the Japanese event

All,

NRR has been directed to develop a RIS to the licensees regarding radioisotopes detected by the REMP program that are from the Japanese event. This RIS will request that the licensees voluntarily submit their results to the Operations Center at hoo.hov@nrc.gov. In parallel, NEI will also be requesting the information from the licensees. This is the information we are requesting:

When reporting information, the following should be provided as applicable:

- 1 Sample date(s) and time
- 2 Approximate locations(s)
- 3 Environmental sample medium (eg, air particulate filter, air charcoal, milk, sediment, vegetation, rainwater, groundwater, etc...)
- 4 Type of analysis (eg, gross beta, iodine-131, tritium, etc...)
- 5 Analysis result(s) (in units typically used in the environmental monitoring program and include applicable detection sensitivity)

If you have any questions, please let me know.

Undine Shoop
Chief, Health Physics and Human Performance Branch
Division of Inspection and Regional Support
Office of Nuclear Reactor Regulation
301-415-2063

4/2/17

Thorp, John

NRK

From: Kobetz, Timothy
Sent: Thursday, March 24, 2011 8:29 AM
To: Bowen, Jeremy; Cauffman, Christopher; Cutler, Iris; Gamberoni, Marsha; Henderson, Christopher; Isom, James; Lewin, Aron; Nagai, Masao; Norkin, Donald; Telson, Ross Elliott, Robert; Thorp, John; Franovich, Rani; McHale, John; Shoop, Undine
Cc:
Subject: FW: TI 2515/183
Attachments: ti2515-183.pdf

Gentlefolk,

FYI. Attached is the TI we issued yesterday on the followup to the Japanese event. I am currently working on a inspection report template.

Tim

From: Cutler, Iris
Sent: Thursday, March 24, 2011 8:19 AM
To: Kobetz, Timothy
Subject: TI 2515/183

NRK

4/2/18

FOLLOWUP TO THE FUKUSHIMA DAIICHI NUCLEAR STATION FUEL DAMAGE EVENT

CORNERSTONE: INITIATING EVENTS AND MITIGATING SYSTEMS

APPLICABILITY: This Temporary Instruction (TI) applies to all holders of operating licenses for nuclear power reactors, except plants which have permanently ceased operations.

2515/183-01 OBJECTIVES

The objective of this TI is to independently assess the adequacy of actions taken by licensees in response to the Fukushima Daiichi nuclear station fuel damage event. The inspection results from this TI will be used to evaluate the industry's readiness for a similar event and to aid in determining whether additional regulatory actions by the U.S. Nuclear Regulatory Commission are warranted. Therefore, the intent of this TI is to be a high-level look at the industry's preparedness for events that may exceed the design basis for a plant. If necessary, a more specific followup inspection will be performed at a later date.

2515/183-02 BACKGROUND

On March 11, 2011, the Tohoku-Taiheiyou-Oki Earthquake occurred near the east coast of Honshu, Japan. This magnitude 9.0 earthquake and the subsequent tsunami caused significant damage to at least four of the six units of the Fukushima Daiichi nuclear power station as the result of a sustained loss of both the offsite and on-site power systems. Efforts to restore power to emergency equipment have been hampered or impeded by damage to the surrounding areas due to the tsunami and earthquake. The following background information is current as of March 18, 2011.

Units 1 through 3, which had been operating at the time of the earthquake, scrammed automatically, inserting their neutron absorbing control rods to ensure immediate shutdown of the fission process. Following the loss of electric power to normal and emergency core cooling systems and the subsequent failure of back-up decay heat removal systems, water injection into the cores of all three reactors was compromised, and reactor water levels could not be maintained. Tokyo Electric Power Company (TEPCO), the operator of the plant, resorted to injecting sea water and boric acid into the reactor vessels of these three units, in an effort to cool the fuel and ensure the reactors remained shutdown. However, the fuel in the reactor cores became partially uncovered. Hydrogen gas built up in Units 1 and 3 as a result of exposed, overheated fuel reacting with water. Following gas venting from the primary containment to relieve

pressure, hydrogen explosions occurred in both units and damaged the secondary containments. It appears that primary containments for Units 1 and 3 remained functional, but the primary containment for Unit 2 may have been damaged. TEPCO cut a hole in the side of the Unit 2 secondary containment to prevent hydrogen buildup following a sustained period when there was no water injection into the core.

In addition, problems were encountered with monitoring and maintaining Units 3 and 4 spent fuel pool (SFP) water levels. Efforts continue to supply seawater to the SFPs for Units 1 through 4 using various methods. At this time, the integrity of the SFPs for Units 3 and 4 is unknown.

Fukushima Daiichi Units 4 through 6 were shutdown for refueling outages at the time of the earthquake. The fuel assemblies for Unit 4 had been offloaded from the reactor core to the SFP. The SFPs for Units 5 and 6 appear to be intact.

The damage to Fukushima Daiichi nuclear power station appears to have been caused by initiating events that may have exceeded the design basis for the facilities.

2515/183-03 INSPECTION REQUIREMENTS AND GUIDANCE

NRC inspection staff should assess the licensee's activities and actions to assess its readiness to respond to an event similar to the Fukushima Daiichi nuclear plant fuel damage event. These inspections should occur at the operating power reactor facilities. Licensee emergency preparedness will not be assessed by this TI.

This TI may be completed all at once or in phases as the licensee verifies its capability to respond to such an event. The inspector(s) should coordinate the inspection effort with the licensee in accordance with the licensee's verification schedule.

The events at the Fukushima Daiichi plant appear to be caused by factors directly impacting nuclear safety that may have exceeded the design basis for the facility. While details on the full extent of damage to these units remain unknown, the damage poses a significant challenge to the nuclear safety of these units. Immediate actions by the U.S. industry are appropriate to assess and take corrective actions to address potential vulnerabilities that would challenge response to events that are beyond site design bases.

03.01 Assess the licensee's capability to mitigate conditions that result from beyond design basis events, typically bounded by security threats, committed to as part of NRC Security Order Section B.5.b issued February 25, 2002, and severe accident management guidelines and as required by Title 10 of the Code of Federal Regulations (10 CFR) 50.54(hh). Use Inspection Procedure (IP) 71111.05T, "Fire Protection (Triennial)," Section 02.03 and 03.03 as a guideline. If IP 71111.05T was recently performed at the facility the inspector should review the inspection results and findings to identify any other potential areas of inspection. Particular emphasis should be placed on strategies related to the spent fuel pool. The inspection should include, but not be limited to, an assessment of any licensee actions to:

- a. Verify through test or inspection that equipment is available and functional. Active equipment shall be tested and passive equipment shall be walked down and inspected. It is not expected that permanently installed equipment that is tested under an existing regulatory testing program be retested.
- b. Verify through walkdowns or demonstration that procedures to implement the strategies associated with B.5.b and 10 CFR 50.54(hh) are in place and are executable. Licensees may choose not to connect or operate permanently installed equipment during this verification.
- c. Verify the training and qualifications of operators and the support staff needed to implement the procedures and work instructions are current for activities related to Security Order Section B.5.b and severe accident management guidelines as required by 10 CFR 50.54 (hh).
- d. Verify that any applicable agreements and contracts are in place and are capable of meeting the conditions needed to mitigate the consequences of these events.
- e. Review any open corrective action documents to identify vulnerabilities that may not have yet been addressed.

03.02 Assess the licensee's capability to mitigate station blackout (SBO) conditions, as required by 10 CFR 50.63, "Loss of All Alternating Current Power," and station design, is functional and valid. Refer to TI 2515/120, "Inspection of Implementation of Station Blackout Rule Multi-Plant Action Item A-22" as a guideline. It is not intended that TI 2515/120 be completely reinspected. The inspection should include, but not be limited to, an assessment of any licensee actions to:

- a. Verify through walkdowns and inspection that all required materials are adequate and properly staged, tested, and maintained.
- b. Demonstrate through walkdowns that procedures for response to an SBO are executable.

03.03 Assess the licensee's capability to mitigate internal and external flooding events required by station design. Refer to IP 71111.01, "Adverse Weather Protection," Section 02.04, "Evaluate Readiness to Cope with External Flooding" as a guideline. The inspection should include, but not be limited to, an assessment of any licensee actions to verify through walkdowns and inspections that all required materials and equipment are adequate and properly staged. These walkdowns and inspections shall include verification that accessible doors, barriers, and penetration seals are functional.

03.04 Assess the thoroughness of the licensee's walkdowns and inspections of important equipment needed to mitigate fire and flood events to identify the potential that the equipment's function could be lost during seismic events possible for the site. Assess the licensee's development of any new mitigating strategies for identified vulnerabilities (e.g., entered it in to the corrective action program and any immediate

actions taken). As a minimum, the licensee should have performed walkdowns and inspections of important equipment (permanent and temporary) such as storage tanks, plant water intake structures, and fire and flood response equipment; and developed mitigating strategies to cope with the loss of that important function. Use IP 71111.21, "Component Design Basis Inspection," Appendix 3, "Component Walkdown Considerations," as a guideline to assess the thoroughness of the licensee's walkdowns and inspections.

2515/183-04 REPORTING REQUIREMENTS

The inspection results, including both observations and findings, of this TI should be in a stand-alone report. NOTE: This TI will be updated with a template which will provide specific guidance on reporting and documenting observations and findings.

The inspection report containing the results should be forwarded to NRR/DIRS/IRIB, Attention: Tim Kobetz via e-mail at timothy.kobetz@nrc.gov. Mr. Kobetz can also be reached at (301) 415-1932. The inspection results from this TI will be used to evaluate industry's readiness for a similar event and to aid in determining whether additional NRC regulatory actions are warranted.

2515/183-05 COMPLETION SCHEDULE

This TI is to be initiated upon issuance. Inspection activities are to be completed by April 29, 2011 and the inspection report issued by May 13, 2011.

2515/183-06 EXPIRATION

The TI will expire on June 30, 2012.

2515/183-07 CONTACT

Any technical questions regarding this TI should be addressed to Tim Kobetz at 301-415-1932 or timothy.kobetz@nrc.gov.

2515/183-08 STATISTICAL DATA REPORTING

All direct inspection effort expended on this TI is to be charged to 2515/183 with an IPE code of TI. All indirect inspection effort expended on this TI for preparation and documentation should be attributed to activity codes TIP and TID respectively.

2515/183-9 RESOURCE ESTIMATE

The estimated average time to complete the TI inspection requirements is 40 hours per site. Where applicable, inspectors should credit the baseline inspection program for samples reviewed during this TI assessment.

2515/183-10 TRAINING

Issue Date: 03/23/11

No additional training is required.

END

ATTACHMENT 1

Revision History for TI 2515/183
 FOLLOWUP TO FUKUSHIMA DAIICHI NUCLEAR STATION FUEL DAMAGE EVENT

Commitment Tracking Number	Issue Date	Description of Change	Training Needed	Training Completion Date	Comment Resolution Accession Number
N/A	ML11077A007 03/23/11	Researched commitments for 4 years and found none. This is a new document issued for inspections related to the industry response to the Fukushima Daiichi Nuclear Station Fuel Damage Event.	No	N/A	N/A

King, Mark

NRC

From: King, Mark
Sent: Thursday, March 24, 2011 8:41 AM
To: Telson, Ross
Cc: Garmon-Candelaria, David
Subject: RE: Ross has questions / concerns --- regarding March 23, 2011 Fukushima Updates - some more news links - FYI from NPJ E-News

Ross, RE: Did you ever get a clear insight into how/why they got 1 or 2 EDG's back but not the others? (e.g. Insights on essential cooling / alternate EDG cooling)

No... there is very little that is truly clear with these events... I heard (rumors) that the service water/UHS - cooling to EDGs and various pumps was knocked out by the tsunami. But no real "facts" or absolute confirmation. Looking at the over head photos perhaps units 5 & 6 did not lose SW or they could get it back... but again speculation why one of their EDGs continued to work. Also heard that they had above ground EDG fuel tanks, some which were washed away. Electrical buses getting flooded/ wetted with seawater.... But again... no facts... rumors.

Sorry. You will just have to be patient. The information will come.

Dave Garmon is our IOEB point of contact for the IFR / **OpE COMM updates related to the Japan event**. His cubicle is right across from your office Ross... please give him your questions/ any follow-up concerns as he has the follow-up tasking on the Japan events. The NRC is committing to a 90 day review and a longer term by year end review, and I'm sure some very long term studies of these events, not doubt. From today's daily news summary -

NRC To Launch Two-Step Review Of US Nuclear Reactors. On the heels of the nuclear crisis in Japan, the AP (3/24, Daly) reports the Nuclear Regulatory Commission voted Wednesday to launch a "two-step review" of the US nuclear plant fleet. The NRC will select a "task force, made up of senior staff and former NRC experts," to conduct "short-term and long-term analyses of **lessons learned from Japan**," and how those lessons can be applied to the US nuclear industry. The short-term review is to be completed "within three months," while the longer review should be wrapped up by the end of the year.

USA Today (3/23, Winter, 1.83M) noted briefly the NRC's news release on the "task force" to analyze "the lessons that can be learned from the situation in Japan." NRC Chairman Gregory Jaczko said, "We will perform a systematic and methodical review to see if there are changes that should be made to our programs and regulations to ensure protection of public health and safety."

AFP (3/24) notes Chairman Jaczko said, "Examining all the available information from Japan is essential to understanding the event's implications for the United States." NRC Executive Director for Operations Bill Borchardt said the work will "help determine if any additional NRC responses, such as orders requiring immediate action by US plants, are called for."

CNN (3/24) said the "review will supplement existing programs to ensure plant safety," while Reuters (3/24, Rascoe, Rampton) reports that Jaczko said in a memo to Borchardt that the task force efforts "should be informed by some stakeholder input but should be independent of industry efforts." NPR (3/24, Peralta) also covered the announcement briefly.

WKRG-TV Mobile, AL (3/23, 10:15 p.m. CT, 46,956) broadcast that "the Nuclear Regulatory Commission has launched a two-step review of the 104 plants across the country." WKRG adds that "a short-term review is to be completed within three months, with updates after 30 days and 60 days. The longer review should be completed by the end of the year."

2/219

Cheok, Michael

From: Meighan, Sean
Sent: Thursday, March 24, 2011 2:24 PM
To: Ruland, William; Quay, Theodore
Cc: Katoski, Alice; Bahadur, Sher; Galloway, Melanie; Blount, Tom; Hiland, Patrick; Giitter, Joseph; Thomas, Brian; Cheok, Michael; Lee, Samson; Ferrell, Kimberly
Subject: RE: Background 3rd team to Japan .docx
Attachments: 2nd Staff Deployment to Japan.docx

All:

As per Bill Ruland, please find attached the list sent to Michele for consideration for 2nd deployment. This can be used to help with your suggestions for 3rd deployment.

Very Respectfully
Sean

From: Ruland, William
Sent: Thursday, March 24, 2011 2:13 PM
To: Quay, Theodore
Cc: Meighan, Sean; Katoski, Alice; Bahadur, Sher; Galloway, Melanie; Blount, Tom; Hiland, Patrick; Giitter, Joseph; Thomas, Brian; Cheok, Michael; Lee, Samson; Ferrell, Kimberly
Subject: FW: Background 3rd team to Japan .docx

Please add this to tomorrow's LT agenda. Sean can help you with the previous list that we had provided. This time, we are to propose one or two candidates that fit the criteria in the attachment. There will be a total of 5 staff that are going to be selected agency wide. The write up for the two that we would propose must include: passport status, security clearance, and the background about why we are recommending them, including an endorsement by either Eric, Jack, or Bruce about why we are recommending them. The folks that we would recommend ought to be staff that we would highly recommend and that we feel are a virtual perfect fit for the requirements listed. After you have provided the action item to the LT and settled on the names, please make arrangements to have the respective LT members provide me the data by 11:00 a.m. Monday so that I, as the LT chair, could forward our names to Michele Evans.

Thanks.

Bill Ruland

From: Salus, Amy
Sent: Thursday, March 24, 2011 11:14 AM
To: Ruland, William; Holahan, Gary; Miller, Charles; Haney, Catherine; Sheron, Brian; Ordaz, Vonna; Dean, Bill; McCree, Victor; Satorius, Mark; Howell, Art; Collins, Elmo
Subject: Background 3rd team to Japan .docx

4/220

Deployment of Second NRC Team to Japan as of March 19, 2011

Skill Set	Name/Office/Projected Deployment date
Executive level	Dan Dorman/NMSS/March 19
General Technical Knowledge/interpersonal skills travelling March 22	Mike Scott/RES/March 22 Alan Blamey/Region II/ March 22
General Technical Knowledge/interpersonal skills travelling March 24	Jack Giessner/Region III/March 24 Rob Taylor/NRR/March 24
Protective Measures/Dose Assessment	Todd Jackson/Region I/March 23 Marie Miller/Region I/March 24
Structural Engineering Expertise	Syed Ali/RES/March 24 Abdul Sheikh/NRR/March 24
Damage Assessment Expertise	Ralph Way/NSIR/March 24
Expertise in Infrared Images	No NRC staff identified with this expertise. We are pursuing NGA resources that could support in Japan.
International Programs Expertise	Jack Ramsey/OIP/March 24 TBD/TBD/March 24

Nguyen, Quynh

NR

From: Titus, Brett
Sent: Thursday, March 24, 2011 2:17 PM
To: Nguyen, Quynh
Subject: Bill Ruland Presentation All Supervisors.ppt
Attachments: Bill Ruland Presentation All Supervisors.ppt

2/22/11



Accomplishments

- Tasks Associated with Japan Event
 - TI, IN, OPC, Teamwork
- Completion of the RIC (in spite of CR)
- Sunsetting of Digital I&C Steering Committee



Challenges

- Continued Support of Japan
- Staggering 805 Reviews
- Part 26 Issues

Nguyen, Quynh

From: Nguyen, Quynh
Sent: Thursday, March 24, 2011 1:59 PM
To: Silk, Anne; Katoski, Alice
Cc: Ruland, William; Meighan, Sean; Titus, Brett
Subject: FYI - JAPAN IMPACTS --- LT SharePoint

Importance: High

What is not getting done due to Japan response

These items... the due date is "rolling and continuous." (The due date of today may be perceived as a deadline so it may be confusing).

Impacts should be updated on a continuing basis with showstoppers communicated to the ET (Leeds) directly. There is no hard deadline.

I confirmed with Leeds.

2/22/11

Nguyen, Quynh

NRK

Ops CENTER

From: Nguyen, Quynh
Sent: Thursday, March 24, 2011 7:56 AM
To: Pederson, Cynthia; Nelson, Robert
Cc: Meighan, Sean
Subject: FYI: Photos

There's a new folder on Internal SharePoint.

 Fukushima Daiichi Aerial Photos

3/24/2011
1:42 AM

Stone,
Rebecca

Approved via NSIR ET.

From: Pederson, Cynthia
Sent: Thursday, March 24, 2011 7:47 AM
To: Nguyen, Quynh; Nelson, Robert
Subject: Photos

Hi Quynh and Nelson,

I understand there are photos that are on a Commissioners' Assistant Sharepoint. Can they also be put on the NRR Sharepoint site?

Thanks, Cindy

2/223

Nguyen, Quynh

NRN

Ops Center

From: Nguyen, Quynh
Sent: Thursday, March 24, 2011 7:53 AM
To: Stone, Rebecca
Subject: RE: Japan Photos on Sharepoint Site

Cool.

Take care,
Quynh

From: Stone, Rebecca
Sent: Thursday, March 24, 2011 2:41 AM
To: Nguyen, Quynh
Subject: Japan Photos on Sharepoint Site
Importance: High

Hey Quynh,

Just so you know, I was tasked by the ET to upload the pictures we received (so far) from the Site Team in Japan. We will be receiving more on a CD today (totaling ~300). Not all will be uploaded. Just the ones deemed relevant. I uploaded about 99 during my night shift. They were approved by NSIR via the Executive Team, not Kevin or Joe. Just wanted to let you know the background. Let me know if you have any questions. I'll be around for a couple hours this morning to catch up on things before I head home to sleep. I'll try to periodically check my email.

Best,
Rebecca

2/224

Caponiti, Kathleen

From: Ruland, William
Sent: Thursday, March 24, 2011 2:13 PM
To: Quay, Theodore
Cc: Meighan, Sean; Katoski, Alice; Bahadur, Sher; Galloway, Melanie; Blount, Tom; Hiland, Patrick; Gitter, Joseph; Thomas, Brian; Check, Michael; Lee, Samson; Ferrell, Kimberly
Subject: FW: Background 3rd team to Japan .docx
Attachments: Background 3rd team to Japan .docx

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Thanks.

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Subject: Background 3rd team to Japan .docx

March 24, 2011

Background Information for Third Team to Japan

Overall:

We are planning to replace the current site team with a six person team that would include four members with a collective, good understanding of severe accident management, B5b and accident recovery, and two members with the management and political savvy to deal with the ambassador and Japanese regulators, military and cabinet. (One of these will be an Executive SES level to replace Dan Dorman)

Next phase would be to replace that 6 person team with a two person team. (Composition TBD)

Specific Request of OD/RAs:

1. Identify staff with all or some of following skill sets who are willing to travel to Japan on or about April 2. The staff would return on about April 16.
 - a. Severe Accident management knowledge
 - b. B5b knowledge
 - c. Accident Recovery knowledge
 - d. Political Savvy

Please provide nominees to Michele Evans **by noon on Monday, March 28**. Brief summary of staff's background as it applies to the above skill sets and any endorsement by OD/RA will be greatly appreciated.

2. Not immediately needed would be nominees for the 4th team of two who may depart USA on or before April 13. Composition is TBD.

Please Note: Identification of the Next Executive to send to replace Dan Dorman, is being made by DEDOs, and is not part of this request.

Galloway, Melanie

From: Galloway, Melanie
Sent: Thursday, March 24, 2011 9:36 AM
To: Morey, Dennis
Subject: RE: Are you going to Japan?

- NK

It will have an impact—just not sure to what extent at this point. Stay tuned.

From: Morey, Dennis
Sent: Thursday, March 24, 2011 8:31 AM
To: Galloway, Melanie
Subject: RE: Are you going to Japan?

Melanie,

I wonder what impact the event will have on license renewal. I'm thinking that some of the older plants will be a hard sell now.

Dennis

From: Galloway, Melanie
Sent: Thursday, March 24, 2011 5:52 AM
To: Morey, Dennis
Subject: RE: Are you going to Japan?

Not really. My TTC training and the plants I was assigned were all W PWRs. And even with that, I would hardly be called an expert. So, no, I am not going. And thankful.

From: Morey, Dennis
Sent: Wednesday, March 23, 2011 6:10 PM
To: Galloway, Melanie
Subject: Are you going to Japan?

Melanie,

I recall that you had some background in BWRs.

Dennis

2/22/11

Galloway, Melanie

From: Galloway, Melanie
Sent: Thursday, March 24, 2011 6:56 AM
To: Ruland, William
Subject: FW: LT Task List - Staff for third team to Japan has been assigned to you

SharePoint Tasks List: LT Task List
<http://portal.nrc.gov/edo/nrr/ltmeeting/Lists/Tasks>

Bill,

This assignment has come through. Are there particular skills sets we are looking for in this 3rd set?

For the second set, we had identified Allen Hiser and Dave Pelton, but they were not selected. Are they automatically carried over to the 3rd set or should we resubmit, along with any others?

Melanie

From: Leadership Team Portal [<mailto:sharepoint-help@nrc.gov>]
Sent: Wednesday, March 23, 2011 4:55 PM
To: Galloway, Melanie
Subject: LT Task List - Staff for third team to Japan has been assigned to you
SharePoint Tasks List: LT Task List
<http://portal.nrc.gov/edo/nrr/ltmeeting/Lists/Tasks>

[Leadership Team Portal](#)

Staff for third team to Japan has been assigned to you

[Modify my alert settings](#) [View Staff for third team to Japan](#) [View LT Task List](#) [Mobile View](#)

Title:	Staff for third team to Japan
Priority:	(2) Normal
Date Assigned:	3/18/2011
Description:	Divisions must identify staff for third team to Japan and provide to LT Chair.
Due Date:	3/25/2011
Assigned To:	Holian, Brian; Galloway, Melanie
Division:	DLR
Date Completed:	
Comments on Current Status:	
Task Status:	Open
Modified:	3/23/2011 4:53 PM
Created:	3/23/2011 4:53 PM

4/227

Valentine, Nicholee

From: Bowman, Eric
Sent: Thursday, March 24, 2011 8:37 AM
To: Mensah, Tanya; Alexion, Thomas
Cc: Purnell, Blake; Hawes, Cathy; Russell, Andrea; Rosenberg, Stacey; Beaulieu, David; Nguyen, Quynh; Meighan, Sean; Blount, Tom; Stuchell, Sheldon; Markley, Anthony; Banic, Merrilee
Subject: RE: COLLECTIVE DPR/PGCB EFFORT: QUICK TURNAROUND

Tanya/Tom,

I've got a short turnaround tasking and a Commission briefing for April I'm working on right now, so won't be able to coordinate this. When I looked at the generic comms portion of the public web site yesterday I did see 3 INs on the subject, IN 86-32, IN 86-33 and IN 86-32 Supplement 1 as an initial input, but that was just the ones with Chernobyl in the titles.

Thanks!

Eric

From: Mensah, Tanya
Sent: Thursday, March 24, 2011 8:29 AM
To: Bowman, Eric; Alexion, Thomas
Cc: Purnell, Blake; Hawes, Cathy; Russell, Andrea; Rosenberg, Stacey; Beaulieu, David; Nguyen, Quynh; Meighan, Sean; Blount, Tom; Stuchell, Sheldon; Markley, Anthony; Banic, Merrilee
Subject: COLLECTIVE DPR/PGCB EFFORT: QUICK TURNAROUND

Good morning DPR/PGCB:

Sean Meighan (DORL TA) just called me. He needs our support to help identify per Jack Grobe, "all Generic Communications associated with Chernobyl". I asked Sean if there was a deadline to provide this information. Jack Grobe has not specified that information and at the moment this is all the information that both Sean and Quynh have. I will be in meetings this morning from about 9 – noon.

Eric and Tom A.: Please advise me if you can coordinate so that collectively, PGCB can provide some feedback to Sean and Quynh as soon as possible. As soon as they have more information (or a deadline), they will provide it to us.

I have copied Sheldon and Tony, in the event that they have gathered this information in the past and can quickly refer us to it.

Thanks all for your support,

Tanya M. Mensah, Sr. Project Manager (PM)
2.206 Coordinator & Generic Communications Program Manager
Generic Communications and Power Uprate Branch (PGCB)
Division of Policy and Rulemaking (DPR)
Office of Nuclear Reactor Regulation (NRR)
W: 301-415-3610
Email: tanya.mensah@nrc.gov

Valentine, Nicholee

From: Bowman, Eric
Sent: Thursday, March 24, 2011 9:13 AM
To: Alexion, Thomas
Cc: Pedersen, Roger
Subject: RE: Draft INRev (3) PMT for your consideration and issuance....

Tom,

Roger Pedersen is listed as the technical contact on IN 86-32 and Supp 1. He still works here and is in the HP branch in DIRS; he might be a good one to bring along to discuss w/Eric if he's available.

Thanks!

Eric

From: Alexion, Thomas
Sent: Thursday, March 24, 2011 9:03 AM
To: Bowman, Eric; Mensah, Tanya
Subject: FW: Draft INRev (3) PMT for your consideration and issuance....

FYI, in case we need your help on this.

From: McGinty, Tim
Sent: Thursday, March 24, 2011 1:54 AM
To: Rosenberg, Stacey; Alexion, Thomas
Cc: Brenner, Eliot; Hoc, PMT12; LIA07 Hoc; Giitter, Joseph; Leeds, Eric; Boger, Bruce; Blount, Tom; Quay, Theodore; Nelson, Robert; LIA06 Hoc
Subject: RE: Draft INRev (3) PMT for your consideration and issuance....

NRR/DPR Generic Communications Staff: (Stacey (and Tom Acting)):

Purpose of this email is to provide clarification to direction you have received regarding the crafting of an Information Notice to convey that NRC requests voluntary reporting of radioactivity measurements pertaining to Fukushima.

The Ops Center Response Teams worked on an initial draft. **No significant effort to continue to develop this information notice for near-term issuance is needed.** Please retain it for potential future use, if that becomes necessary.

The reason we are not actively working on issuing an IN is contained in the attached emails. Eric Leeds has worked with NEI, and NEI has agreed to voluntarily provide the information to NRC for collection, and then for providing it to EPA.

Let me know if you have any questions. Tim

From: Hoc, PMT12
Sent: Wednesday, March 23, 2011 11:06 PM
To: Leeds, Eric; Giitter, Joseph; McGinty, Tim; LIA07 Hoc
Cc: Hoc, PMT12; Brenner, Eliot
Subject: Draft INRev (3) PMT for your consideration and issuance....
Importance: High

2/22/11

Eric-

We took the draft IN from Chernobyl (IN 86-32) and revised accordingly for the proposed IN for NRC Rx licensees. It's our understanding that NRR will take the lead to get this issued, and approved by ET and/or Commission. We also understand that OPA would most likely need to issue a Press release if this is sent to NRC licensees. If NRR has a process that you envision for collection and working this with the NRR PMs and/or the PMT that would also be great.

When it gets issued, please cc the pmt12 account also-

Thanks
Cyndi Jones
PMT

Hughey, John

From: Chernoff, Harold
Sent: Thursday, March 24, 2011 9:48 AM
To: NRR_DORL_LPL1-2 Distribution
Subject: FW: FYI: New TI Related to Fukushima

fyi

From: Nelson, Robert *NRK*
Sent: Thursday, March 24, 2011 9:43 AM
To: Broaddus, Doug; Campbell, Stephen; Carlson, Robert; Chernoff, Harold; Kulesa, Gloria; Markley, Michael; Pascarelli, Robert; Salgado, Nancy; Simms, Sophonia; Wall, Scott
Cc: Mahoney, Michael; Meighan, Sean; Gitter, Joseph; Howe, Allen
Subject: FYI: New TI Related to Fukushima

Issued yesterday; links below.

The objective of this TI is to independently assess the adequacy of actions taken by licensees in response to the Fukushima Daiichi nuclear station fuel damage event. The inspection results from this TI will be used to evaluate the industry's readiness for a similar event and to aid in determining whether additional regulatory actions by the U.S. Nuclear Regulatory Commission are warranted. Therefore, the intent of this TI is to be a high-level look at the industry's preparedness for events that may exceed the design basis for a plant. If necessary, a more specific follow-up inspection will be performed at a later date.

[Inspection Manual Change Notice 11-003](#)

[TI 2515-183, "Followup to Fukushima Daiichi Nuclear Station Fuel Damage Event"](#)

NELSON

Bamford, Peter

From: Kern, David *DK*
Sent: Thursday, March 24, 2011 2:23 PM
To: Henderson, Pamela
Cc: Bamford, Peter; Bellamy, Ronald; Heinly, Justin
Subject: RE: I-131 detected at TMI

Hi Pam:

All Exelon sites are enhancing their offsite monitoring after the Japan event. As part of this TMI monitors rainwater for gamma, every time their sample location collects 1000 milliliter. Yesterday they had sufficient rain water collection to perform analysis.

Date: 3/23/11
Location: TMI employee parking lot (about 150 yards outside of protected area) on Three Mile Island, Middletown, PA
Result: 95 picocuries/liter Iodine-131

TMI mentioned that similar samples taken about 6 miles from Limerick were approximately 90-100 picocuries/liter I-131.

TMI will now begin checking their normal weekly offsite air samples for gamma, in addition to the gross-beta analysis previously done.

TMI will also now begin checking their biweekly milk samples for gamma.

Dave

From: Henderson, Pamela *PH*
Sent: Thursday, March 24, 2011 2:14 PM
To: Kern, David
Subject: I-131 detected at TMI

Hi Dave,

I heard that Iodine-131 was detected at TMI? If so, can you give me the activity (picocuries per liter) detected and where it was detected?

Thanks,

Pam

Bamford, Peter

From: Chernoff, Harold *NRC*
Sent: Thursday, March 24, 2011 9:40 AM
To: Bamford, Peter
Subject: Communication of Environmental Data Attributable to Events in Japan

The purpose of this e-mail is to ensure your awareness of an agreement between the Nuclear Energy Institute (NEI) and the NRC staff. In summary, NEI has agreed to facilitate the collection and transmission of environmental data from operating reactor sites that is reasonably attributable to events in Japan subsequent to March 11, 2011. Once this information has been collected and organized NEI will forward this information to the NRC staff. NRC staff will ensure that this information is forwarded to the lead government agency, Environmental Protection Agency (EPA), for monitoring this type of information. In the past the EPA has stated that, "environmental radiation data supplied by NRC licensees were instrumental in understanding particular aspects of the US radiological situation and in answering concerns of US citizens relative to gaseous radioiodine in the air."

NRC staff appreciates your efforts in providing this important data to NEI.

Regards,

Bamford, Peter

From: Chernoff, Harold *HNK*
Sent: Thursday, March 24, 2011 9:40 AM
To: Bamford, Peter
Subject: Communication of Environmental Data Attributable to Events in Japan

The purpose of this e-mail is to ensure your awareness of an agreement between the Nuclear Energy Institute (NEI) and the NRC staff. In summary, NEI has agreed to facilitate the collection and transmission of environmental data from operating reactor sites that is reasonably attributable to events in Japan subsequent to March 11, 2011. Once this information has been collected and organized NEI will forward this information to the NRC staff. NRC staff will ensure that this information is forwarded to the lead government agency, Environmental Protection Agency (EPA), for monitoring this type of information. In the past the EPA has stated that, "environmental radiation data supplied by NRC licensees were instrumental in understanding particular aspects of the US radiological situation and in answering concerns of US citizens relative to gaseous radioiodine in the air."

NRC staff appreciates your efforts in providing this important data to NEI.

Regards,

Howe, Allen

From: Howe, Allen *MR*
Sent: Thursday, March 24, 2011 8:58 AM
To: Nelson, Robert; Gitter, Joseph
Subject: FYI : TI 2515/183 - Hyperlinks to ADAMS documents

TI to inspect actions taken by licensees in response to the Japan earthquake. The completion date is May 13, 2011.

From: Martin, Robert *MR*
Sent: Thursday, March 24, 2011 8:50 AM
To: Howe, Allen
Cc: Kulesa, Gloria
Subject: FW: TI 2515/183 - Hyperlinks to ADAMS documents

Allen, this is the email for the TI that I just delivered to you.

From: Kobetz, Timothy *MR*
Sent: Wednesday, March 23, 2011 3:35 PM
To: Walker, Wayne; OKeefe, Neil; Hopper, George; Hay, Michael; Powell, Raymond; Lara, Julio
Cc: Roberts, Darrell; Clifford, James; Croteau, Rick; Jones, William; OBrien, Kenneth; Kennedy, Kriss; Shear, Gary; Pruett, Troy; Westreich, Barry; West, Steven; Vegel, Anton; Wilson, Peter; Miller, Chris; Weerakkody, Sunil; Reynolds, Steven; Munday, Joel; Moorman, James; Christensen, Harold; Brown, Frederick; Albert, Ronald; Erlanger, Craig; Thomas, Eric; Thorp, John; Ashley, MaryAnn; Cutler, Iris
Subject: TI 2515/183 - Hyperlinks to ADAMS documents

Gentlefolk,

This TI is officially issued today. It is currently being made available in ADAMS (see the below links). Tomorrow I'd like to set up a call with you to exchange ideas on how each region currently plans to provide resources for this effort. I am currently working on the template and will provide what I have at that time.

It looks like either 9:00am or 2:00pm works best for most of you. Please let me know which you prefer.

In addition, during the call with the Deputy RAs today it was noted that at least some of the regions plan to have a conference call with the resident inspectors to discuss the TI. I would like to support the calls to address any questions the inspectors may have for the program office – please let me know if you'd like me to call in.

Thanks for your continued support.

Tim

From: Cutler, Iris *MR*
Sent: Wednesday, March 23, 2011 12:16 PM
To: Kobetz, Timothy
Subject: Hyperlinks to ADAMS documents

Inspection Manual Change Notice 11-003

TI 2515-183, "Followup to Fukushima Daiichi Nuclear Station Fuel Damage Event"

Arndt, Steven - K/235

From: Joe Colvin [president@ans.org]
Sent: Thursday, March 24, 2011 4:05 AM
To: Arndt, Steven
Subject: ANS Japan Relief Fund

Dear ANS Member,

In response to your feedback, ANS has established the Japan Relief Fund to help our friends, colleagues, and their families in Japan who have been affected by the earthquake and tsunami. The beneficiaries of this fund will be determined by the ANS and sister organizations in Japan. We'll work to be sure the fund benefits the nuclear power plant employees and their families.

Please visit the ANS Japan Relief Fund page today at <http://www.new.ans.org/about/japanrelief/>.

ANS has also made Japan Relief Fund icons available for download at the link above. I urge you to include these icons on your websites (with any necessary authorizations, of course) and link to the Japan Relief Fund page.

Respectfully,

Joe Colvin
ANS President

Cheok, Michael

NRR

From: Cheok, Michael
Sent: Thursday, March 24, 2011 6:04 PM
To: NRR_DRA_AADB Distribution; NRR_DRA_AFPB Distribution; NRR_DRA_APLA Distribution; NRR_DRA_APOB Distribution; NRR_DRA_DO Distribution
Cc: Lee, Samson
Subject: FW: Regulatory Response
Attachments: Regulatory path forward-3-23.docx

All - Please note that the attached is a very early and preliminary working copy of some potential regulatory response given the events in Japan (compiled by Barry Westreich and Tim Collins who were tasked by the LT to come up with such a list). Note the many DRA items in the attached – looks like we could be busy. This e-mail is mostly a FYI at this point, but if you have comments or suggestions, please provide them to Sam or I (because of the large number of people on this distribution, please do not “reply all”). Comments could include additional items we should consider (e.g., maybe considering combination scenarios and multi-unit sites in external events PRAs), or items which you think may be over-reactions.

Note that the “Senior Level Task Force” mentioned below right now consists of Charlie Miller as lead, Jack Grobe, Gary Holahan, and Nathan Sanfilipo. I am guessing that others will be asked to support.

Mike

From: Westreich, Barry *mbk*
Sent: Thursday, March 24, 2011 9:07 AM
To: McGinty, Tim; Blount, Tom; Quay, Theodore; Galloway, Melanie; Holian, Brian; Lund, Louise; Nelson, Robert; Giitter, Joseph; Howe, Allen; Brown, Frederick; Cheok, Michael; Ruland, William; Bahadur, Sher; Lubinski, John; Hiland, Patrick; Skeen, David; Lee, Samuel; Thomas, Brian
Cc: Boger, Bruce; Grobe, Jack; Collins, Timothy; Leeds, Eric
Subject: Regulatory Response

Attached is a table of our preliminary thoughts related to the Regulatory Response following the events in Japan. I have been working with Tim Collins to identify potential areas that may need evaluation, current requirements or initiatives in the identified area, technical points of contact, and priority of the issues.

We plan to discuss this effort at the next LT meeting on March 29, 2011. As I indicated, this is a preliminary list and as a result, I would appreciate your review and insights into additional areas that should be included. I would also appreciate identification of POCs for the identified areas.

We plan to coordinate this effort with the newly establish Senior Level Task Force reviewing NRC processes.

Barry

2/236

Topic	Current Requirement	Inspection verification	Assistance	Near Term/Long term actions	Priority
B.5.b actions - Spent Fuel - Reactor - Containment - locations of equipment *distance from site and ability to withstand external events – * means and manpower to get equipment to site. *enough equipment to supply all units and SFPs with required coolant - Extreme condition Fresh Water supplies	- Orders - 10CFR50.54hh	B.5.b inspection TIs 2006-2008	Eric Bowman Barry Westriech	Orders/Rule Evaluate B5.b. efficacy for other initiators especially tsunami/floods	highest

Topic	Current Requirement	Inspection verification	Assistance	Near Term/Long term actions	Priority
Station Black Out - Coping times -Living requirement? -equipment damage assumption	10CFR50.63 NUREG-1032, "Evaluation of Station Blackout at Nuclear Power Plants," June 1988 RG 1.155, "Station Blackout	Temporary Instruction 2515/120, ?Inspection of Implementation of Station Blackout Rule, Inspection Procedure 62706, "Maintenance Rule," December 31, 1997, Section 3.05, "Effectiveness of Emergency Diesel Generator (EDG) Maintenance Activities	DSS/SRXB DE/George Wilson	Evaluate adequacy of coping times Are coping times periodically reconfirmed in light of new LOOP data? Do prior evaluations envelope Japan events, or are there new considerations that need regulatory actions?	high
Seismic Analysis	GDC 2 Design Bases for Protection Against Natural Phenomena GI 199 - Generic Communication being developed Part 50 appendix S		NRO/DSER Tom Blount – Gen Comm	GI-199 impact	Longer term
Flooding/Tsunami	GDC 2		NRO/DSER	Should we enhance tsunami criteria?	
Other External Events			FIRE-DRA		

Topic	Current Requirement	Inspection verification	Assistance	Near Term/Long term actions	Priority
Spent Fuel Management dry cask storage - power supplies			DSS –Steve Jones	Do prior evaluations envelope Japan events, or are there new considerations that need regulatory actions? Additional limits on pool storage?	High?
SAMG/ESAMG Adequacy -Extreme Damage Mitigating Guidelines (NEI-06-12) (B.5.b)		TI 171 triennial fire inspection	DRA/RES	Status at all plants? Need for enhancements?	high
Siting Criteria (number of units onsite)	10CFR100		DRA NRO/DSER	Should we limit # units per site?	later
EP - Effects of power uprates -population - Command and Control (external) for extreme events	Appendix E		NSIR	Do prior evaluations envelope Japan events, or are there new considerations that need regulatory actions?	
10E-4 planning basis	Safety Goals/ RG 1.174		DRA	Balance of prevention/mitigation Do we need more emphasis on mitigation in achieving safety goals?	later

Topic	Current Requirement	Inspection verification	Assistance	Near Term/Long term actions	Priority
Containment integrity (failure probability) - LERF			DRA	Do we need to beef up capability to contain molten core?	later
Hydrogen Control			DRA	Confirm current status Do prior evaluations envelope Japan events, or are there new considerations that need regulatory actions?	high
Combustible/Fuel Loading Material Control			DRA (Fire)		
Post Accident sampling Systems	Requirement eliminated following staff review that found that the information provided by PASS is either unnecessary or is effectively provided by other indications of process parameters or measurement of radiation levels				
Emergency Event operations staffing					

Topic	Current Requirement	Inspection verification	Assistance	Near Term/Long term actions	Priority
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Arndt, Steven

From: Marksberry, Don
Sent: Thursday, March 24, 2011 4:48 PM
To: Arndt, Steven — *YRK*
Subject: Some questions

1. Any concerns that Unit 3 primary containmet may be failed? (we heard both ways)
2. What is the zero reference for RPV level indication that has been reported by NISA press releases? (The press release has a table note that indicates that zero is top of active fuel---this is different that typical U.S. GE designs. Indication of -1,700 mm is below 2/3 core for zero of TAF)
3. Is water spraying also intended to cool the outside of the containment?
4. What were the vent paths used for primary containment venting: drywell vs. suppression pool airspaces?
5. Any recent concerns about spent fuel pool coolant inventory?
6. Has any assessment been done of the I-131/Cs-137 ratios that are being observed via field measurements (i.e., reactor vs. spent fuel releases)

Valentine, Nicholee

From: Beaulieu, David *DR*
Sent: Thursday, March 24, 2011 12:39 PM
To: Alexion, Thomas
Subject: RIS Intent Section

Tom, as you requested. Let me know if you need the names of the points of contact for generic communications in the other offices.

INTENT

The U.S. Nuclear Regulatory Commission (NRC) is issuing this regulatory issue summary (RIS) to request that addressees with on-going environmental monitoring programs voluntary report to the NRC confirmed anomalous environmental radioactivity measurements likely caused by radioactive material released by the Fukushima Daiichi Nuclear Power Station in Japan following the March 11, 2011, Tohoku-Taiheiyou-Oki earthquake. This magnitude 9.0 earthquake and the subsequent tsunami caused significant damage to at least four of the six units of the Fukushima Daiichi Nuclear Power Station as the result of a sustained loss of both the offsite and on-site power systems. The information collected will be used to enhance the Federal and state monitoring programs.

DAVID BEAULIEU PROJECT MANAGER, NRR/DPR/PGCB
(bowl-yer) 301-415-3243 | O12H17 | David.Beaulieu@nrc.gov

U.S. Nuclear Regulatory Commission

Valentine, Nicholee

From: Beaulieu, David *NRK*
Sent: Thursday, March 24, 2011 2:52 PM
To: Conatser, Richard; Shoop, Undine; Pedersen, Roger
Cc: Alexion, Thomas
Subject: Very Rough Draft
Attachments: RIS Japan Rad Measure.docx

Rough draft.

DAVID BEAULIEU PROJECT MANAGER, NRR/DPR/PGCB
(bowl-yer) 301-415-3243 | O12H17 | David.Beaulieu@nrc.gov

U.S. Nuclear Regulatory Commission

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
WASHINGTON, DC 20555-0001

**NRC REGULATORY ISSUE SUMMARY 2011-XX: REQUEST FOR
LICENSEE RADIOACTIVITY MEASUREMENTS ATTRIBUTED TO
JAPANESE NUCLEAR POWER PLANTS FOLLOWING EARTHQUAKE**

ADDRESSEES

All holders of an operating license for a nuclear power reactor issued under Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," except those who have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel.

INTENT

The U.S. Nuclear Regulatory Commission (NRC) is issuing this regulatory issue summary (RIS) to request that addressees with on-going environmental monitoring programs voluntary report to the NRC anomalous environmental radioactivity measurements likely caused by radioactive material released by the Fukushima Daiichi Nuclear Power Station in Japan following the March 11, 2011, Tohoku-Taiheiyou-Okai earthquake. This magnitude 9.0 earthquake and the subsequent tsunami caused significant damage to at least four of the six units of the Fukushima Daiichi Nuclear Power Station as the result of a sustained loss of both the offsite and on-site power systems.

SUMMARY OF ISSUE

It appears likely that radioactive material released from the Fukushima Daiichi Nuclear Power Station has arrived within the continental US in concentrations that may be detectable by licensee environmental monitoring equipment. Higher than normal levels of radioactivity such as iodine-131 and cesium-137 have been detected in air and rainwater at several U.S. reactor licensee sites. The NRC will collect and disseminate the information voluntarily reported to the NRC to enhance the Federal and state monitoring programs.

Because the sensitivity and broad scope of existing licensee Environmental Monitoring Programs (EMPs), augmentation of the NRC licensee EMPs is not necessary. Environment air sampling probably is the most sensitive and thus most likely means of detecting the airborne materials. Other potential means of detection that are less-sensitive include personnel whole body counting equipment.

Any anomalous detection of radioactive material should be evaluated in accordance with facility license, technical specifications and applicable regulations to assure that the detected materials

MLXXXXXXXXXX

are properly identified as to source (e.g., either plant operations or the Fukushima Daiichi Nuclear Power Station).

VOLUNTARY RESPONSE

Addressees are requested to voluntarily report to the NRC by sending an e-mail to the NRC Operations Center at hoo.hoc@nrc.gov any anomalous environmental radiation or radioactivity measurement that can be reasonably assumed to be radioactive material that originated from the Fukushima Daiichi Nuclear Power Station. The requested reporting format is as follows:

1. Sample date(s) and approximate locations(s)
2. Medium or pathway (e.g., air particulate, air charcoal, milk)
3. Type of analysis (e.g., gross beta, iodine-131, other gamma emitter)
4. Statistical data (mean, range, number of samples)

BACKFIT DISCUSSION

This RIS requires no action or written response. Any action on the part of addressees to voluntarily report information in accordance with the guidance contained in this RIS is strictly voluntary and, therefore, is not a backfit under 10 CFR 50.109. Consequently, the staff did not perform a backfit analysis.

FEDERAL REGISTER NOTIFICATION

A notice of opportunity for public comment on this RIS was not published in the *Federal Register* because it pertains to an administrative aspect of the regulatory process that involves the voluntary submission of information on the part of addressees.

Congressional Review Act

The NRC has determined that this action is not a rule as designated by the Congressional Review Act (5 U.S.C. §§ 801–808) and, therefore, is not subject to the Act.

PAPERWORK REDUCTION ACT STATEMENT

Public Protection Notification

The NRC may not conduct or sponsor, and a person is not required to respond to, an information collection unless the requesting document displays a currently valid OMB control number.

CONTACT

Please direct any questions about this matter to the technical contact(s) or the Lead Project Manager listed below, or to the appropriate Office of Nuclear Reactor Regulation (NRR) project manager.

Thomas Blount, Acting Director
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

Technical Contact: {name}, NRR
301-415-xxxx
e-mail: xxx@nrc.gov

Note: NRC generic communications may be found on the NRC public Web site, <http://www.nrc.gov>, under Electronic Reading Room/Document Collections.

CONTACT

Please direct any questions about this matter to the technical contact(s) or the Lead Project Manager listed below, or to the appropriate Office of Nuclear Reactor Regulation (NRR) project manager.

Thomas Blount, Acting Director
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

Technical Contact: {name}, NRR
301-415-xxxx
e-mail: xxx@nrc.gov

Note: NRC generic communications may be found on the NRC public Web site, <http://www.nrc.gov>, under Electronic Reading Room/Document Collections.

ADAMS Accession No.: MLXXXXXXXXXX

TAC MXXXXXX

OFFICE		Tech Editor	BC:	D:DIRS	LA:PGCB:NRR
NAME					CHawes
DATE		XX/XX/11 e-mail			
OFFICE					
NAME					
DATE					
OFFICE	PM:PGCB:NRR	BC:PGCB:NRR	D:DFCSS:NMSS	D:DCIP:NRO	D:DPR:NRR
NAME	DBeaulieu	SRosenberg	JKinneman	LDudes	TMcGinty
OFFICE					

OFFICIAL RECORD COPY

Valentine, Nicholee

From: Beaulieu, David *INXPR*
Sent: Thursday, March 24, 2011 4:35 PM
To: QTE Resource
Subject: URGENT ACTION: RIS Japan Radiation Measurements
Attachments: RIS Japan Rad Measurements.docx

Importance: High

Please review this URGENT RIS ASAP (no need to work late today – early tomorrow morning is fine.)

DAVID BEAULIEU PROJECT MANAGER, NRR/DPR/PGCB
(*bowl-yer*) 301-415-3243 | O12H17 | David.Beaulieu@nrc.gov

U.S. Nuclear Regulatory Commission

2/240

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
WASHINGTON, DC 20555-0001

**NRC REGULATORY ISSUE SUMMARY 2011-XX: REQUEST FOR
LICENSEE RADIOACTIVITY MEASUREMENTS ATTRIBUTED TO
JAPANESE NUCLEAR POWER PLANTS FOLLOWING EARTHQUAKE**

ADDRESSEES

All holders of an operating license for a nuclear power reactor issued under Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," except those who have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel.

INTENT

The U.S. Nuclear Regulatory Commission (NRC) is issuing this regulatory issue summary (RIS) to request that addressees with on-going environmental monitoring programs voluntary report to the NRC anomalous environmental radioactivity measurements likely caused by radioactive material released by the Fukushima Daiichi Nuclear Power Station in Japan following the March 11, 2011, Tohoku-Taiheiyou-Oki earthquake. This magnitude 9.0 earthquake and the subsequent tsunami caused significant damage to at least four of the six units of the Fukushima Daiichi Nuclear Power Station as the result of a sustained loss of both the offsite and on-site power systems.

SUMMARY OF ISSUE

It appears likely that radioactive material released from the Fukushima Daiichi Nuclear Power Station has arrived within the continental US in concentrations that may be detectable by licensee environmental monitoring equipment. Higher than normal levels of radioactivity such as iodine-131 and cesium-137 have been detected in air and rainwater at several U.S. reactor sites. The NRC will compile the information voluntarily reported to the NRC and share it with other Federal agencies as appropriate for an integrated assessment across the US.

Because of the sensitivity and the broad scope of existing licensee Radiological Environmental Monitoring Programs (REMP), augmentation of the NRC licensee REMF is not necessary.

Any anomalous detection of radioactive material should be evaluated in accordance with facility license, technical specifications and applicable regulations to assure that the detected materials are properly identified as to source (e.g., either plant operations or the Fukushima Daiichi Nuclear Power Station).

VOLUNTARY RESPONSE

MLXXXXXXXXX

Addressees are requested to voluntarily report to the NRC by sending an e-mail to the NRC Operations Center at hoo.hoc@nrc.gov any anomalous environmental radiation or radioactivity measurement that can be reasonably assumed to be radioactive material that originated from the Fukushima Daiichi Nuclear Power Station. The requested reporting format is as follows:

1. Sample date, time, and approximate sample locations(s)
2. Environmental sample medium (e.g., air particulate, air charcoal, milk)
3. Type of analysis (e.g., gross beta, iodine-131, other gamma emitter) and analysis results
4. Detection sensitivity (e.g., LLD or MDA)

BACKFIT DISCUSSION

This RIS requires no action or written response. Any action on the part of addressees to voluntarily report information in accordance with the guidance contained in this RIS is strictly voluntary and, therefore, is not a backfit under 10 CFR 50.109. Consequently, the staff did not perform a backfit analysis.

FEDERAL REGISTER NOTIFICATION

A notice of opportunity for public comment on this RIS was not published in the *Federal Register* because it pertains to an administrative aspect of the regulatory process that involves the voluntary submission of information on the part of addressees.

Congressional Review Act

The NRC has determined that this action is not a rule as designated by the Congressional Review Act (5 U.S.C. §§ 801–808) and, therefore, is not subject to the Act.

PAPERWORK REDUCTION ACT STATEMENT

Public Protection Notification

The NRC may not conduct or sponsor, and a person is not required to respond to, an information collection unless the requesting document displays a currently valid OMB control number.

CONTACT

Please direct any questions about this matter to the technical contact(s) or the Lead Project Manager listed below, or to the appropriate Office of Nuclear Reactor Regulation (NRR) project manager.

Thomas Blount, Acting Director
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

Technical Contact: {name}, NRR
301-415-xxxx
e-mail: xxx@nrc.gov

Note: NRC generic communications may be found on the NRC public Web site, <http://www.nrc.gov>, under Electronic Reading Room/Document Collections.

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301-415-xxxx
e-mail: xxx@nrc.gov

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ADAMS Accession No.: MLXXXXXXXXXX

TAC MXXXXXX

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OFFICIAL RECORD COPY

Valentine, Nicholee

From: Beaulieu, David *DB*
Sent: Thursday, March 24, 2011 5:04 PM
To: Hayden, Elizabeth
Subject: RE: Very Draft RIS
Attachments: RIS Japan Rad Measurements.docx

Probably Monday. See latest version attached.

From: Hayden, Elizabeth *10/24*
Sent: Thursday, March 24, 2011 4:45 PM
To: Beaulieu, David
Subject: RE: Very Draft RIS

Thanks. I'll put together what I can. When does NRR plan to issue the RIS?

Beth Hayden
Senior Advisor
Office of Public Affairs
U.S. Nuclear Regulatory Commission
-- Protecting People and the Environment
301-415-8202
elizabeth.hayden@nrc.gov

From: Beaulieu, David
Sent: Thursday, March 24, 2011 3:16 PM
To: Hayden, Elizabeth
Subject: Very Draft RIS

Although this is a very rough draft, it's probably good enough to start preparing a press release.

DAVID BEAULIEU PROJECT MANAGER, NRR/DPR/PGCB
(*bowl-yer*) 301-415-3243 | O12H17 | David.Beaulieu@nrc.gov

U.S. Nuclear Regulatory Commission

4/24/11

UNITED STATES
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WASHINGTON, DC 20555-0001

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A notice of opportunity for public comment on this RIS was not published in the *Federal Register* because it pertains to an administrative aspect of the regulatory process that involves the voluntary submission of information on the part of addressees.

CONGRESSIONAL REVIEW ACT

This RIS is not a rule as designated by the Congressional Review Act (5 U.S.C. §§ 801-808) and, therefore, is not subject to the Act.

PAPERWORK REDUCTION ACT STATEMENT

This RIS does not contain new or amended information collection requirements subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). Existing information collection requirements were approved by the Office of Management and Budget, control numbers 3150-0011 and 3150-0012.

PUBLIC PROTECTION NOTIFICATION

The NRC may not conduct or sponsor, and a person is not required to respond to, a request for information or an information collection requirement unless the requesting document displays a current valid Office of Management and Budget control number.

CONTACT

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Thomas Blount, Acting Director
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

Technical Contact: {name}, NRR
301-415-xxxx
e-mail: xxx@nrc.gov

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Thomas Blount, Acting Director
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

Technical Contact: {name}, NRR
301-415-xxxx
e-mail: xxx@nrc.gov

Note: NRC generic communications may be found on the NRC public Web site, <http://www.nrc.gov>, under Electronic Reading Room/Document Collections.

ADAMS Accession No.: MLXXXXXXXXXX

TAC MXXXXX

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OFFICIAL RECORD COPY

Valentine, Nicholee

From: Beaulieu, David *INR*
Sent: Thursday, March 24, 2011 5:23 PM
To: Conatser, Richard
Cc: Shoop, Undine; Pedersen, Roger; Alexion, Thomas; Hayden, Elizabeth
Subject: RIS Unclear

The RIS now reads:

ADDRESSEES

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Comment:

I recommend deleting "with on-going environmental monitoring programs" because it creates confusion whether all addressee have an on-going environmental monitoring program.

DAVID BEAULIEU PROJECT MANAGER, NRR/DPR/PGCB
(bowl-yer) 301-415-3243 | O12H17 | David.Beaulieu@nrc.gov

U.S. Nuclear Regulatory Commission

Weaver, Tonna

From: Galloway, Melanie *MGK*
Sent: Thursday, March 24, 2011 6:56 AM
To: Ruland, William
Subject: FW: LT Task List - Staff for third team to Japan has been assigned to you

SharePoint Tasks List: LT Task List
<http://portal.nrc.gov/edo/nrr/ltmeeting/Lists/Tasks>

Bill,

This assignment has come through. Are there particular skills sets we are looking for in this 3rd set?

For the second set, we had identified Allen Hiser and Dave Pelton, but they were not selected. Are they automatically carried over to the 3rd set or should we resubmit, along with any others?

Melanie

From: Leadership Team Portal [<mailto:sharepoint-help@nrc.gov>]
Sent: Wednesday, March 23, 2011 4:55 PM
To: Galloway, Melanie
Subject: LT Task List - Staff for third team to Japan has been assigned to you
SharePoint Tasks List: LT Task List
<http://portal.nrc.gov/edo/nrr/ltmeeting/Lists/Tasks>

[Leadership Team Portal](#)

Staff for third team to Japan has been assigned to you

[Modify my alert settings](#) [View Staff for third team to Japan](#) [View LT Task List](#) [Mobile View](#)

Title:	Staff for third team to Japan
Priority:	(2) Normal
Date Assigned:	3/18/2011
Description:	Divisions must identify staff for third team to Japan and provide to LT Chair.
Due Date:	3/25/2011
Assigned To:	Holian, Brian; Galloway, Melanie
Division:	DLR
Date Completed:	
Comments on Current Status:	
Task Status:	Open
Modified:	3/23/2011 4:53 PM
Created:	3/23/2011 4:53 PM

Weaver, Tonna

From: Mendiola, Anthony *NYCR*
Sent: Thursday, March 24, 2011 7:47 AM
To: Ruland, William; Bahadur, Sher
Subject: FW: Pay guidance for Japanese Event

This is for your information only should you get asked by Ops Center staff or DSS senior staff.

I had asked Len to seek some clarification about the previous email information from HR on pay guidance for senior engineers (GS 15/09s and 15/10s) involved with Japan. The rumor that I overheard in the Op Center was that while the biweekly cap on pay was lifted, the annual cap remained, and it is conceivable that the senior engineers would not get full paychecks in the last pay periods of the year. While it was not going to affect anyone's support of the Japan event, it did seem "disingenuous" to the level of effort provided now by the senior staff.

The guidance provided to Len below by Larry Davidson provides some clarification but does not specify what would happen should folks reach the annual cap. It can be interpreted that the senior staff should enter their time as "voluntary overtime" verses "paid overtime". We will seek a clearer understanding today and provide it forward.

Tony

From: Davidson, Lawrence *HLK*
Sent: Wednesday, March 23, 2011 5:18 PM
To: Ward, Leonard
Cc: Johns, Nancy; Scott, Tracy; Tallarico, Alison
Subject: RE: Pay guidance for Japanese Event

Len,

The biweekly cap will be lifted and the annual cap will be applied during pay periods in which you perform emergency support work, per the explanation in HR's published guidance – your organization will need to contact Jackie Jones of CFO to provide her your name as well as the dates of your emergency response work, and ask her to lift the biweekly cap in favor of an annual cap for the applicable pay periods. Note that this benefits non-SESers who are paid salaries below the GG-15 step 10 salary. It benefits them because their premium pay (overtime pay, regular comp time, night premium pay, Sunday premium pay, and holiday premium pay) will not be cut off if it exceeds the biweekly cap, and instead will be paid until it reaches the annual cap.

Your salary and premium pay are two different things. Your salary cannot be cut off due to the annual cap.

Please buzz me at 301-492-2286 if you'd like to discuss this further.

Larry

From: Ward, Leonard *MLR*
Sent: Wednesday, March 23, 2011 4:21 PM
To: Davidson, Lawrence

2/24/11

Cc: Mendiola, Anthony

Subject: Pay guidance for Japanese Event

Hi Larry:

I fall under the NEWFlex schedule where it states that restrictions non-overtime work has been lifted **for the pay period**. This is the two week pay period I would presume. Could you tell me if the limit on the year's total salary has also been lifted? That is, if overtime pay is given out during the early pay periods that pushes one over the yearly total salary limit, does this mean that one's pay for the last couple of pay periods during the year (in Dec) would be cancelled.? If the GG 15 step 10 yearly salary limit is reached at the beginning of Dec for ex., that would also preclude the matching contribution into the 401 K plan. Is the limit on yearly total salary also lifted. Thanks Len



Dr. Leonard W. Ward, PhD
US Nuclear Regulatory Commission
NRR/DSS/SNPB
MS O10-B3
Washington DC 20555-001
Work (301) 415-2866
Fax (301) 415-3577

Weaver, Tonna

From: Purciarello, Gerard *NR*
Sent: Thursday, March 24, 2011 9:37 AM
To: Davidson, Evan
Subject: RE: FOIA response

Thanks

From: Davidson, Evan *NR*
Sent: Thursday, March 24, 2011 9:26 AM
To: Purciarello, Gerard
Subject: FOIA response

Hi Jerry,

Attached are the only items in my Sent folder talking about the Japan incident. I had already emptied my Deleted Items folder.

Thanks,

Evan

Weaver, Tonna

From: Mendiola, Anthony *AMK*
Sent: Thursday, March 24, 2011 10:37 AM
To: Ruland, William
Cc: Bahadur, Sher
Subject: RST status sheet

Bill,

We (Clifford, Attard, Wu, Woods, and Miranda) have looked at the RST status sheet (0600 version). We have no issues with the information. Fred Brown (RST direction) plans to forward it to the team mid-day today.

Just so you know, my presence in the Op Center and questions I asked his team about the spent fuel pool of Unit 4 aggravated Fred and he suggested that I leave the op center. I was able to defuse by explaining why I was asking the questions, but he may still comment on it when you turn over with him later today.

Sorry,

Anthony Mendiola
Chief, Nuclear Performance and Code Review Branch
SNPB/DSS/NRR/NRC
(301) 415-1054

Weaver, Tonna

From: Leeds, Eric *MLR*
Sent: Thursday, March 24, 2011 10:53 AM
To: Chernoff, Harold; Nelson, Robert
Cc: Giitter, Joseph; Howe, Allen; Boger, Bruce; Grobe, Jack; Markley, Michael; Oesterle, Eric; Meighan, Sean; Nguyen, Quynh; Blount, Tom; Ruland, William
Subject: RE: FYI: E-Mail to CNOs

Thanks Harold. Please coordinate with Joe Giitter/Tom Blount. I believe they are taking the lead on this, although I may be signing/sending whatever is the outcome.

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

From: Chernoff, Harold *MLR*
Sent: Thursday, March 24, 2011 10:47 AM
To: Nelson, Robert; Leeds, Eric
Cc: Giitter, Joseph; Howe, Allen; Boger, Bruce; Grobe, Jack; Markley, Michael; Oesterle, Eric; Meighan, Sean; Nguyen, Quynh
Subject: RE: FYI: E-Mail to CNOs

The addressee list is also ready to be inserted. Just let me know who to work with when ready to proceed.

From: Nelson, Robert *MLR*
Sent: Thursday, March 24, 2011 10:02 AM
To: Leeds, Eric
Cc: Giitter, Joseph; Howe, Allen; Chernoff, Harold; Boger, Bruce; Grobe, Jack; Markley, Michael; Oesterle, Eric; Meighan, Sean; Nguyen, Quynh
Subject: FYI: E-Mail to CNOs
Importance: High

Proposed e-mail follows. E-mail distribution list should be ready by 10:30. Many thanks to Harold Chernoff & his staff for preparing this draft and preparing the distribution list.

NELSON

The purpose of this e-mail is to ensure your awareness of a verbal agreement between the Nuclear Energy Institute (NEI) and the NRC staff. In summary, I understand that NEI has agreed to facilitate the collection and transmission of environmental data from operating reactor sites that is reasonably attributable to events in Japan, subsequent to March 11, 2011. Once this information has been collected and organized, NEI will forward this information to the NRC staff. NRC staff will ensure that this information is forwarded to the lead government agency, the Environmental Protection Agency (EPA), for monitoring this type of information. In the past, the EPA has stated that, "environmental radiation data supplied by NRC licensees were instrumental in understanding particular aspects of the US radiological situation and in answering concerns of US citizens relative to gaseous radioiodine in the air."

NRC staff understands that NEI has also informed you of this agreement and appreciates your efforts in providing this important data to NEI.

4/24/11

Weaver, Tonna

From: Lee, Samson *msl*
Sent: Thursday, March 24, 2011 12:06 PM
To: Ruland, William
Cc: Cheok, Michael; Silk, Anne
Subject: RE: LT Task List - Staff for third team to Japan has been assigned to you

Bill:

DRA is not proposing anyone for the third team. However, John Parillo from the Accident Dose Branch is trying to renew his expired passport with assistance from OIP.

Thanks,
Sam

From: Leadership Team Portal [<mailto:sharepoint-help@nrc.gov>]
Sent: Wednesday, March 23, 2011 5:00 PM
To: Lee, Samson
Subject: LT Task List - Staff for third team to Japan has been assigned to you
SharePoint Tasks List: LT Task List
<http://portal.nrc.gov/edo/nrr/ltmeeting/Lists/Tasks>

[Leadership Team Portal](#)

Staff for third team to Japan has been assigned to you

[Modify my alert settings](#) · [View Staff for third team to Japan](#) · [View LT Task List](#) · [Mobile View](#)

Title: Staff for third team to Japan
Priority: (2) Normal
Date Assigned: 3/18/2011
Description: Divisions must identify staff for third team to Japan and provide to LT Chair.
Due Date: 3/25/2011
Assigned To: Cheok, Michael; Lee, Samson
Division: DRA
Date Completed:
Comments on Current Status:
Task Status: Open
Modified: 3/23/2011 4:57 PM
Created: 3/23/2011 4:57 PM

Last Modified 3/23/2011 4:57 PM by Silk, Anne

1/248

Weaver, Tonna

From: Titus, Brett *NRK*
Sent: Thursday, March 24, 2011 2:17 PM
To: Meighan, Sean
Subject: RE: FYI - JAPAN IMPACTS --- LT SharePoint

Yep. Good.

Brett Titus
301-415-3075

From: Meighan, Sean *NRK*
Sent: Thursday, March 24, 2011 2:09 PM
To: Titus, Brett
Subject: FW: FYI - JAPAN IMPACTS --- LT SharePoint
Importance: High

Fixed?!

From: Nguyen, Quynh *NRK*
Sent: Thursday, March 24, 2011 1:59 PM
To: Silk, Anne; Katoski, Alice
Cc: Ruland, William; Meighan, Sean; Titus, Brett
Subject: FYI - JAPAN IMPACTS --- LT SharePoint
Importance: High

What is not getting done due to Japan response

These items... the due date is "rolling and continuous." (The due date of today may be perceived as a deadline so it may be confusing).

Impacts should be updated on a continuing basis with showstoppers communicated to the ET (Leeds) directly. There is no hard deadline.

I confirmed with Leeds.

Weaver, Tonna

From: Titus, Brett *MBR*
Sent: Thursday, March 24, 2011 2:18 PM
To: Valentine, Nicholee
Subject: FW: FYI - JAPAN IMPACTS --- LT SharePoint

Importance: High

Your info...

Brett Titus
301-415-3075

From: Nguyen, Quynh *MBR*
Sent: Thursday, March 24, 2011 1:59 PM
To: Silk, Anne; Katoski, Alice
Cc: Ruland, William; Meighan, Sean; Titus, Brett
Subject: FYI - JAPAN IMPACTS --- LT SharePoint
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I confirmed with Leeds.

L/250

Weaver, Tonna

From: Meighan, Sean *MSK*
Sent: Thursday, March 24, 2011 2:24 PM
To: Ruland, William; Quay, Theodore
Cc: Katoski, Alice; Bahadur, Sher; Galloway, Melanie; Blount, Tom; Hiland, Patrick; Giitter, Joseph; Thomas, Brian; Cheok, Michael; Lee, Samson; Ferrell, Kimberly
Subject: RE: Background 3rd team to Japan .docx
Attachments: 2nd Staff Deployment to Japan.docx

All:

As per Bill Ruland, please find attached the list sent to Michele for consideration for 2nd deployment. This can be used to help with your suggestions for 3rd deployment.

Very Respectfully
Sean

From: Ruland, William *MSK*
Sent: Thursday, March 24, 2011 2:13 PM
To: Quay, Theodore
Cc: Meighan, Sean; Katoski, Alice; Bahadur, Sher; Galloway, Melanie; Blount, Tom; Hiland, Patrick; Giitter, Joseph; Thomas, Brian; Cheok, Michael; Lee, Samson; Ferrell, Kimberly
Subject: FW: Background 3rd team to Japan .docx

Please add this to tomorrow's LT agenda. Sean can help you with the previous list that we had provided. This time, we are to propose one or two candidates that fit the criteria in the attachment. There will be a total of 5 staff that are going to be selected agency wide. The write up for the two that we would propose must include: passport status, security clearance, and the background about why we are recommending them, including an endorsement by either Eric, Jack, or Bruce about why we are recommending them. The folks that we would recommend ought to be staff that we would highly recommend and that we feel are a virtual perfect fit for the requirements listed. After you have provided the action item to the LT and settled on the names, please make arrangements to have the respective LT members provide me the data by 11:00 a.m. Monday so that I, as the LT chair, could forward our names to Michele Evans.

Thanks.

Bill Ruland

From: Salus, Amy *RES*
Sent: Thursday, March 24, 2011 11:14 AM
To: Ruland, William; Holahan, Gary; Miller, Charles; Haney, Catherine; Sheron, Brian; Ordaz, Vonna; Dean, Bill; McCree, Victor; Satorius, Mark; Howell, Art; Collins, Elmo
Subject: Background 3rd team to Japan .docx

Deployment of Second NRC Team to Japan as of March 19, 2011

Skill Set	Name/Office/Projected Deployment date
Executive level	Dan Dorman/NMSS/March 19
General Technical Knowledge/interpersonal skills travelling March 22	Mike Scott/RES/March 22 Alan Blamey/Region II/ March 22
General Technical Knowledge/interpersonal skills travelling March 24	Jack Giessner/Region III/March 24 Rob Taylor/NRR/March 24
Protective Measures/Dose Assessment	Todd Jackson/Region I/March 23 Marie Miller/Region I/March 24
Structural Engineering Expertise	Syed Ali/RES/March 24 Abdul Sheikh/NRR/March 24
Damage Assessment Expertise	Ralph Way/NSIR/March 24
Expertise in Infrared Images	No NRC staff identified with this expertise. We are pursuing NGA resources that could support in Japan.
International Programs Expertise	Jack Ramsey/OIP/March 24 TBD/TBD/March 24

Valentine, Nicholee

From: Beaulieu, David *DMC*
Sent: Friday, March 25, 2011 3:04 PM
To: Meighan, Sean
Cc: Quay, Theodore; Alexion, Thomas
Subject: RE: do you have copy of DRAFT Information Notice on radiological data collection (the one that was turned off today)?
Attachments: RIS Japan Rad Measurements.docx

Sean,

See attached.

From: Meighan, Sean
Sent: Friday, March 25, 2011 1:54 PM
To: Quay, Theodore
Subject: do you have copy of DRAFT Information Notice on radiological data collection (the one that was turned off today)?

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
WASHINGTON, DC 20555-0001

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All holders of an operating license for a nuclear power reactor issued under Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," except those who have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel.

INTENT

The U.S. Nuclear Regulatory Commission (NRC) is issuing this regulatory issue summary (RIS) to request that addressees with on-going environmental monitoring programs voluntary report to the NRC anomalous environmental radioactivity measurements likely caused by radioactive material released by the Fukushima Daiichi Nuclear Power Station in Japan following the March 11, 2011, Tohoku-Taiheiyou-Oki earthquake. This magnitude 9.0 earthquake and the subsequent tsunami caused significant damage to at least four of the six units of the Fukushima Daiichi Nuclear Power Station as the result of a sustained loss of both the offsite and on-site power systems.

SUMMARY OF ISSUE

It appears likely that radioactive material released from the Fukushima Daiichi Nuclear Power Station has arrived within the continental US in concentrations that may be detectable by licensee environmental monitoring equipment. Higher than normal levels of radioactivity such as iodine-131 and cesium-137 have been detected in air and rainwater at several U.S. reactor sites. The NRC will compile the information voluntarily reported to the NRC and share it with other Federal agencies as appropriate for an integrated assessment across the US.

Because of the sensitivity and the broad scope of existing licensee Radiological Environmental Monitoring Programs (REMP), augmentation of the licensee REMP is not necessary.

Any anomalous detection of radioactive material should be evaluated in accordance with facility license, technical specifications and applicable regulations to assure that the detected materials are properly identified as to source (e.g., either plant operations or the Fukushima Daiichi Nuclear Power Station).

VOLUNTARY RESPONSE

MLXXXXXXXXX

Addressees are requested to voluntarily report to the NRC by sending an e-mail to the NRC Operations Center at hoo.hoc@nrc.gov any anomalous environmental radiation or radioactivity measurement that can be reasonably assumed to be radioactive material that originated from the Fukushima Daiichi Nuclear Power Station. The requested reporting format is as follows:

1. Sample date, time, and approximate sample locations(s)
2. Environmental sample medium (e.g., air particulate, air charcoal, milk)
3. Type of analysis (e.g., gross beta, iodine-131, other gamma emitter) and analysis results
4. Detection sensitivity (e.g., LLD or MDA)

BACKFIT DISCUSSION

This RIS requires no action or written response. Any action on the part of addressees to voluntarily report information in accordance with the guidance contained in this RIS is strictly voluntary and, therefore, is not a backfit under 10 CFR 50.109. Consequently, the staff did not perform a backfit analysis.

FEDERAL REGISTER NOTIFICATION

A notice of opportunity for public comment on this RIS was not published in the *Federal Register* because it pertains to an administrative aspect of the regulatory process that involves the voluntary submission of information on the part of addressees.

CONGRESSIONAL REVIEW ACT

This RIS is not a rule as designated by the Congressional Review Act (5 U.S.C. §§ 801-808) and, therefore, is not subject to the Act.

PAPERWORK REDUCTION ACT STATEMENT

This RIS does not contain new or amended information collection requirements subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). Existing information collection requirements were approved by the Office of Management and Budget, control numbers 3150-0011 and 3150-0012.

PUBLIC PROTECTION NOTIFICATION

The NRC may not conduct or sponsor, and a person is not required to respond to, a request for information or an information collection requirement unless the requesting document displays a current valid Office of Management and Budget control number.

CONTACTS

Please direct any questions about this matter to one of the technical contacts listed below.

Thomas Blount, Acting Director
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

Technical Contact: {name}, NRR
301-415-xxxx
e-mail: xxx@nrc.gov

Note: NRC generic communications may be found on the NRC public Web site, <http://www.nrc.gov>, under Electronic Reading Room/Document Collections.

CONTACT

Please direct any questions about this matter to the technical contact(s) or the Lead Project Manager listed below, or to the appropriate Office of Nuclear Reactor Regulation (NRR) project manager.

Thomas Blount, Acting Director
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

Technical Contact: {name}, NRR
301-415-xxxx
e-mail: xxx@nrc.gov

Note: NRC generic communications may be found on the NRC public Web site, <http://www.nrc.gov>, under Electronic Reading Room/Document Collections.

ADAMS Accession No.: MLXXXXXXXXXX

TAC MXXXXX

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OFFICIAL RECORD COPY

Valentine, Nicholee

From: Beaulieu, David *mark*
Sent: Friday, March 25, 2011 11:08 AM
To: QTE Resource
Subject: RE: Files Attached: DO#401m: RIS Japan Radiation Measurements

As always, QTE provides outstanding support. Thank you so much.

Dave

From: QTE Resource
Sent: Friday, March 25, 2011 10:59 AM
To: Beaulieu, David
Cc: QTE Resource
Subject: Files Attached: DO#401m: RIS Japan Radiation Measurements

David,

We had already completed technical editing so I am sending the document back to you in case it can be of use in the future.

I have attached the clean and compare/edited files for you RIS. Please use the clean file for future revisions. The compare/edited file shows changes in redline strikeout for your reference. Below are additional comments for the author:

1. Include the RIS number (when known) in title and headers on 2nd and 3rd pages.
2. Insert date, centered before title.
3. Should there be a statement following the Paperwork Reduction Act Statement heading? Why is the Public Protection Notification heading centered and in a different font than the other headings?
4. Insert name, phone number, and e-mail for Technical Contact.

This email is technical editor concurrence with the clean file once all questions and comments are considered. Please contact QTE.Resource@nrc.gov if you have questions or feedback.

Regards,

Caroline Hsu

From: Editing [<mailto:editing@scainc.com>]
Sent: Friday, March 25, 2011 8:31 AM
To: QTE Resource
Cc: Hsu, Caroline; 'Deborah Schneider'
Subject: RE: DO#401m: RIS Japan Radiation Measurements

The subject files are attached.
Helen

From: QTE Resource [<mailto:QTE.Resource@nrc.gov>]
Sent: Thursday, March 24, 2011 7:39 PM
To: editing@scainc.com
Cc: Hsu, Caroline; QTE Resource
Subject: DO#401m: RIS Japan Radiation Measurements
Importance: High

Hi Deborah,

I am requesting a level 3 edit of DO#401m RIS 2011-XX: REQUEST FOR LICENSEE RADIOACTIVITY MEASUREMENTS ATTRIBUTED TO JAPANESE NUCLEAR POWER PLANTS FOLLOWING EARTHQUAKE. Can we have a level 3 edit on this first thing tomorrow morning? If we could have it no later than 10 am, that would be wonderful.

Please also send it to my personal email.

The DO is attached.

Thanks,
Caroline

No virus found in this message.
Checked by AVG - www.avg.com
Version: 10.0.1204 / Virus Database: 1498/3527 - Release Date: 03/24/11

Valentine, Nicholee

From: Beaulieu, David *in reply*
Sent: Friday, March 25, 2011 10:03 AM
To: QTE Resource
Subject: RE: URGENT ACTION: RIS Japan Radiation Measurements

Stop review. The RIS has been cancelled. Thank you for your effort.

From: QTE Resource
Sent: Thursday, March 24, 2011 7:40 PM
To: Beaulieu, David
Cc: QTE Resource
Subject: RE: URGENT ACTION: RIS Japan Radiation Measurements

David,

We will have it returned to you tomorrow morning.

Thanks,
Caroline

Caroline Hsu, Chief
Publications Branch
ADM/DAS
301.415.5638

From: Beaulieu, David
Sent: Thursday, March 24, 2011 4:35 PM
To: QTE Resource
Subject: URGENT ACTION: RIS Japan Radiation Measurements
Importance: High

Please review this URGENT RIS ASAP (no need to work late today – early tomorrow morning is fine.)

DAVID BEAULIEU PROJECT MANAGER, NRR/DPR/PGCB
(bowl-yer) 301-415-3243 | O12H17 | David.Beaulieu@nrc.gov

U.S. Nuclear Regulatory Commission

From: Janbergs, Holly on behalf of OPA Resource
To: Hernandez, Pete; Harrington, Holly
Subject: RE: From the NRC Allegation Inbox
Date: Wednesday, March 30, 2011 1:04:00 PM

Sure, we'll handle.

From: Hernandez, Pete
Sent: Wednesday, March 30, 2011 1:00 PM
To: OPA Resource
Subject: RE: From the NRC Allegation Inbox

Thanks Holly. It doesn't meet our threshold for an allegation. Will yall address it or should I keep it?

From: Janbergs, Holly **On Behalf Of** OPA Resource
Sent: Wednesday, March 30, 2011 12:42 PM
To: Hernandez, Pete
Cc: Harrington, Holly
Subject: RE: From the NRC Allegation Inbox

The video has no audio save a music track in the background. The shots look to me like pollen. Caption reads as follows:

On March 22, 2011 I noticed many yellow puddles on my driveway during the rain. I took these pictures and also collected a sample. I have noticed in many news articles that people have been reporting yellow rain in Japan, Oregon, and elsewhere following the disaster at Fukushima Daiichi nuclear power complex. This has been officially attributed to pollen, not radioactive fallout. I found this explanation questionable, so I just wanted to upload these pictures to let everyone know that this also happened in Phoenix, Arizona during the rain we were having.

From: Hernandez, Pete
Sent: Wednesday, March 30, 2011 11:21 AM
To: OPA Resource
Subject: From the NRC Allegation Inbox

Good morning OPA,

While no nuclear safety concern was detailed in the body of the attached email, I am unable to determine if there is an allegation present. Are you able to view the attached youtube link? If so, please let me know the details if it seems to be an allegation.

Thank you,

Pete Hernandez

4/255

Raione, Richard

From: Jones, Henry
Sent: Friday, March 25, 2011 11:21 AM
To: Eric; Lynett, Patrick; Bruce Jaffe; Jason Chaytor
Cc: Raione, Richard
Subject: JAPANESE TSUNAMI GUIDANCE DOCUMENTS
Attachments: JSCE_Tsunami_060519[1].pdf; B-11.pdf

I have attached a documents describing the Japanese method of tsunami analysis.

Henry

From: Flanders, Scott
Sent: Friday, March 25, 2011 9:53 AM
To: Jones, Henry
Subject:

1/25/11

(May 19, 2006)

Tsunami Assessment Method for Nuclear Power Plants in Japan

February 2002

The Tsunami Evaluation Subcommittee,
The Nuclear Civil Engineering Committee,
JSCE (Japan Society of Civil Engineers)

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Chapter1 Preface

It is well known that Japan is highly earthquake-prone; the earthquakes cause damage to human lives, public facilities, industrial facilities, and houses. In particular, the damage caused by tsunamis generated by submarine earthquakes is greater than that by ground shaking due to an earthquake because of the high density of human population and commercial activities in the low-lying coastal areas. Consequently, safety measures in the event of a tsunami have been recognized as an important issue.

The frequency of tsunami occurrence is low; tsunami waves are different from the wind waves that are usually observed on the seashore. The 1983 Mid Japan Sea earthquake tsunami occurred during the daytime; however, this is not always the case. Since observations of tsunamis are rare, it is considerably difficult to clarify its characteristics. New properties of tsunamis are recognized during every occurrence, thereby contributing to the progress in tsunami research. For example, until the occurrence of the 1983 Mid Japan Sea earthquake tsunami, it was widely believed that a tsunami would be amplified only at the inner part of a V-shaped bay such as the Rias coast. However, as a result of this tsunami, it was observed that a tsunami could be amplified even at a flat coastline under certain conditions. Moreover, new phenomena such as soliton fission, lens effect, and multiplex reflection were recognized. In 1993, the Southwest Hokkaido earthquake tsunami occurred in the Japan Sea; the maximum run-up height of this tsunami exceeded that of the 1983 Mid Japan Sea earthquake tsunami. Further, new phenomena such as capturing by an island and localized change in run-up height in complicated topography were recognized.

To date, safety assessments for nuclear power plants have been carried out based on “the Guideline about Safety Design for Light Water Nuclear Power Generating Facilities” cited by the Nuclear Safety Commission of Japan. [The guideline only states “(the effect by) tsunami should be considered in design”. That does not state “the design tsunami should be determined by numerical simulation”.] By referring to the guideline, the design tsunami has been determined site by site by a numerical simulation based on information regarding the maximum historical tsunami and the greatest influenced submarine active fault induced tsunami. Accordingly, the safety design has been implemented based on the tsunami thus determined. It is considered that the guideline by the Nuclear Safety Commission of Japan will not create problems in the near future for the following two reasons: various safety insurances have been considered in the process of tsunami evaluation, and the latest information has been taken into account for the assessment.

On the other hand, as described above, tsunami evaluation techniques are presently being improved. In order to enhance the safety and reliability of coastal nuclear power plants, it is important to incorporate the new findings obtained from recent studies into the assessment method.

From the abovementioned viewpoints, by organizing recent findings and the progress of technology, a standard assessment method is proposed in this paper for the evaluation of the tsunami model for the safety assessment of nuclear power plants in Japan.

In this paper, “tsunami assessment/tsunami evaluation” implies the “evaluation of water level by the design

tsunami.”

[Reference]

Nuclear Safety Commission of Japan (1990): *Guideline about Safety Design for Light Water Nuclear Power Generating Facilities* (in Japanese).

Chapter2 Tsunami sources and tsunami phenomena for assessment

In this paper, water rise and fall of tsunamis directly generated by earthquake fault motion are considered.

[Description]

(1) Tsunami sources for assessment

Tsunamis can be generated by earthquakes, volcanic eruptions or collapses, landslides, or meteorite impacts. An earthquake can induce a submarine landslide; however, the possible location of occurrence is quite limited in such cases. For example, if there is a large submarine valley off the coast of the mouth of a large river, the sediment transported from the river mouth is often in an unstable condition, and an earthquake could trigger a large-scale landslide. Hence, there is a possibility that a landslide-induced tsunami and an earthquake-induced tsunami might have occurred simultaneously in the past. We can consider that such landslide-induced tsunamis are included in the analysis of earthquake-induced ones. One reason is that a tsunami source model for a historical tsunami can reproduce historical tsunami run-up heights, and the other is that the simultaneous occurrence can be considered to have been accounted for in Aida's indexes. Aida's indexes represent the comparison results of the calculation results and actual historical tsunami run-up heights—see Section 4.2.2. Thus, the landslide-induced tsunami is excluded in this paper. Further, volcano- and meteorite-induced tsunamis are also excluded because they are infrequent events in comparison with earthquake-induced ones (Imamura, 1998).

As mentioned above, only earthquake-induced tsunamis that are directly caused by faulting are studied in this paper. However, tsunamis to which a fault model can be applied, but have no earthquake shaking records -a result of uncertainty regarding whether or not they were caused by faulting - can be an additional subject in this paper.

(2) Tsunami phenomena for assessment

A tsunami not only causes water rise and water fall but also results in a flow of seawater. This flow can result in the following types of damages: movement or turnover or breakage of caissons that are under construction, scattering of wave-eliminating blocks, uprooting of trees in the coastal woods, damage to fishing boats by eddies in harbors, run-off and scattering of timber from timber ponds, scouring or banking by sand movement, damage to structures by floating materials, and contamination of seawater. However, the primary agent of damage is water rise; this phenomenon results in disasters such as inundation and flood.

From the viewpoint of risk management for tsunami at nuclear power plants, the evaluation of the maximum water rise and fall is the most important issue; this is because important facilities provided for safety purposes and water intake should be protected. It is assumed that the effects of the other phenomena are less important than that of the water level.

Therefore, only the water level of tsunamis, which is characterized by water rise and fall, is dealt with in this paper.

[Reference]

Imamura, F. (1998): *Development of tsunami numerical analysis in 15 years and its future*, Kaiyo, Extra No.15, pp.89–98 (in Japanese).

Chapter3 Outline of a tsunami assessment method

3.1 Overall procedure

The overall policies for a tsunami assessment method are as follows:

(1) Tsunami source for the design tsunami

Among the various possible scenario tsunamis for each area, the one causing the maximum water rise and fall to the target site is selected as the “design tsunami.” The design water level is defined as the sum of the “design tsunami” and an appropriate tidal condition.

(2) A consideration policy with regard to the uncertainties of scenario tsunamis

In order to account for the uncertainties regarding a tsunami source in the model, a large number of numerical calculations are carried out under various conditions within a reasonable range. This is referred to as a “parametric study.” Each results of the parametric study are termed as scenario tsunamis. For the model to the target site, the tsunami causing the greatest damage to the target site is selected among the scenario tsunamis.

(3) Method for verifying the design tsunami

The design tsunami is verified by using the following criteria.

The design tsunami height exceeds all the recorded and calculated historical tsunami heights at the target site.

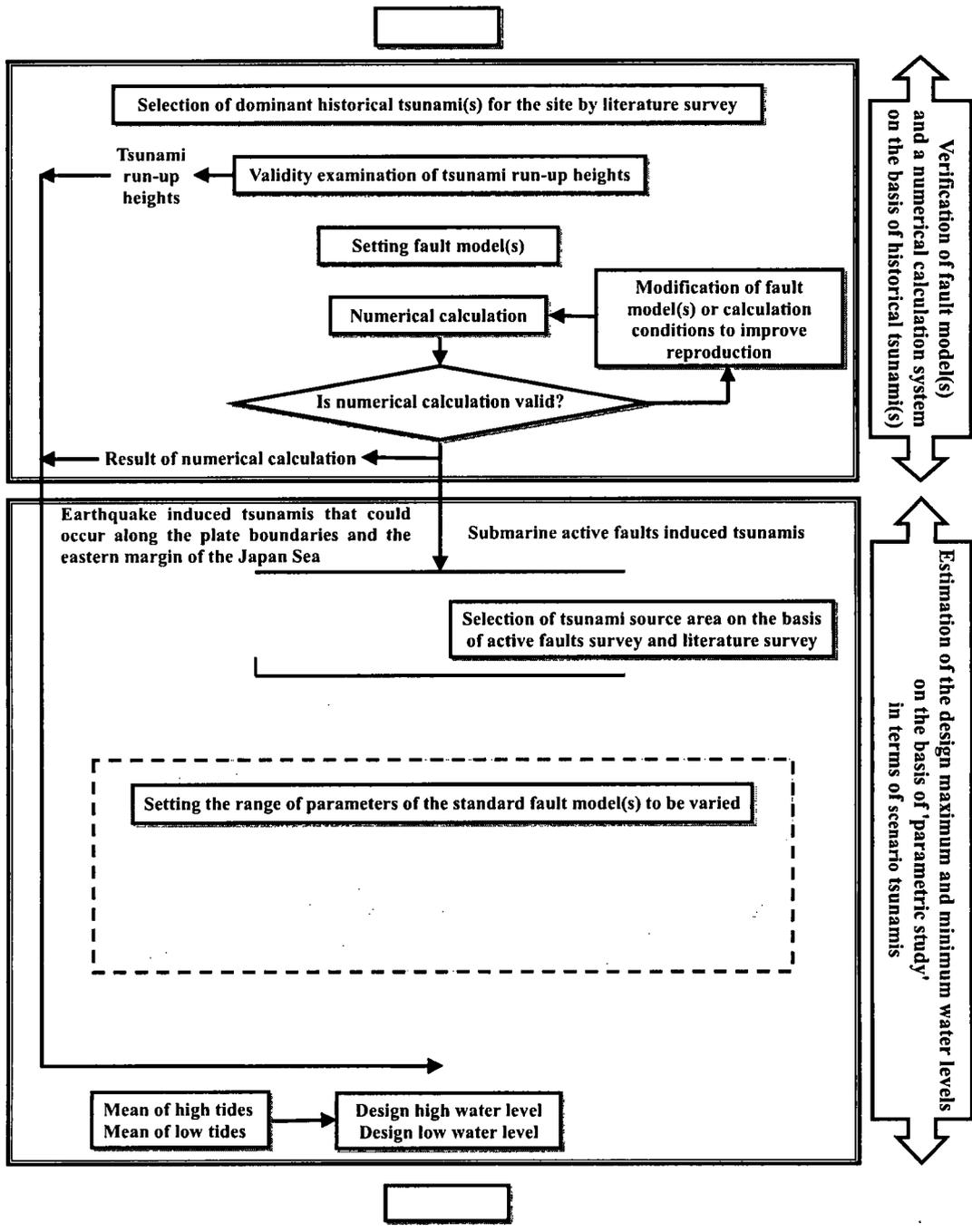
In the vicinity of the target site, the envelope of the scenario tsunami heights exceeds all the recorded and calculated historical tsunami heights.

(4) Method for verifying the assessment procedure based on historical tsunamis

Before the abovementioned steps are carried out, a numerical calculation system is verified by performing numerical calculations on historical tsunamis.

[Description]

In this paper, the assessment is carried out according to overall policies. The procedure of the assessment is shown in Fig.3-1.



(1) Tsunami source for the design tsunami

In the assessment of the water level of the design tsunami for nuclear power plants, historical tsunamis and earthquake-induced tsunamis generated by submarine active faults have been considered so far. Thereafter, using the data acquired from the 1993 Southwest Hokkaido earthquake tsunami, it was suggested that the tsunamis occurring along the plate boundaries and the eastern margin of the Japan Sea must be considered. Since this is for the purpose of reference, tsunamis in these areas have been gradually investigated.

On the other hand, with regard to general coastal facilities, “Report on Disaster Prevention Facilities Project for Eastern Margin of the Japan Sea” and “Report on Disaster Prevention Facilities Project for Pacific Coastal Area” by the Ministry of Agriculture, Forestry and Fisheries, etc., were published. In these reports, the investigations on not only the historical tsunamis but also the tsunami occurring along the plate boundaries and the eastern margin of the Japan Sea were described.

From the viewpoint of the reliability of the tsunami design nuclear power plants, and with the abovementioned conditions for the recent tsunami assessment method, earthquake-induced tsunamis that can occur along plate boundaries, the eastern margin of the Japan Sea, and as a result of submarine active faults are considered in this paper.

(2) A consideration policy on the uncertainties of scenario tsunami

The uncertainties and errors listed below are included in the numerical simulation of the design tsunami. These uncertainties and errors should be taken into account such that the water level of the design tsunami is not underestimated.

- 1) Uncertainties of the tsunami source model
- 2) Errors in the numerical calculation
- 3) Errors in the submarine topography and coastal landform data

It is rather difficult to estimate each parameter quantitatively. Further, it is also difficult to select one tsunami source from many scenario tsunamis. In this paper, the following procedure is adopted.

- 1) Scenario earthquakes with various conditions within a reasonable range are set based on standard fault model
- 2) A large number of numerical calculations for scenario earthquakes are performed. This is termed as a “parametric study.”
- 3) Each results of the numerical calculation in 2) are termed as a “scenario tsunami.”
- 4) For the design, the tsunami responsible for the maximum water rise and the maximum water fall to the target site is selected among the scenario tsunamis.

It is assumed that the design tsunami height, which is evaluated by a parametric study, sufficiently exceeds all the historical tsunami heights.

(3) Method for verifying the design tsunami

It is assumed that the design tsunami, which is developed in this paper, should have a sufficient height that exceeds the historical tsunami heights. However, the verification of this requirement is not carried out for all Japanese coasts. In principle, the design tsunami should satisfy the following two points in order to confirm its adequacy.

- 1) At the target site, the height of the design tsunami should exceed all the calculated historical tsunami heights.
- 2) In the vicinity of the target site, the envelope of the scenario tsunami heights should exceed all the recorded historical tsunami heights (see Figure3-2). "The vicinity of the target site" should be appropriately set taking into account the following three points: the number of run-up heights by the dominant historical tsunami, the distribution of run-up heights by the dominant historical tsunami, and the similarities between submarine topography and coastal landform. Here, the historical tsunamis that have no recorded tsunami run-up heights in the vicinity of the target site can be excluded from consideration.

However, if the following three points are satisfied, the abovementioned criteria need not be met: existence of a tsunami run-up trace by the dominant historical tsunami at the target site, slight variation between submarine topography and coastal landform, and the design tsunami exceeding the historical tsunami run-up height at the target site.

In this framework, in which the design tsunami is compared with the historical tsunamis, it might appear as though their heights are identical. However, it is confirmed the height of the design tsunami that is obtained in this paper is twice that of historical tsunamis on an average.

From the following reasons, both 1) and 2) are needed for confirmation of adequacy:

- a) With respect to the calculation results of the historical tsunamis at the target site that are applied to 1), even if a calculation reproduces the recorded historical tsunami heights well on average, which implies $K = 1.0$, there is a 50% possibility that the true historical tsunami heights are not exceeded. That is because uncertainties and errors exist. In other words, it is possible that the calculated heights do not exceed the recorded historical tsunami heights.
- b) If the calculation results increase proportionally considering uncertainties and errors, the possibility of a) could decrease. However, a method of determining the additional value has not been quantitatively established.
- c) Based on a) and b), the best method for solving 1) is to directly compare the total scenario tsunami heights with recorded historical tsunami heights in the vicinity of the target site.

With respect to 2), the design tsunami is not directly verified at the target site. In fact, it is verified indirectly by confirming the adequacy of the considered method for uncertainties and errors in the vicinity of the target site.

3.2 Basic concepts

In principle, numerical simulation should be carried out to assess the following basic matters in compliance with the overall policies.

(1) Historical tsunamis

Historical tsunamis include near- and far-field tsunamis.

(2) Scenario tsunamis

Scenario tsunamis include near-field tsunamis including the tsunamis that are generated by scenario earthquakes along plate boundaries, the eastern margin of the Japan Sea, and the submarine active faults. If necessary, the scenario tsunamis also include far-field tsunamis.

(3) Moment magnitude of the earthquakes assumed to occur along the plate boundaries and the eastern margin of the Japan Sea.

The maximum moment magnitude of the earthquakes assumed to occur along the plate boundaries and the eastern margin of the Japan Sea are on the scale of the maximum historical earthquake in each water area.

(4) Moment magnitude of the earthquakes assumed to occur due to submarine active faults

The moment magnitude of the earthquakes assumed to occur due to submarine active faults are estimated based on the relationship between the active fault length and earthquake scale.

(5) Parametric study

For the design tsunami, the uncertainties of the tsunami sources are taken into account by a parametric study.

(6) Numerical simulation/Numerical calculation

The maximum water rise and fall are determined by numerical simulation.

(7) Tidal conditions

For the design of the high and low water levels, the means of the high and low tides, respectively, are added to the calculation results.

(8) Resonance in a harbor and the response with an intake passage

If necessary, the effect on resonance in a harbor and response with an intake passage are examined.

The underlined terms are defined in Section 3.3 and 4.1.2.

[Description]

(1) Historical tsunamis

In the past, many historical tsunamis caused considerable damage to Japanese coastal areas; these include not only near-field tsunamis but also far-field tsunamis. The 1960 Chilean earthquake tsunami is an example of a far-field tsunami that occurred at a foreign coast and propagated to the Japanese coast. Generally, in terms of the damages caused by historical tsunamis, the effects of near-field tsunamis are greater than those of far-field tsunamis. Hence, near-field tsunamis are more important from a design viewpoint. On the other hand, 200 near-field tsunamis and 50 far-field tsunamis are cited in Watanabe (1998). Far-field tsunamis cannot be neglected in the design because the number of far-field tsunamis is substantial and the largest historical tsunami in some region is actually a far-field tsunami.

Consequently, in this paper, both near- and far-field tsunamis are considered as sources of historical tsunamis.

(2) Scenario tsunami

With respect to near-field tsunamis, the calculated water level at the target site is greatly variable for a parametric study, whereas, with respect to far-field tsunamis such as a Chilean and Cascadian tsunamis that have considerable effect on the Japanese coast, the calculated water level at the target site differs only slightly by a parametric study, for example, refer to Takaoka (2001). Moreover, for the Chilean and Cascadian region, it is assumed that the largest possible tsunami in each region has already occurred.

Accordingly, in most cases, a near-field tsunami is sufficient as a source of a scenario tsunami. In some cases, if it is assumed that a far-field tsunami may be larger than a near-field tsunami, the former, mainly Chilean and Cascadian tsunamis, should be considered.

(3) Moment magnitude of earthquakes assumed to occur along the plate boundaries and the eastern margin of the Japan Sea

It is general for seismotectonic map that the maximum magnitudes of scenario earthquakes are assumed to be equal to those of historical earthquakes. This paper uses the Hagiwara Map, given by Hagiwara (1991). Further, in the Hagiwara Map, the maximum magnitudes of the scenario earthquakes are assumed to be equal to the maximum magnitude of the historical earthquakes in each region. Thus, the moment magnitudes of the scenario earthquakes are equal to or greater than that of the maximum historical earthquake tsunami; further, the fault model of the maximum historical earthquake tsunami should reproduce its run-up heights. In this paper, the uncertainty of the moment magnitude is not directly considered; instead, it is considered indirectly by a parametric study.

(4) Moment magnitude of the earthquakes assumed to occur due to submarine active faults

The relationship between inland active fault length and its earthquake size is shown by studies such as Matsuda

(1975) and Takemura (1998). Consequently, for the earthquakes assumed to occur at submarine active faults, the maximum moment magnitude is decided based on the active fault length and appropriate scaling law, in principle.

(5) Parametric study

Firstly, a parametric study of the dominant factors of the standard fault model should be carried out. Secondly, by using the fault model with the greatest effect on the target site, a parametric study of the subordinate factors should be carried out. These procedures enable us to efficiently carry out such parametric studies. Here, certain factors that have a small degree of uncertainty can be excluded.

By considering the characteristics of the water areas, the factors for a parametric study should be appropriately selected among the fault position, depth of upper edge, strike direction, dip angle, dip direction, slip angle, combination of segments, etc. The details are described in Section 4.3.5.

The range of the parametric study is set within reasonable limits. If it is possible for a factor to process statistics-based historical earthquakes and tsunamis, the range of the parametric study can function as the standard deviation.

With regard to far-field tsunamis, the parametric study should be carried out based on the procedure for near-field tsunamis.

The method of setting the tsunami sources is described in Section 4.

(6) Numerical simulation/Numerical calculation

At the target site, it is possible to assess the water level of the designed tsunami using a simplified estimation formula and numerical simulation. The simplified estimation formula is useful to narrow down the tsunami sources for

the numerical simulation. However, this method lacks rigidity; for example, it does not consider the effects of submarine topography and coastal landforms. As a result, in most cases, a simplified estimation formula cannot be applied for a conclusive assessment of the water level of the designed tsunami. Thus, in this paper, the water level of the designed tsunami should essentially be assessed by a numerical simulation. Further, a suitable numerical simulation method should be adopted in order to assess the maximum water rise and fall at the target site. The details are described in Section 5.

(7) Tidal conditions

For the high water level of the design tsunami, the mean of the high tides should be added to the calculation results. For the low water level of the design tsunami, the mean of the low tides should be added to the calculation results. This approach for the high water level of the design tsunami is also employed by the Agricultural Structure Improvement Bureau, Ministry of Agriculture, Forestry and Fisheries etc. (1996, 1997).

However, for efficiency, this approach assumes that the maximum water rise and fall are simultaneously calculated based on the appropriate tidal condition in; subsequently, the means of the high and low tides are added.

Hence, this approach is not applicable to the case in which a numerical simulation is carried out on the basis of the mean of the high tides for the assessment of the high water level of the design tsunami.

(8) Resonance in a harbor and response with an intake passage

When the predominant period of the tsunami and the natural period of free oscillation for the harbor are equal, the water rise and fall may be amplified by resonance in a harbor regardless of the magnitude of the earthquake. The effect of resonance in a harbor is included in the numerical simulation method shown in Section 5. It is desirable that such resonance is investigated if necessary by using, for example, a numerical simulation based on a moment magnitude that is smaller than the maximum one.

Because variation in the water level may occasionally be amplified at the target point due to the response with an intake passage, it is desirable that such response is investigated if necessary.

3.3 Definition of terms

The main terms used in this paper are as follows:

(1) Design water level

“Design water level” indicates the “design high water level” and “design low water level,” which are the tsunami water levels used for the design. The “design water level” is defined as the sum of the “design tsunami” and an appropriate tidal condition.

(2) Scenario tsunami for design

“Scenario tsunami” is a tsunami generated due to an scenario earthquake along the plate boundaries, the eastern margin of the Japan Sea, or submarine active faults. Around Japan, the plate boundaries are located at the Japan Trench, southern Kurile Trench, and Nankai Trough.

(3) Design tsunami

“The design tsunami” is selected among the scenario tsunamis at each area as the tsunami that has the maximum influence on the target site in terms of the maximum and minimum water levels. Sometimes, the tsunami sources that give rise to the maximum and fall to the minimum water levels are different.

(4) Standard fault model

“Standard fault model” is a model for generating a scenario earthquake in a numerical simulation. Thus, a standard fault model can generate a scenario tsunami. The standard model for the parametric study is defined as a “standard fault model”, which should be determined appropriately considering characteristics of each sea area.

(5) Parametric study

“Parametric study” is a method of taking into account the uncertainties of tsunami sources in the design. A “parametric study” is defined as a study in which a large number of numerical calculations under various conditions. The conditions of a scenario earthquake are set based on a standard fault model and varied within an appropriate range. Each of the calculation results is a scenario tsunami.

(6) Scenario tsunamis

A group of scenario tsunamis obtained by a parametric study is defined as “scenario tsunamis.”

(7) Design high water level/design low water level

These are defined as follows:

“Design high water level” = “Maximum water rise” + “Mean high tide”

“Design low water level” = “Maximum water fall” + “Mean low tide”

(8) Maximum water rise/Maximum water fall

These terms are defined as follows:

“Maximum water rise” = maximum water rise calculated from the tidal level when the simulation is carried out based on the proper tidal level

“The maximum water fall” = calculated maximum water fall from the tidal level when the simulation is carried out based on the proper tidal level

[Description]

For “scenario tsunami,” “scenario tsunamis,” “design tsunami,” “standard fault model,” and “parametric study,” the concept diagram is shown in Figure3-3.

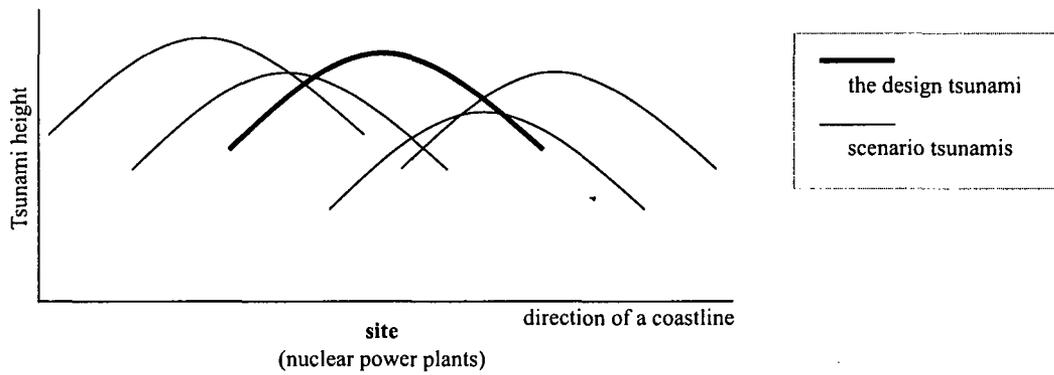


Figure 3-3 Concept diagrams of the design tsunami and related terms

[References]

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Chapter4 Setting fault models for tsunami sources

4.1 Basic concepts

4.1.1 Classification of tsunami sources for assessment

The tsunami sources evaluated in the tsunami assessment of nuclear power plants are classified as follows:

- (1) Historical tsunami
- (2) Scenario tsunami

[Description]

The overall policy of the assessment of the water level of the design tsunami is shown in Section 3.1.

The term “historical tsunami” is utilized for verifying the validity of the design tsunami and tsunami water level evaluation method including the fault model, modeling of the submarine topography and shoreline, and the numerical calculation system.

In contrast, the evaluated design water level is based on “scenario tsunamis” with various uncertainties taken into account, which can be classified as shown in Table 4-1. The concept of this classification is based on the data compiled in 1999 by the Earthquake Research Committee of the Headquarters for Earthquake Research Promotion attached to the Prime Minister’s office (now a part of the Ministry of Education, Culture, Sports, Science and Technology). The method of determination of the standard fault model for the scenario tsunami in each classification is described in Section 4.3.

Table 4-1 Classification of scenario tsunami

Classification	Sea area	Types of earthquakes
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In recent years, researches for developing more detailed fault models of the historical earthquakes have been carried out by applying the tsunami waveform inversion analysis in order to take into account “asperity,” or an area where the slip on the fault surface is locally significant. (see Section 1.1.3).

The actual crustal deformation can be reproduced more precisely by a combination of multiple faults with different parameters. In such cases, the crustal deformation obtained from each fault may be linearly added.

When the fault size is large, there are cases in which the primary focus is on the temporal change in the submarine fluctuations by faulting. In such cases, additional fault parameters such as the time required for fault slip (rise time) τ , rupture propagation velocity V_{rup} , and propagation mode of rupture are considered.

In the case of major historical tsunamis, fault models that can explain tsunamis have been proposed in research literature, and it is possible to refer to these models when evaluating such tsunamis. The literature edited by Sato (1989) has a collection of such fault models from around Japan.

Among these models, the ones from particularly old sources may be inaccurate in the light of recent seismological findings in terms of consistency of the depth of plate boundaries, etc. The parameters of the fault model should be collected with discretion.

Among the fault models that can explain tsunamis proposed in research literatures, there exist models that can explain tide gauge records but not run-up heights. Since the tide gauge records may provide smaller amplitudes than the run-up heights depending on the period of the tsunamis and the response characteristics of the tide gauges, when the fault model set using the tide gauge records is adopted, the systematic differences between the tide gauge records and run-up heights must be carefully considered.

4.3 Setting source of scenario tsunamis

4.3.1 Basic concepts

(1) Types of earthquakes accompanied by tsunamis

Types of earthquakes accompanied by tsunamis should be considered for setting the scenario tsunami source.

(2) Scaling law

The relationship between the moment magnitude M_w and fault model parameters should be determined in accordance with the appropriate scaling law that conforms to the tectonics, the types of earthquakes accompanied by tsunamis, etc.

[Description]

(1) Types of earthquakes accompanied by tsunamis

The types of earthquakes accompanied by tsunamis that have occurred in the Japanese archipelago and surrounding areas can be categorized as follows (see Fig. 4-2):

1) Earthquakes along plate boundaries

1-1) Interplate earthquakes caused by subducting plates

1-1-a) Typical interplate earthquakes with a reverse fault

1-1-b) Tsunami earthquakes (slow earthquakes)

1-2) Earthquakes in subducting plates

1-2-a) Intraplate earthquakes with normal fault in subducting plates

1-2-b) Intraplate earthquakes with reverse fault in subducting plates

2) Shallow inland earthquakes (*)

These three scaling laws are applied to the following cases, respectively.

1) Setting no limit:

When the area of the rupture caused by the earthquake is small as compared to the existing weak plane and the length and width is less than their upper limits.

2) Setting limit only on the width of the fault plane:

When the depth of the seismic layer is limited and the rupture caused by the earthquake extends to the upper limit of the depth of the seismic layer (submarine active fault, normal fault in intraplate, etc.).

3) Setting limit on the length and width of the fault plane:

When the length of the fault plane and depth of the seismic layer are limited and the rupture caused by the earthquake extends to the upper limits of both the length and depth of the seismic layer.

With regard to the evaluation of the scenario tsunami, the appropriate scaling law that conforms to the seismo-tectonic features, types of earthquakes accompanied by tsunamis, etc., should be applied.

4.3.2 Setting tsunami sources for earthquakes along plate boundaries

(1) Evaluation range

Tsunamis resulting from possible future earthquakes along plate boundaries should be evaluated.

(2) Standard fault model

On the basis of the scaling law, considering the location of occurrence and type of earthquake, the standard fault model that corresponds to the assumed magnitude M_w should be introduced.

(3) Source region

Characterization of tsunami sources should be based on the idea of seismotectonics. In addition, the source region of the standard fault model may be introduced at an appropriate region in accordance with the type of earthquake, based on seismological knowledge such as the conditions that caused historical earthquakes, etc.

(4) Maximum moment magnitude

In each source region, the maximum moment magnitude of the standard fault model shall be equal to or greater than the moment magnitude M_w of the fault model that can employ this value to reproduce the maximum run-up height of recorded historical tsunamis.

[Description]

(1) Evaluation range

Along areas such as the Pacific coasts where earthquakes have repeatedly occurred along the plate boundaries, the assumed largest earthquake/tsunami in each tsunami source region would have already occurred. However, tsunamis resulting from possible future earthquakes along plate boundaries should be evaluated, and the tsunami source should be introduced on the basis of seismotectonics.

The source areas of tsunamis resulting from earthquakes along the plate boundaries can be classified into the following two neighboring sea areas in Japan on the basis of plate tectonics and the earthquake characteristics as well as the knowledge of the fault model that expresses them.

- 1) Subduction zone of Pacific plate
- 2) Subduction zone of Philippine plate

Therefore, the tsunamis resulting from earthquakes occurring along plate boundaries are separated into the two categories shown in Table 4-1, and the tsunami sources are introduced in this paper.

(2) Standard fault model

On the basis of the scaling law considering the place of occurrence and type of earthquakes that generate tsunamis, the standard fault model (see Section 3.3) that corresponds to the assumed magnitude M_w will be introduced. The method of determining the standard fault models, etc., is shown in Appendices 1 and 2.

In this paper, fault parameters that differ from one sea area to another are adopted; this is to ensure that the

characteristics of the fault model that can explain the recorded historical tsunami run-up height and the characteristics of the earthquake and fault model obtained from various studies on various seismological subjects can be represented.

In the sea areas along the Japan Trench, southern Kurile Trench, and Nankai Trough, tsunamis repeatedly occurred in the past; hence, considerable information on the geometric configuration of plate boundaries, etc., has been obtained. A standard fault model that reflects the characteristics of every sea area can be introduced by applying the scaling law to the fault model that explains the recorded historical tsunami run-up heights.

In this section, the concept for limited regions is presented; however, when an scenario tsunami of another sea area is evaluated, a standard fault model can be introduced on a similar basis.

(3) Source region

The characterization of tsunami sources should be based on the idea of seismotectonics.

In the Japanese archipelago and surrounding areas, various characterization charts that show seismotectonics on the basis of varying viewpoints have been proposed. One of these charts is the characterization chart of the seismotectonics edited by Hagiwara (1991) in which the characterization covers over the entire sea area; this chart can be applied to the tsunami evaluation (see Fig. 4-4).

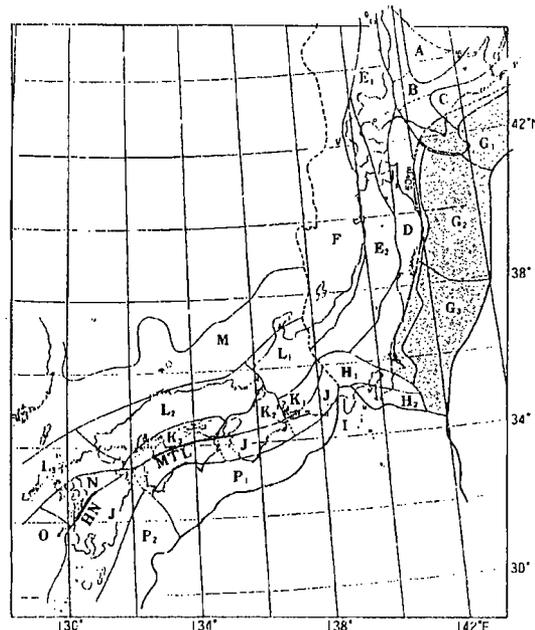


Fig. 4-4 Characterization chart of seismotectonics edited by Hagiwara (1991)

The characterization chart of seismotectonics edited by Hagiwara (1991) was compiled using comparatively large tectonic blocks on the basis of topographical, geological, or geophysical similarities. However, from the viewpoint of the conditions under which earthquakes/tsunamis occurred in the past, earthquakes of a particular magnitude

also often defined to reproduce the tsunami run-up heights, its moment magnitude M_w is assumed to be larger than the seismic moment magnitude M_w that is assumed to be consistent with the tide gauge records.

- (b) In the case of an equivalent size of the seismic moment, the maximum tsunami run-up height used in the heterogeneous slip distribution on the fault is generally larger than that used in the uniform slip. It is assumed that fault movement includes this heterogeneity in practice; however, as a fault model with a uniform slip is assumed for every earthquake, as shown in Figure-A1, a large slip should be defined in order to reproduce the recorded historical tsunami run-up heights. Hence, the M_w values of tsunamis tend to be larger than those of the earthquakes.

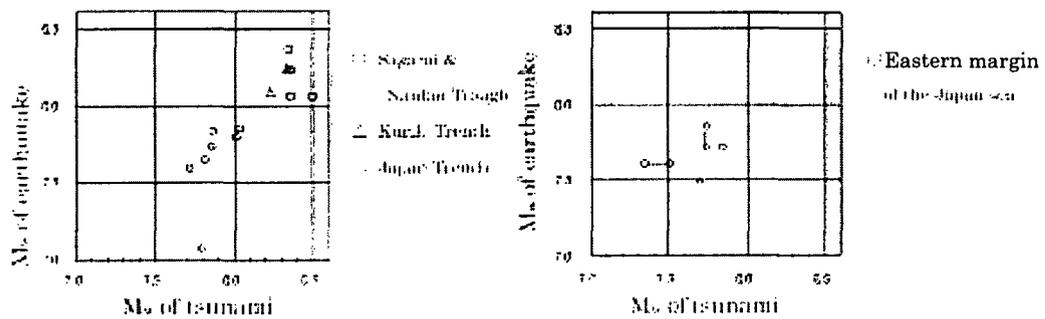


Figure-A1 Comparison between M_w of a tsunami and an earthquake

4.3.3 Setting tsunami sources along the eastern margin of the Japan Sea

(1) Evaluation range

Tsunamis resulting from possible future earthquakes along the eastern margin of the Japan Sea should be evaluated.

(2) Standard fault model

On the basis of the scaling law, considering the location of occurrence and type of earthquake, the standard fault model that corresponds to the assumed magnitude M_w , should be introduced.

(3) Source region

Characterization of tsunami sources should be based on the idea of seismotectonics. In addition, the source region of the standard fault model may be introduced at an appropriate region in accordance with the type of earthquake, based on seismological knowledge such as the conditions that caused historical earthquakes, etc.

(4) Maximum moment magnitude

In each source region, the maximum moment magnitude of the standard fault model shall be equal to or greater than the moment magnitude M_w of the fault model that can employ this value to reproduce the maximum run-up height of recorded historical tsunamis.

[Description]

(1) Evaluation range

It is estimated that a mature plate boundary plane has not been formed along the eastern margin of the Japan Sea; however, after considering M7.5-class earthquakes and tsunamis that occur almost continuously from the west of Hokkaido to the west of Niigata, the scenario tsunami based on the knowledge of seismotectonics are evaluated separately from the tsunamis generated by earthquakes due to submarine active faults.

(2) Standard fault model

On the basis of the scaling law considering the location of occurrence and the type of the earthquakes that generate tsunamis, the standard fault model corresponding to the assumed magnitude M_w is set. The method of estimating the standard fault model, etc., is shown in Appendix 3.

It is estimated that a mature plate boundary plane has not been formed along the eastern margin of the Japan Sea; hence, the earthquakes that have occurred in this sea area have variable dip directions. A standard fault model is set by considering the uncertainties of parameters such as the dip angle by considering the limit of the thickness

of the seismogenic layer and applying the scaling law as proposed by Takemura (1998), given by the following equation.

$$\log L = 0.75M_w - 3.77$$

L : fault length (km)

M_w : moment magnitude

(3) Source region

The tsunami source regions are assumed based on seismotectonics.

Therefore, in the actual evaluation of an scenario tsunami, the source area of the standard fault model should be set in a tsunami source region that has been determined using a detailed rational analysis depending on the type of tsunami; this is based on the seismological knowledge such as the conditions under which the historical earthquakes occurred, etc. The tsunami source region of each standard fault model is shown in Appendix 3.

(4) Maximum moment magnitude

The maximum moment magnitude of the standard fault model assumed for all locations of occurrence of and/or types of earthquakes should be equal to or greater than the M_w value of the fault model that can explain run-up heights of the maximum historical tsunami.

4.3.4 Setting tsunami sources on submarine active faults

(1) Evaluation range

Tsunamis resulting from possible future earthquakes on submarine active faults should be evaluated.

(2) Standard fault model

The standard fault model that corresponds to the assumed magnitude M_w should be set on the basis of the properties of the individual submarine active fault and the appropriate scaling law.

(3) Source region, etc.

Position, fault length L , and strike direction θ of the standard fault model should be set by the individual submarine active fault investigation for each target site, literature survey, etc.

(4) Maximum moment magnitude

The maximum moment magnitude in submarine active faults model should be set on the basis of length of submarine active faults to assess.

[Description]

(1) Evaluation range

Large-scale damages caused by tsunamis generated by earthquakes at submarine active faults are not known so far; however, for the purpose of verification, resulting from possible future earthquakes in submarine active faults should be evaluated.

The tsunamis generated by earthquakes at submarine active faults that are assumed in this paper should be considered with respect to the entire sea area around Japan; this analysis would be separated from that for the seismotectonic regionalization of the sea area shown in Sections 4.3.2(1) and 4.3.3(1).

However, because submarine active faults in the vicinity of trenches of the Pacific side are considered to be related to the earthquakes along plate boundaries, they may not need to be considered as tsunami sources due to earthquakes on submarine active faults.

In addition, along the eastern margin of the Japan Sea, the submarine active faults in the neighboring seas from the west of Hokkaido to the west of Niigata need not be considered as tsunami sources of the “tsunamis generated by earthquakes at submarine active faults” if the scale of these tsunamis is less than the scale of the scenario tsunamis, based on seismotectonics, as shown in Section 4.3.3.

The following literatures are available for surveying submarine active faults.

and M_w .

$$\log L = 0.75M_w - 3.77$$

where L : fault length (km)

M_w : moment magnitude

By convention, in order to estimate the scale of earthquakes occurring at active faults, the following equation by Matsuda (1975) has been popularly used for expressing the relationship between L and M_J .

$$\log L = 0.6M_J - 2.9$$

where M_J : Magnitude according to the Japan Meteorological Agency

As described in Takemura (1998), at an M_J value of 6.8 or higher, Takemura's equation and Matsuda's equations are nearly the same when M_w is converted into M_J . Therefore, in this paper, M_J and M_w are related by the following equation for earthquakes assumed to occur at submarine active faults.

$$M_w = 0.8M_J + 1.16$$

4.3.5 Parametric studies

In principle, the parametric study is carried out on the maximum water rise and fall for the main factors that have uncertainties among the various conditions of the fault model. The range of parametric studies should be appropriately set based on the degree of uncertainty.

[Description]

On the basis of the standard fault model, numerical calculations are carried out with parameters varied for the factors having uncertainties among the various model conditions; the scenario tsunami is then be evaluated.

The scenario tsunami is evaluated by appropriately setting the factors for carrying out the parametric study, and it is important that it is set within a reasonable range. When statistical estimate of a factor was made from historical earthquakes and tsunamis, the standard deviation can be used for the range of the parametric study.

(1) Procedure for the parametric study

The parametric study concerning the dominant factors of the standard fault model should be carried out. Subsequently, a parametric study concerning subordinate factors should be carried out by using the fault model with the greatest effect on the target site.

(2) Factors of parametric study

In principle, the parametric study should be carried out on the factors shown in Table 4-3 using the standard fault model; however, some factors that exhibit a slight uncertainty can be excluded.

Table 4-3 indicates the concept for limited sea areas; however, it is also possible to apply the same procedure for assessing the scenario tsunamis of other sea areas.

(3) Range of parametric study

The range of the parametric study is basically set with reasonable limits. For those factors that statistical analysis can be made from historical earthquakes and tsunamis, the standard deviation can be used as a range of the parametric study.

The ranges for the tsunami sources of earthquakes assumed to occur along the eastern margin of the Japan Sea and submarine active faults, are indicated in the standard fault model for some factors that exhibit a large uncertainty (see Appendix 3 and 4); the parametric study should be carried out by using this range as a reference.

Table 4-3 Parameters of the standard fault model

Parameters of the standard fault model

Chapter5 Numerical simulation

5.1 Basic concepts

For assessing the design water level, the numerical calculation method that can accurately evaluate the maximum water rise and fall at the target site should be adopted.

[Descriptions]

(1) Selection of the appropriate numerical calculation model

A fundamental framework for applying the governing equations and a numerical scheme that can accurately evaluate the maximum water rise and fall at the target site under adequate conditions of the initial water surface and boundary must be used.

The method of selecting the numerical model will be discussed in detail in Section 5.2.

(2) Adequate execution of numerical calculation

The computation domain, grid size, computation time step, bathymetry data, coefficients in governing equations, and simulating time are appropriately determined according to the spatial tsunami shape and topography of the sea areas along with the sources and target site.

The execution method of the numerical calculation will be discussed in detail in Section 5.3.

5.2 Selection of numerical simulation model

5.2.1 Governing equations and numerical scheme

When the numerical calculation is carried out, factors such as accuracy with regard to the phenomena to be calculated and necessary computation time should be taken into account, and the appropriate governing equations and numerical scheme should be selected.

[Description]

(1) Governing equations for tsunami evaluation

Since the tsunami has a longer wavelength as compared to the water depth, the long-wave theory is applied. The following theories are suggested with respect to the long-wave theory. They are based on two-dimensional equations that are derived from three-dimensional governing equations by integrating in the vertical direction. One of them should be selected in accordance with the objective phenomena.

[1] Linear long-wave theory

This is applied under the condition that the ratio of the wave height to the water depth is sufficiently small. The equations of motion comprises an unsteady term and a pressure term (hydrostatic distribution). When the bottom friction cannot be ignored, a friction term should be considered.

[2] Nonlinear long-wave theory (shallow water wave theory)

This is applied under the condition that the ratio of the wave height to the water depth is not small (the nonlinearity cannot be ignored). The equations of motion comprises an unsteady term, a pressure term (hydrostatic distribution), and an advection term; with these terms, the steepening of the wave front in shallow water can be considered. In general, since friction with the sea bottom cannot be ignored, a friction term is expressed. The horizontal eddy viscosity term may be considered if necessary.

[3] Dispersive wave theory

This is applied under the condition that the curvature of the tsunami wave increases with propagation, the vertical acceleration of the water particles cannot be ignored, and wave dispersion appears. The dispersion term is referred to as the linear dispersing wave theory and nonlinear dispersive wave theory when it is added to theory [1] and theory [2], respectively. The linear dispersive wave theory is applied for the calculation of the far-field tsunami propagation.

With respect to near-field tsunamis, if a tsunami is accompanied by soliton fission, wave breaking occurs before or after run-up. Even if the soliton fission had forced an increase in the run-up heights, this factor is accordingly taken into account by setting the slip of the fault model to be larger, provided the run-up heights were

derived from calculations using the same governing equations and numerical scheme employed in setting the fault. Consequently, in discussing the water level, the nonlinear dispersive theory might not be needed in principle. It was proposed that the dispersive wave theory is better suited to the entire numerical area, which includes the tsunami source and the coastal area, since it can evaluate the tsunami wave shape more precisely than with the nonlinear wave theory without reference to soliton fission. This is because the dispersive term has the effect of suppressing the leaning of wave front in the deep and shallow sea areas (Iwase et al. (1998), Hara et al. (1998)). In the future, the dispersive wave theory is expected to facilitate the development of a more precise and practical numerical model than the nonlinear long wave theory by including a damping term due to wave breaking.

In addition, the numerical model for tsunami propagation is based on two-dimensional models as described above. However, if a particular local topographic feature such as a precipitous slope or a small valley acts as the maximum run-up point, as was observed with Monai on Okushiri Island during the Hokkaido Nansei-Oki Tsunami, a three-dimensional numerical model may be necessary for such areas (Yoneyama and Matsuyama (2001)).

(2) Governing equations and numerical scheme for near-field tsunami propagation

For nearshore tsunami propagation, where the water depth is shallower than 200 m, the governing equations of the nonlinear wave theory should be selected (Shuto (1986)). In such a case, an explicit finite difference scheme with a staggered leapfrog method is generally adopted because the analysis method of the numerical error caused by the finite difference scheme is nearly established.

In actual practice, either the method of Goto and Ogawa (1982) (hereinafter referred to as the Goto method) or the method of Tanaka (1985) (hereinafter referred to as the Tanaka method) is applied. Both are nonlinear wave theories, but have slight differences as shown in Table 5-1.

Table 5-1 Comparison between Goto method and Tanaka method

		Goto method	Tanaka method
Governing equation	Advection term	Conservation type	Non-conservation type
	Friction term	Manning type	General friction type
	Horizontal eddy viscosity term	Introduced if necessary	Introduced
Numerical scheme	Alignment of variables	Staggered scheme	Staggered scheme
	Difference in pressure term	Leapfrog scheme (Discretization error have accuracy to the second degree because both space and time are from a central difference.)	Leapfrog scheme
	Difference in advection term	1 st -order upstream difference scheme with accuracy of 1 st order	Lax-Wendroff scheme with accuracy of 2 nd order
	Difference in friction term	Approximated implicitly	Approximated explicitly (time forward difference)
	Difference in horizontal eddy viscosity term	-	Approximated explicitly (time forward difference)

However, since it has been verified that there is very little difference between both methods except under special conditions when the sea bottom slope is less than 1/100 and the period is less than 5 minutes, the use of either method does not pose a practical problem.

In addition, it is possible to apply other numerical calculation methods (for example, the finite scenario method). In such a case, it should be verified that the accuracy of the method is equal to or better than that of the abovementioned method by a prior analysis of the numerical error.

(3) Governing equations and numerical scheme for the far-field propagation of tsunamis

In the case of the far-field propagation of a tsunami, the linear theory can be applied because the wave height is small when compared to the water depth. However, when the initial tsunami profile has a wide range with respect to the frequency components, the wave velocity varies slightly for each frequency at the deep water; further, since it propagates for a long time, the delay of the shorter wave is larger. Therefore, in order to reproduce this effect, it becomes necessary to apply governing equations that include the dispersion term. Furthermore, for far-field tsunamis, the Coriolis force must be considered in the equations of motion. In addition, since the effects of the

spherical earth cannot be ignored, a spherical coordinate system must be adopted. For a numerical scheme, the alignment of variables is performed by a staggered leapfrog scheme while the explicit difference method is adopted for the equation of continuity. An implicit difference calculus is generally adopted for the equations of motion.

5.2.2 Initial conditions

In principle, the initial water level in a numerical calculation should be equal to the vertical slip amount of the sea bottom, calculated on the basis of the fault model.

[Description]

(1) Vertical slip amount distribution on the sea bottom

The vertical slip amount distribution of the sea bottom—the initial condition for the numerical simulation of the tsunami—is generally evaluated by using the Mansinha and Smylie (1971) method. This method is based on the theory of elasticity under the conditions of isotropy and homogeneity. Therefore, the Mansinha and Smylie (1971) method may be adopted to evaluate the fault slip amount distribution of the sea bottom in this paper.

In addition, it must be noted that the result is obtained under the conditions that Poisson's ratio ν of the ground is 0.25 (Lame's constants μ and λ are equal). The Okada (1985) method has higher versatility, and it is applicable to the calculation of the vertical slip amount of the sea bottom if either ν is not equal to 0.25 or the fault has a tensile component.

(2) Duration of fault movement

The duration of the fault movement that generates a large tsunami is assumed to be approximately several tens to 120 s. In such a case, the duration has no significant effect on the results of the numerical simulation of the tsunami as compared to the case in which the sea bottom is displaced instantaneously (Aida (1969), Iwasaki et al. (1974)). Consequently, both the methods—with and without a consideration of the duration—may be applicable. When an instantaneous vertical slip amount distribution is assumed on the water surface, a short-period oscillation might occasionally occur in the numerical results. This oscillation can be ignored if it disappears when the duration of the fault movement is considered.

When $CT_f/L > 4 \times 10^{-2}$, the dynamic slip of the sea bottom should be considered in the governing equations (Imamura (1989)). Here, C represents the wave velocity; T_f , the time duration of the fault movement; and L , the wavelength in the direction of the width of the fault.

(3) Setting the initial conditions

The vertical slip amount distribution of the sea bottom in Section (1) is generally given for the initial water surface as an initial condition; this is the fundamental method of tsunami generation. When the dynamic effects of the fault motion are considered in a mass conservation equation, the initial water surface is still water.

In addition, any initial flux (integrated flow in a depth) should be set as zero in either case, i.e., with or without the dynamic effects of the fault motion.

5.2.3 Boundary conditions

When carrying out the numerical calculations, the following boundary conditions associated with the computational region, submarine and coastal topography, structures, etc., should be properly applied:

- (1) Offshore boundary conditions
- (2) Onshore boundary conditions
- (3) Overflow boundary conditions

[Description]

(1) Offshore boundary conditions

Since the computational region is finitely determined, open boundaries are artificially provided on the offshore and two sides. Appropriate boundary conditions need to be applied so that the behavior of the tsunami is free from the artificial reflection from the boundaries. In this paper, the offshore boundary and two side boundaries are referred to as the offshore boundaries.

- 1) Boundary conditions for a tsunami propagating from the inner to the outer areas of the computational region:

The conventional method for expressing the discharge flux using the progressive wave conditions (Aida (1969), Aida (1970, 1974), Iwasaki and Yo (1974)) is adopted. The method that uses free transmission conditions was proposed for situations in which this condition is not satisfied; this method was based on the method of characteristics (Goto and Ogawa (1982)).

The other free transmission conditions can be considered by setting a virtually complete reflecting wall at the open boundary. The transmitted wave height at this boundary is assumed to be one half of the standing wave height at the virtually complete reflecting wall (Hino et al. (1988)). In such a case, if the wall is properly positioned, results can be obtained with high accuracy (Imamura (2001)).

Both the methods, i.e., the method of the characteristics and that of the virtually complete reflection wall, can be applied to the case in which the tsunami propagates from the outer to the inner areas of the computational region. However, the latter can be applied under the conditions that the incidence angle to the offshore boundary is nearly a right angle.

- 2) Method of inputting a tsunami at the offshore boundary in the near-field ocean:

In case of the calculation of a far-field tsunami in the coasts of Japan, the tsunami motion is calculated in accordance with the linear dispersive wave theory formulated using the spherical coordinates system

(3) Overflow boundary conditions

The boundary conditions for the case in which the tsunami flows over the breakwater, sea dike, seawall revetment, and other structures should be applied according to the following conditions.

1) When the breakwater, etc., are modeled by the ground height as a part of the topography:

In this case, the boundary conditions at the run-up front described in the previous section can be applied to the boundary conditions in which the tsunami flows over the breakwater, etc.

2) When the breakwaters, etc., are modeled by the boundaries between cells:

[1] Honma formula (Honma (1940))

When breakwaters or sea dikes exist in the computational region and the water level exceeds the crest elevation, the discharge that flows over the structure is estimated using the following formulae in accordance with the overflow conditions (Iwasaki et al. (1981), Goto and Ogawa (1982)).

(Complete and incomplete overflows)

$$\sqrt{\quad}$$

5.3 Details of numerical calculation

5.3.1 Setting the computational region and spatial mesh sizes

The computational region and spatial mesh sizes used for the numerical calculation should be properly determined after taking the size of tsunami source region, horizontal scale of the tsunami profile, characteristics of the submarine and coastal topographies, structures around the target site, etc., into account.

[Description]

The computational region of the tsunami that includes the tsunami source should be set up such that refraction (including lens effects), reflection (including multiple reflections), diffraction, seiche, trap effects, run-up, etc., which have considerable effects on the maximum water rise and fall at the respective site, can be reproduced with high accuracy.

In the tsunami calculation, the method of connecting computational regions with varying mesh sizes in accordance with the tsunami profile and topographical conditions is used from this viewpoint. The calculation of the tsunami is performed simultaneously within the connecting computational regions. In other words, the wavelength of a tsunami in the open sea is of the order of several tens to several hundreds km, and it decreases as the water depth decreases. It is necessary to successively change finer mesh sizes to meet the above conditions. In addition, since the topography in the vicinity of the seashore is usually complicated, the spatial mesh size must be properly set up in accordance with the characteristic topography of the seashore concerned or the scale of the artificial structures, as well as the spatial scale of the tsunami profile.

When setting and connecting the computational regions and spatial mesh sizes, the following aspects must be carefully considered.

(1) Spatial mesh sizes

In order to obtain the computational results with sufficient accuracy in each region with different mesh size, the spatial mesh sizes should be determined as follows. The descriptions shown below are fairly effective rules to be followed when a numerical calculation model is applied with a staggered scheme and a leapfrog differential method, which is the most popular method. Appropriate values of the mesh size should be determined after thoroughly examining the relationship between the scenarios and mesh sizes and the calculation errors when other numerical calculation models such as the finite scenario method are applied.

1) In tsunami source region

The mesh sizes in the tsunami source region should be determined considering the dimensions of the tsunami source region and the spatial scale of the tsunami profile.

As a rule of thumb, when the mesh sizes are determined in conformity with the spatial scale of the

tsunami, the method proposed by Hasegawa et al. (1987), in which the mesh size is set to 1/20 of one wavelength of the tsunami, may be adopted.

2) In the sea area in the tsunami propagation process

In sea areas where the tsunami propagates, the mesh size should be determined by focusing on the refraction phenomena generated by the submarine topography in addition to the spatial scale of the tsunami profile.

When the submarine topography is simple, the rule of thumb for determining the mesh size is the same as that described in 1). In regions where the effects of the refraction phenomena appear predominant, the mesh size may have to be less than 1/100 of one wavelength of the tsunami.

3) In the sea area in the vicinity of the target site

In the sea area in the vicinity of the concerned site, the mesh size should be determined by focusing on the spatial scale of the tsunami, sea bottom slope, submarine and coastal topography, size and the shapes of structures such as breakwaters, etc. Under the condition that the coastal topography is not as complicated and the effects of the structures are insignificant, it is fairly accurate to gradually reduce the mesh size from 100 m at a water depth of 50 m or shallower to approximately 25 m at the coastal line.

In the case of ports and harbors, it is known that the water level in the ports and harbors can be calculated with a good accuracy if a mesh size of about 1/5 of the port entrance width or less is used for the vicinity of the port entrance (Inagaki et al. (2001)).

When the vicinity of the concerned site is located in a V-shaped bay, it is necessary to determine the mesh size in accordance with the ratio of the mean tsunami wavelength L_v in the bay to the bay length l . When $L_v/l < 6$, a mesh size that is less than 1/100 of the wavelength of the tsunami or seiche induced may be required for the bottom of the bay (Inagaki et al. (2001)).

4) In tsunami run-up area

The mesh size Δx of the tsunami run-up area under the conditions of an uncomplicated topography may be determined by the following formulae using the land slope α , the tsunami period T , and the gravitational acceleration g .

$$\Delta x / \alpha g T^2 \leq 7 \times 10^{-4} \quad (\text{In the case of Manning's coefficient of roughness, } n = 0.03 \text{ m}^{-1/3}\text{s})$$

$$\Delta x / \alpha g T^2 \leq 4 \times 10^{-4} \quad (\text{If the friction term is not taken into account, refer to Goto and Shuto (1983)})$$

(2) Connection of regions with varying spatial mesh sizes

With respect to the calculations used for connecting the regions, the spatial mesh sizes between the neighboring regions must be carefully changed. The connecting of regions with excessively different mesh sizes may cause

errors; these errors are accumulated in the regions with smaller mesh sizes (the smaller region). This is because it is impossible to propagate a tsunami component with a short wavelength generated in a smaller region into a larger region, and it remains within the smaller region. The limit wavelength that can be reproduced in each region is twice the mesh size. It is necessary to reduce the mesh sizes by $1/3$ or $1/2$, etc.

The computation may become unstable if the connecting boundary on the lateral side intersects the coastline at an acute angle. This is because the reflected wave from the coastline reaches the lateral side boundary immediately; further, the difference between the actual and calculated results for a region with a larger mesh size is large where the numerical results are obtained for an outer region with a rough topography.

5.3.2 Setting computational time steps

The computational time steps should be properly set after considering the calculation stability, etc.

[Description]

By using the spatial mesh sizes, which are set in conformity to the concept discussed in Section 5.3.1, the time intervals are set so as to satisfy the CFL conditions shown below with the calculation stability, etc. General stable conditions exist in the wave motion numerical calculation. The following are conditions for the horizontal 2-dimensional numerical calculations.

$$\frac{x}{\sqrt{2}} \leq \Delta t \leq \frac{x}{\sqrt{2} \max}$$

5.3.3 Topographic data

In principle, topographic data used for the calculation should be prepared in accordance with the latest submarine topographical maps, land topographical maps, etc.

[Description]

(1) Bathymetry data

As a result of the recent development of an echo-sounding technique and satellite positioning technique applied to a wide area, the measuring technique of the water depth distribution has been remarkably improved. Hence, from the viewpoint of a higher accuracy of calculations for numerical simulations of historical and scenario tsunamis, the water depth data used should be prepared in accordance with the latest measurement results.

In the case of the bathymetric data, nautical charts and base maps of the sea from the Hydrographic and Oceanographic Department, Japan Coast Guard, and Expert Grid Data for Geography: 1 km, Bathymetry Integrated Random Data Set of the Japan Hydrographic Association, etc., are readily available. If echo-sounding has already been carried out in the vicinity of the assessed spot, the survey data can be used.

If a wide oceanic area of an ocean such as far-field tsunami, etc., is investigated, the 5-Minute Girded Earth Topography Data by NOAA (1988), etc., can be utilized. If the wide bathymetric area is investigated, the 2-Minute Girded Earth Topography Data by Smith and Sandwell (1997a, 1997b) can be utilized.

(2) Topographical data in the inundation area

Topographical data of the land used as the inundation area should be basically prepared in accordance with the latest topographical maps. For such data, the numerical maps of the Geographical Survey Institute and Japan Map Center can be utilized. However, it should be noted that the geographical accuracy in the vicinity of the coast is not necessarily satisfactory.

(3) Past topographical data

Some cases in which the artificial changes due to the structures, etc., which did not exist when the historical tsunamis hit, are included in the latest topographical data. In this case, if the water level of the scenario tsunami is compared with the run-up height at the assessed spot and the reproduction calculation of the water level of the historical tsunami is carried out, the topographical data before the above artificial changes should be used only for the above changed portions.

Furthermore, with respect to the coordinate system that serves as a reference for the abovementioned topographical digital data, the Japan geodetic system is used for data recorded in Japan, while the world geodetic system WGS84 is used for the data from American satellites. When they are used in combination, these facts must be carefully considered (Imai (2000), Sengoku et al. (2000), Takahashi (1999)).

5.3.4 Various coefficients, etc.

Various coefficients and water depth related to the tsunami head, used for the numerical calculations should be appropriately chosen by referring to documents, etc.

[Description]

(1) Coefficients related to the friction term

The coefficients of the friction term should be chosen with reference to Table 5-2.

Table 5-2 Coefficients assigned to the friction term

Name of coefficient	Values reported in documents	Values used frequently for the assessment of the water level of the design tsunami of nuclear plants
Manning's coefficient of roughness n ($m^{-1/3}s$)	Iwasaki and Mano (1979): 0.03 for the sea area Goto and Sato (1993): 0.025 for the sea area Kotani et al. (1998): Inundation area: High-density residential district: 0.08 Medium-density residential district: 0.06 Low-density residential district: 0.04 Forest area: 0.03 Agricultural area: 0.02	Sea area: 0.03 Inundation area: 0.03
Friction coefficient k_b	Tanaka (1985): Deep sea area: 0.0026 Shallow sea area: 0.005–0.01 Inundation area: 0.01–0.5	Deep sea area (usually deeper than 15 m): 0.0026 Shallow sea area (usually shallower than 15 m): 0.00637 Inundation area: 0.01

However, when the friction coefficient is varied in accordance with the water depth, the current velocity field may yield unnatural results if the variation is discontinuous. Hence, it is recommended to set the friction coefficient such that a smooth variation is ensured.

(2) Coefficient of eddy viscosity

If the coefficient of eddy viscosity is smaller than $10 \text{ m}^2/\text{s}$ ($10^5 \text{ cm}^2/\text{s}$), the water fall ratio for a coefficient of eddy viscosity of zero is about 5% or less. Hence, if the water level change is subject to assessment, $10 \text{ m}^2/\text{s}$ ($10^5 \text{ cm}^2/\text{s}$) can be used as the actual maximum value of the coefficient of eddy viscosity. In Tanaka's method, $10 \text{ m}^2/\text{s}$ ($10^5 \text{ cm}^2/\text{s}$) is empirically used as the coefficient of eddy viscosity.

(3) Water depth related to the tsunami head

Theoretically, when the water depth at the tsunami head section becomes zero, the portion is judged to be the area that is not under water.

However, in practice, a small water depth remains due to numerical calculation errors, and the redundant calculations may sometimes continue. In addition, since the head-end section of the inundated tsunami is extremely small, the denominators of the friction and advection terms become very small and the numerical calculation tends to diverge.

Therefore, [1] the "minimum water depth" is carefully set to prevent the execution of the calculation by regarding the head-end water depth as zero. Moreover, [2] the "virtual water depth" is carefully set in order to prevent the water depth substituted for the friction and advection terms from achieving a value smaller than a certain water depth.

Imazu et al. (1996) researched the minimum water depth and virtual water depth; this work can be referred to for setting the water depth.

5.3.5 Reproduction time

The reproduction time should be appropriately set after taking the tsunami characteristics, topographical conditions, etc., into account.

[Description]

A tsunami does not always cause the maximum water rise or fall with the first wave. Moreover, the rise times of their maximum rise and fall vary in accordance with the time series of water-level changes at the wave source, topographical conditions, etc., in the vicinity of relevant locations.

For example, when the resonant oscillations inside the bay are excited or the reflection waves of the first wave from the opposite bank and a subsequent tsunami are superimposed, either a maximum water rise or the maximum water fall may occur. Hence, it is important to select a reproduction time that is suitable for analyzing these phenomena.

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Chapter 6. Postscript

Various uncertainties and errors exist in the process of tsunami assessment. It is rather difficult to quantitatively estimate them in sequence; further, it is also difficult to select a tsunami source from many scenario tsunamis. Instead of directly taking into account uncertainties and errors, the tsunami assessment method with a parametric study is proposed. According to the proposed method in this paper, a large number of numerical calculations are carried out under various conditions within a reasonable extent. The proposed method is verified by comparing and examining the typical historical tsunamis in Japan. In order to ensure the validity of the proposed method, the design tsunami is selected as the highest among all the historical and possible future tsunamis at the site.

With regard to future challenges, tsunami effects other than tsunami water levels, such as tsunami wave force and sand movement by a tsunami, are specified. Considerable research is in progress in these areas. In the near future, it is expected that the introduction of the results of these studies into the design of nuclear power plants will help to improve its efficiency and reliability.

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Appendix-1 Manner of Determination of Standard Fault Model - along the Japan Trench and southern Kurile Trench -

1 st category	In the vicinity of plate boundaries		
2 nd category	Sea area related to subduction zone of Pacific plate		

Appendix-2 Manner of Determination of Standard Fault Model - along the Nankai Trough -

1 st category	In the vicinity of plate boundaries		
2 nd category	Sea area related to the subduction of the Philippine Sea plate		

Appendix-3 Manner of Determination of Standard Fault Model - Eastern margin of the Japan Sea -

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Appendix-4 Manner of Determination of Standard Fault Model - Active Submarine Fault -

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Tsunami Assessment for Nuclear Power Plants in Japan.

Makoto TAKAO, PE



TOKYO ELECTRIC POWER COMPANY

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Agenda

1. Tsunami assessment for NPP on the Pacific coast.
2. Operational status of NPP after the Feb. 28, 2010 tsunami from Chile.

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JSCE Method

“Tsunami Assessment Method for Nuclear Power
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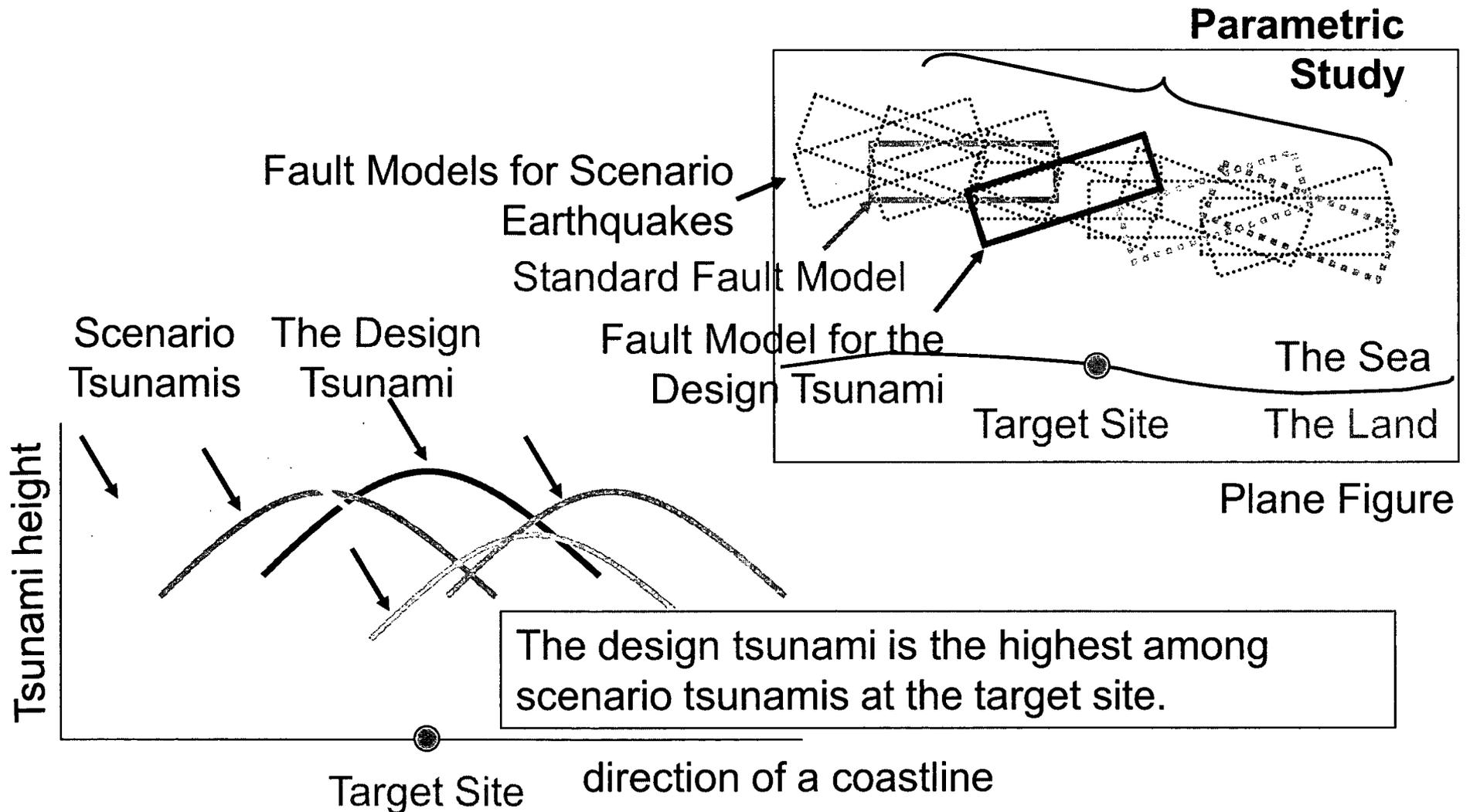


English version

http://www.jsce.or.jp/committee/ceofnp/Tsunami/eng/tsunami_eng.html



Parametric Study of Tsunami Source



TEPCO's Nuclear Power Stations

Kashiwazaki Kariwa NPS 8,212MWe

Unit	Start	Type	Output(MWe)
No.1	'85/9/18	BWR-5	1,100
No.2	'90/9/2	BWR-5	1,100
No.3	'93/8/11	BWR-5	1,100
No.4	'94/8/11	BWR-5	1,100
No.5	'90/4/10	BWR-5	1,100
No.6	'96/11/7	ABWR	1,356
No.7	'97/7/2	ABWR	1,356

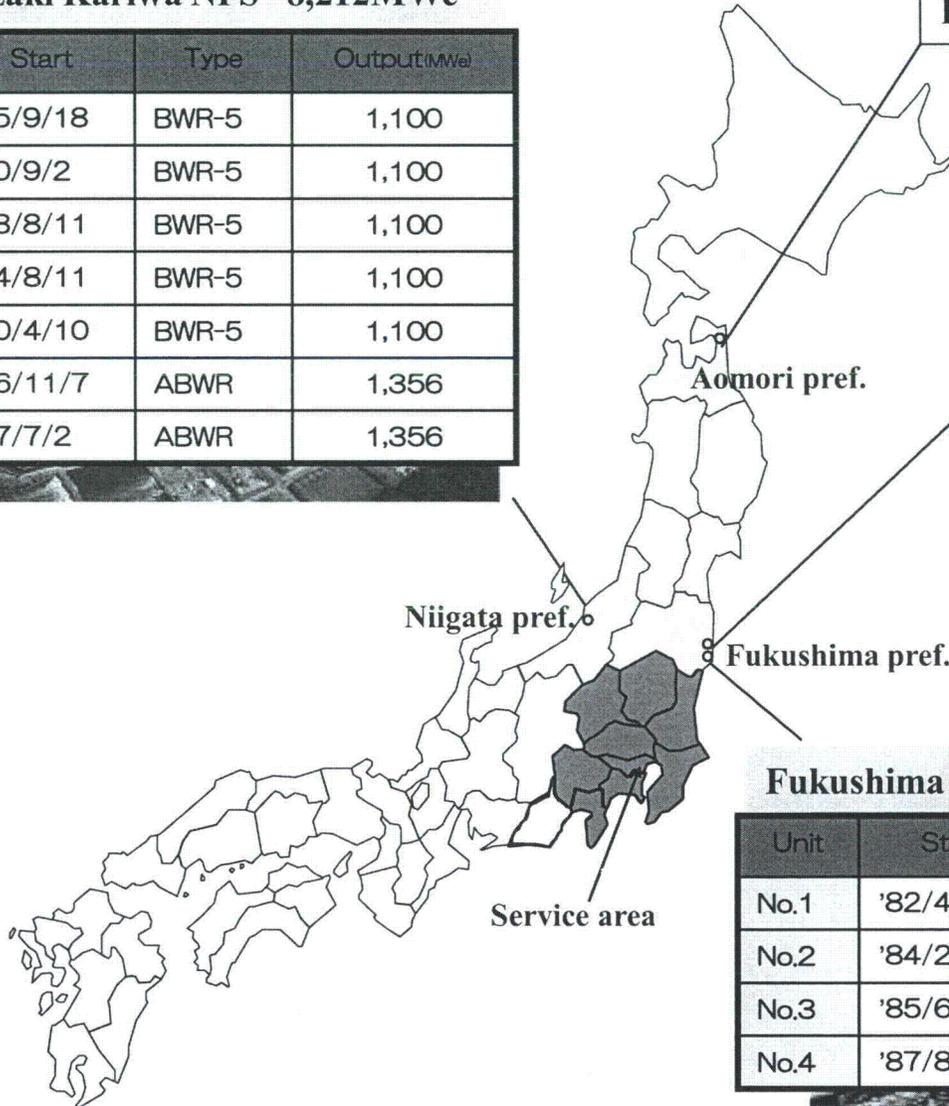
Higashidori Nuclear Power Construction Preparation Office

Fukushima Daiichi NPS 4,696MWe

Unit	Start	Type	Output(MWe)
No.1	'71/3/26	BWR-3	460
No.2	'74/7/18	BWR-4	784
No.3	'76/3/27	BWR-4	784
No.4	'78/10/12	BWR-4	784
No.5	'78/4/18	BWR-4	784
No.6	'79/10/24	BWR-5	1,100

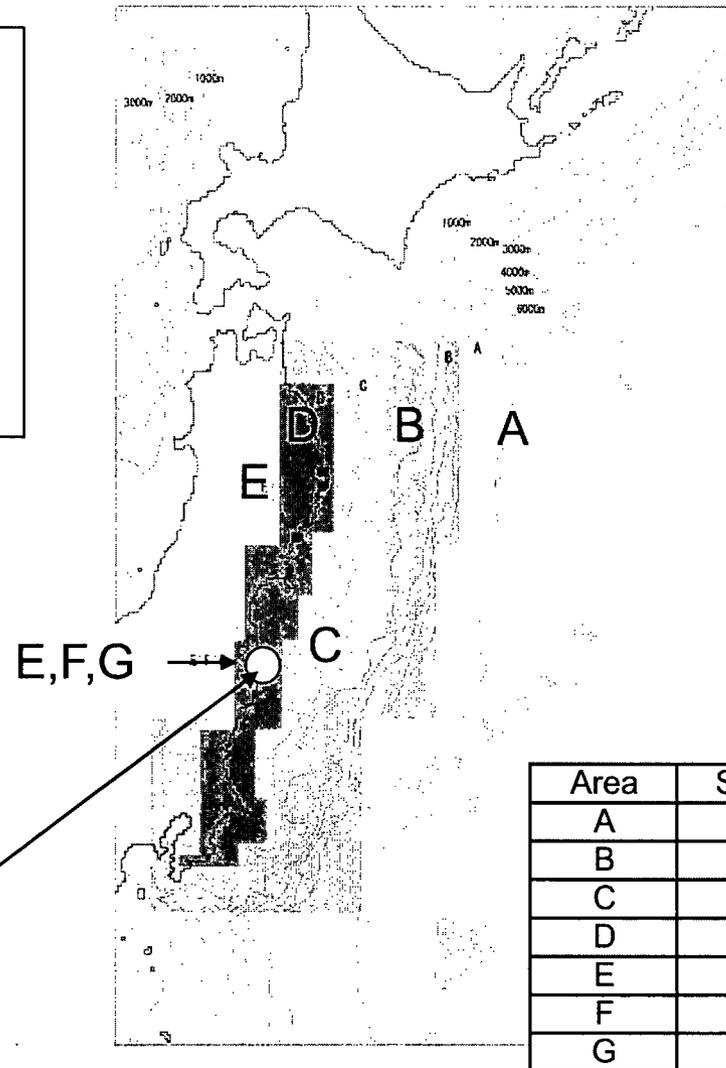
Fukushima Daini NPS 4,400MWe

Unit	Start	Type	Output(MWe)
No.1	'82/4/20	BWR-5	1,100
No.2	'84/2/3	BWR-5	1,100
No.3	'85/6/21	BWR-5	1,100
No.4	'87/8/25	BWR-5	1,100



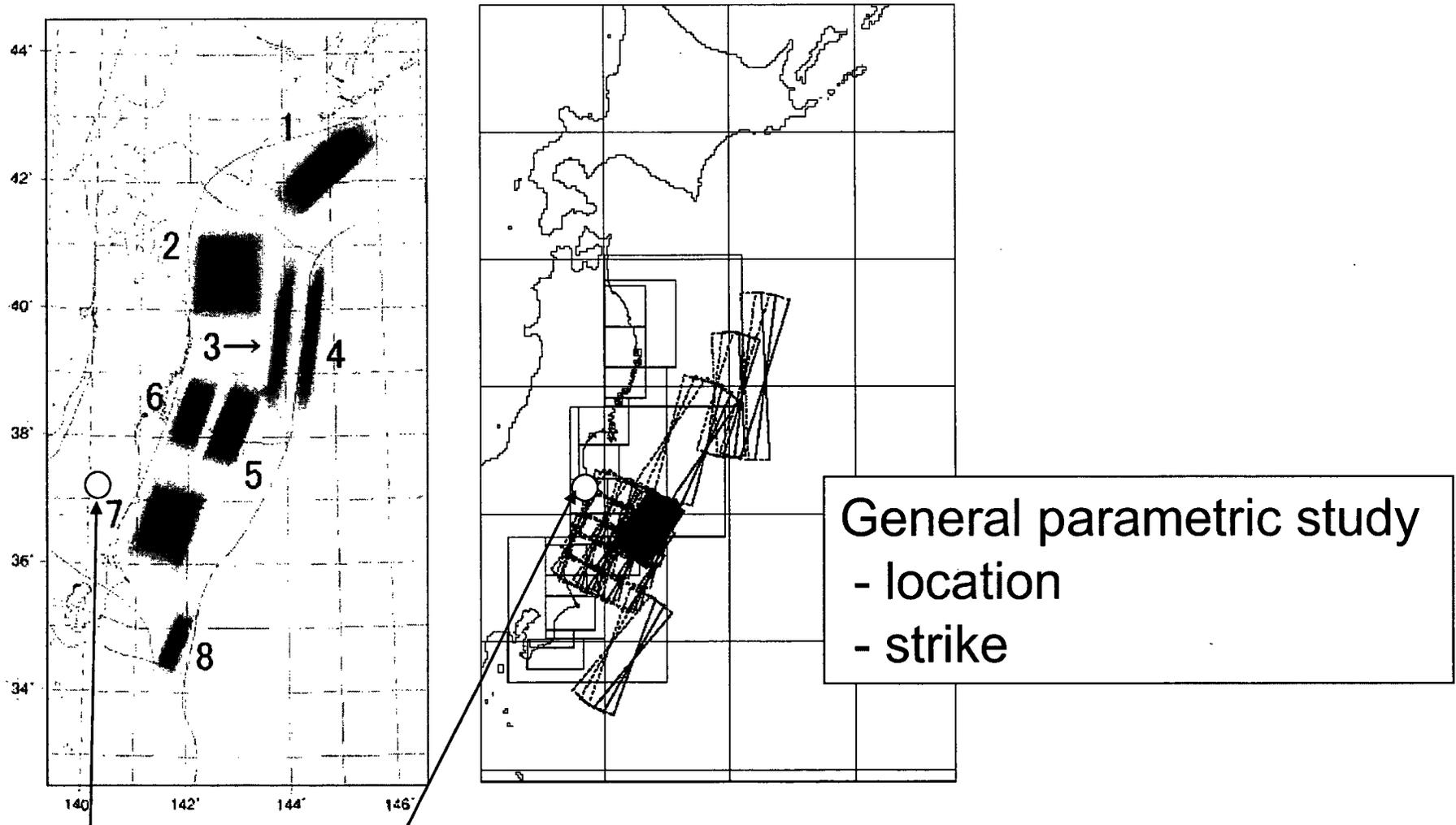
Numerical Model for the near field

- ✓ Non-linear long wave theory (shallow water)
- ✓ Staggered mesh
- ✓ Leap frog method



Fukushima Daiichi NPS

General parametric study in the near field



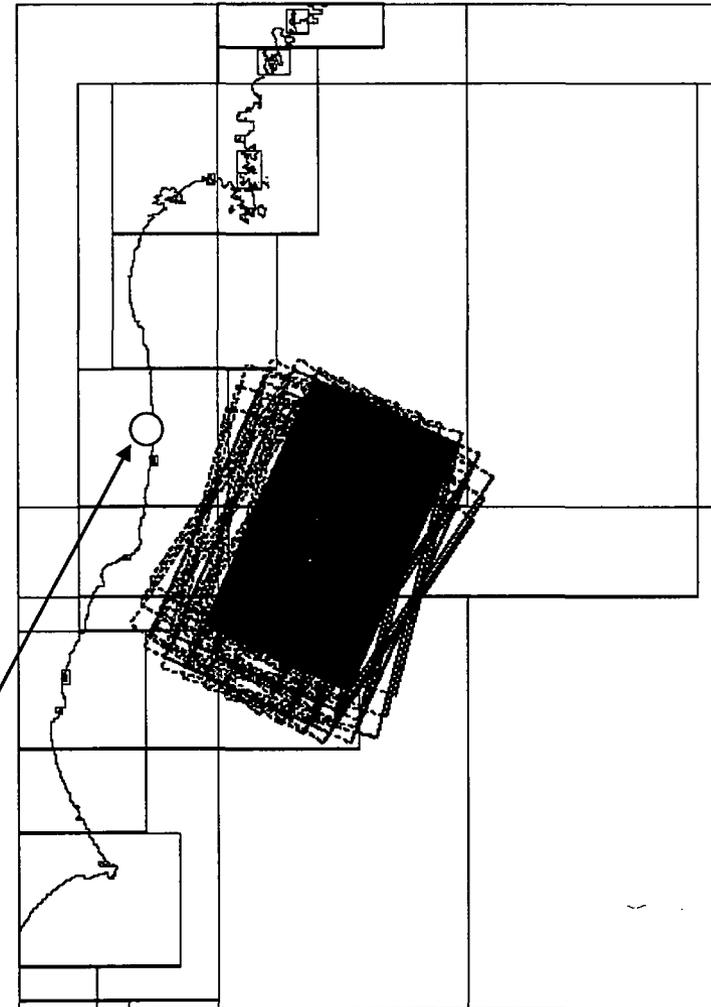
Fukushima Daiichi NPS

Detailed parametric study in the near field

Detailed parametric study

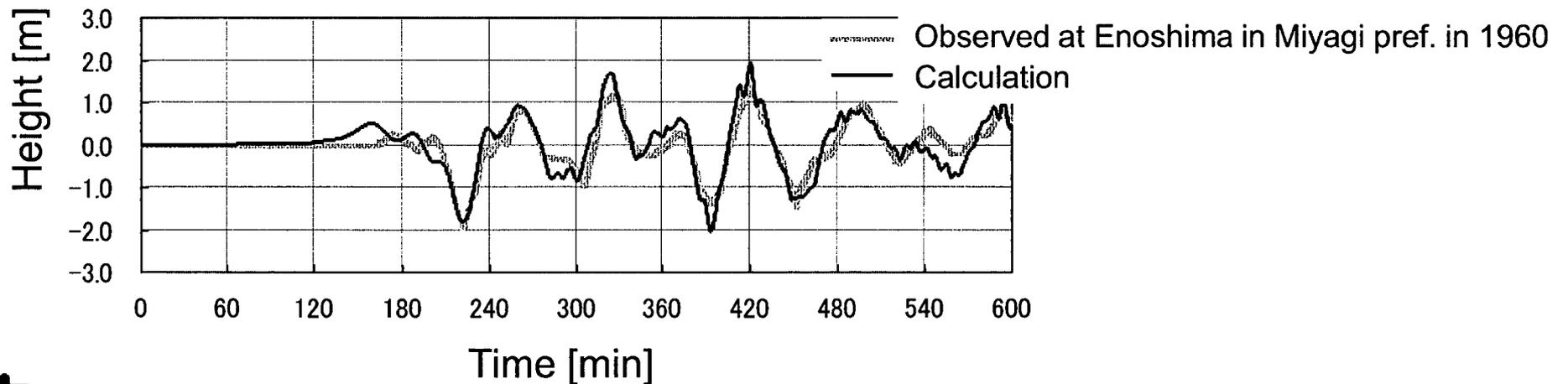
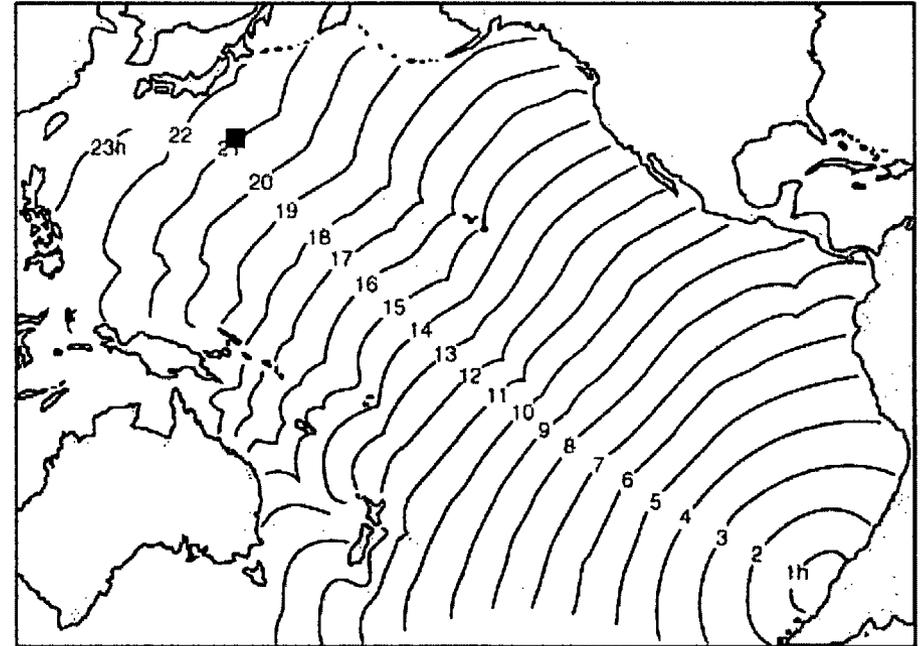
- location
- strike
- depth
- dip angle
- slip angle

Fukushima Daiichi NPS

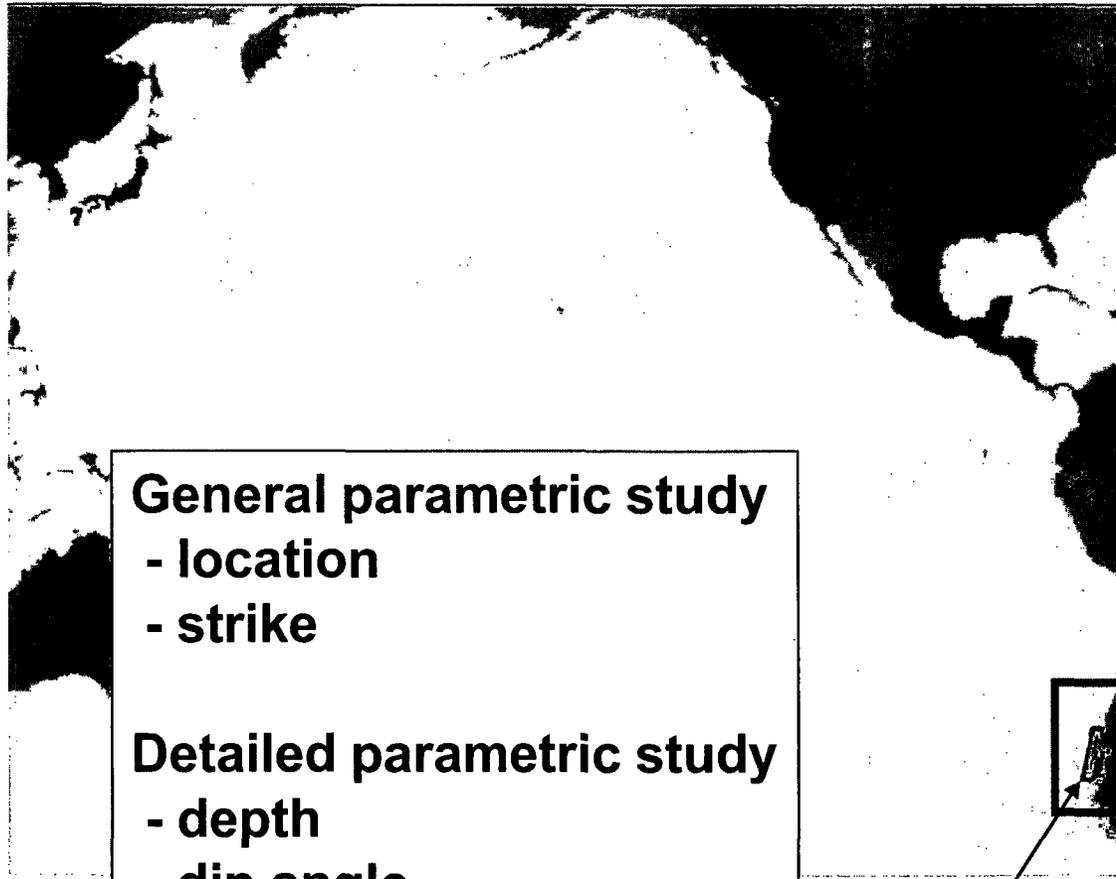


Tsunami from far field

- ✓ Linear dispersive theory for far field (spherical-coordinate system)
- ✓ Non-linear long wave theory for near field (Cartesian coordinate system)
- ✓ Staggered mesh
- ✓ Leap frog method



Parametric study in the far field

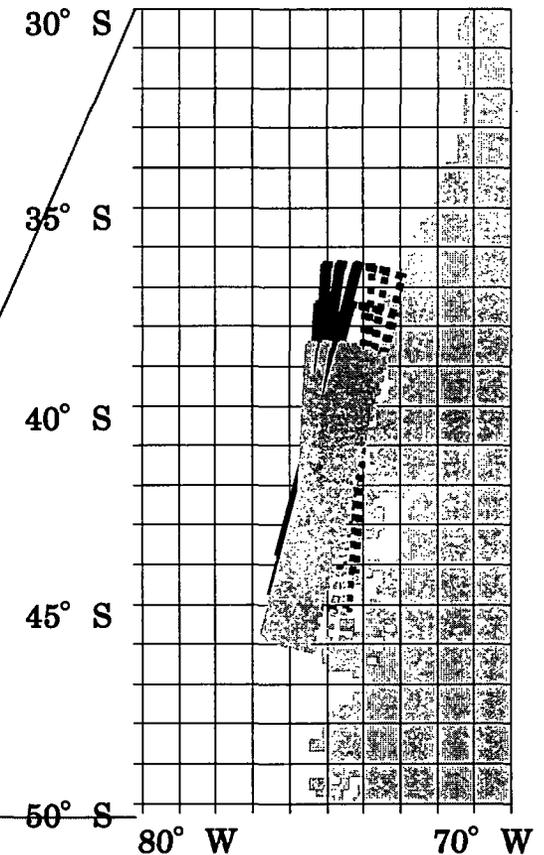


General parametric study

- location
- strike

Detailed parametric study

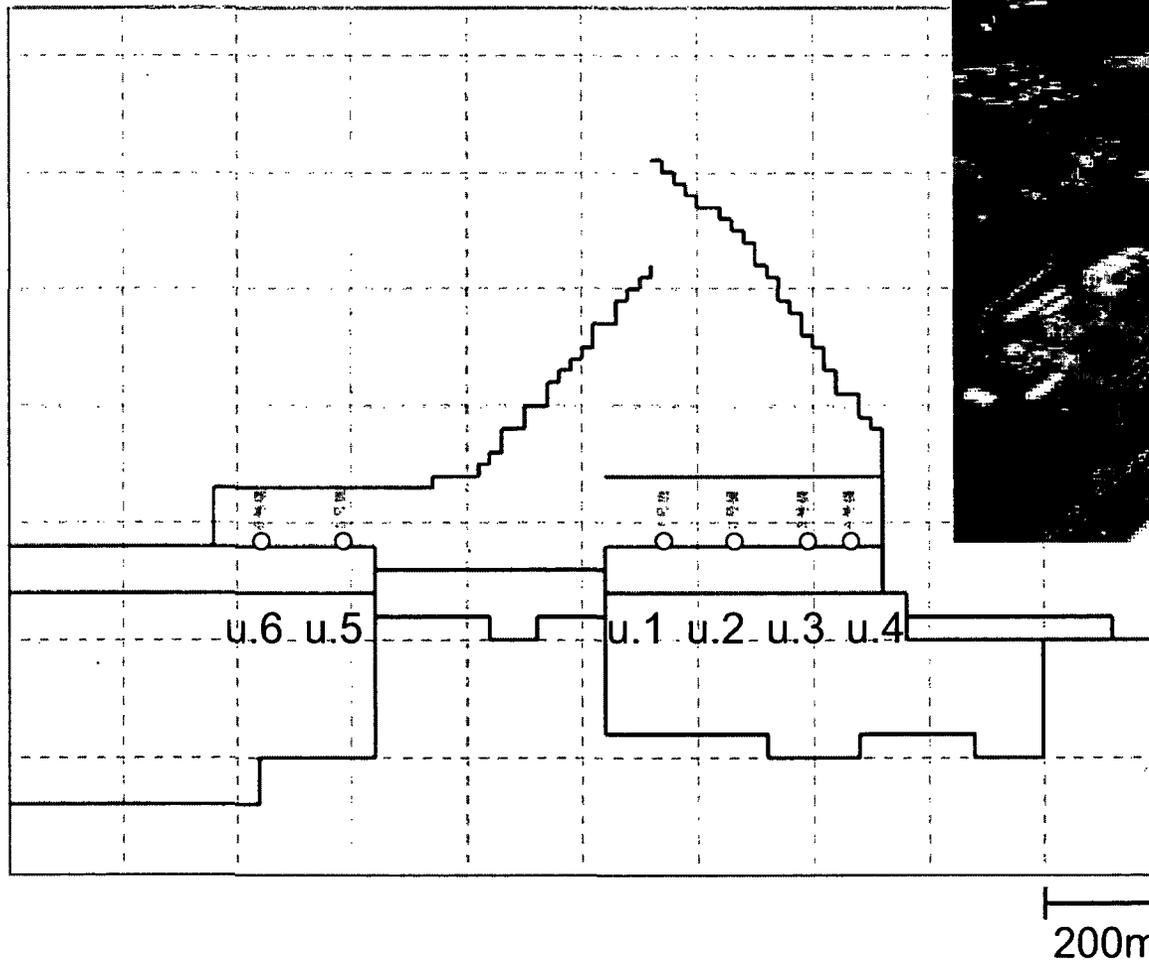
- depth
- dip angle
- slip angle



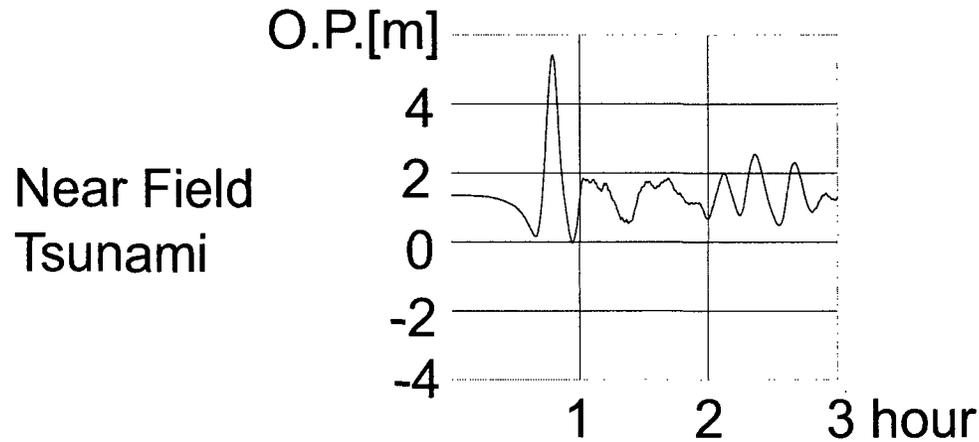
Standard fault model
1960 Chilean earthquake

Location of assessment points

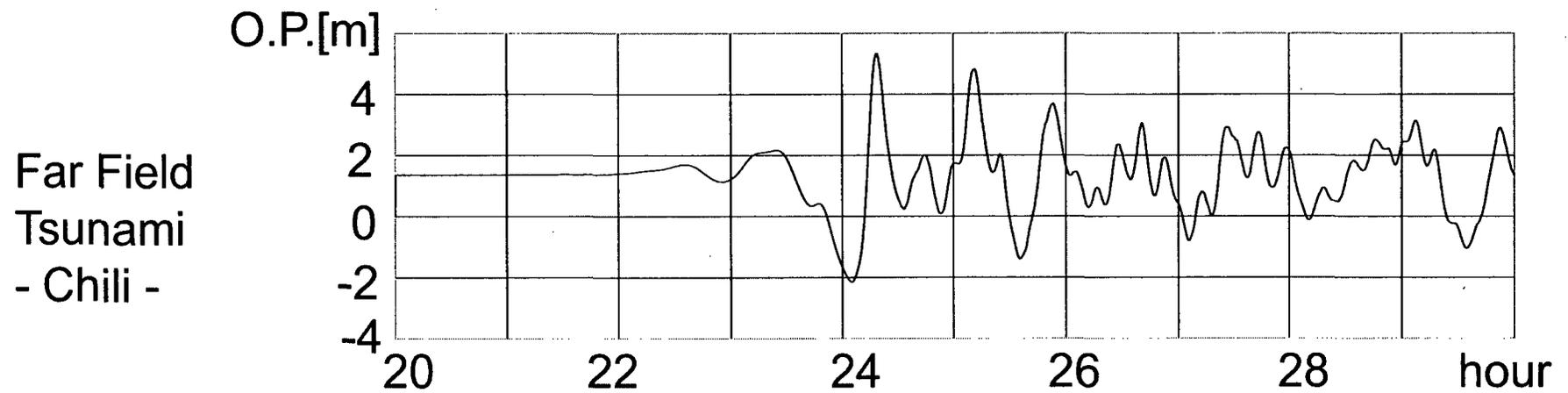
Fukushima Daiichi NPS



Time History of the design tsunamis



elapsed time since earthquake occurred



elapsed time since earthquake occurred



Consideration of tide and safety evaluation

The Design Tsunami



Design High Water Level

= Maximum water rise + Mean of high tides

Design Low Water Level

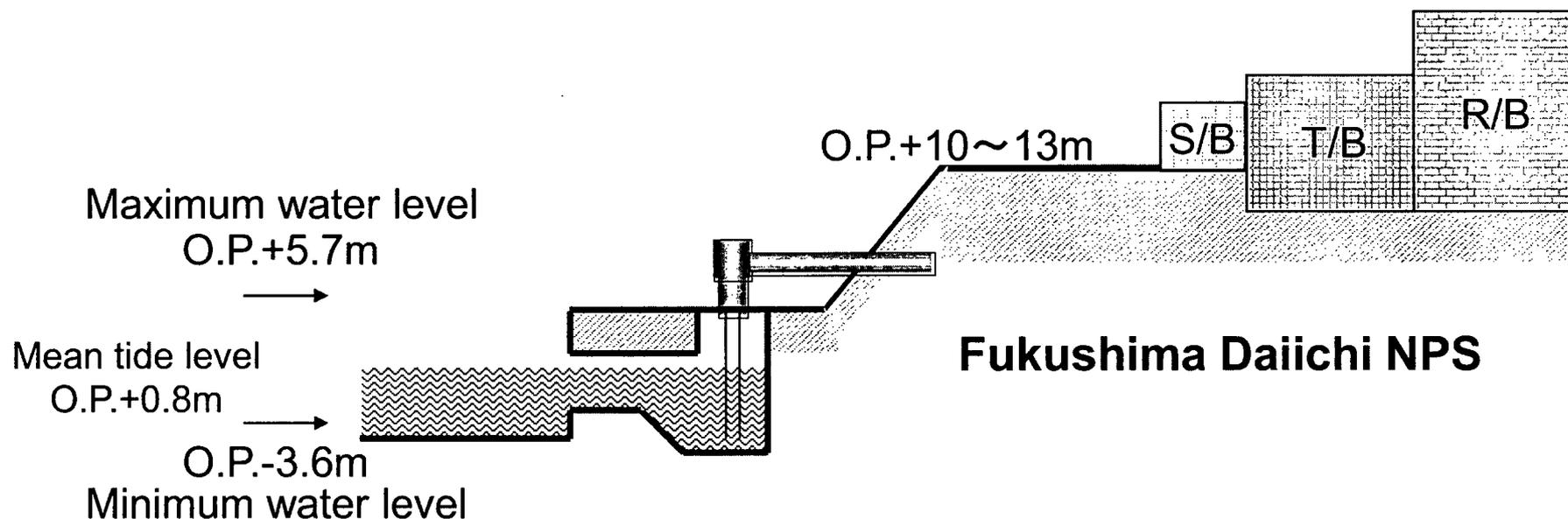
= Maximum water fall + Mean of low tides

Evaluation of the safety of NPP

Summary of Evaluation

Maximum water level = $4.4\text{m} + \text{O.P.} + 1.3\text{m} = \text{O.P.} + 5.7\text{m}$

Minimum water level = $-3.6\text{m} - \text{O.P.} \pm 0.0\text{m} = \text{O.P.} - 3.6\text{m}$



We assessed and confirmed the safety of the nuclear plants based on the JSCE method which was published in 2002.

Agenda

1. Tsunami assessment for NPP on the Pacific coast.
2. Operational status of NPP after the Feb. 28, 2010 tsunami from Chile.

Operational status of NPP on Feb.28

Fukushima Daiichi NPS

unit 1	in operation	459 MWe
unit 2	in operation	786 MWe
unit 3	in operation	789 MWe
unit 4	in operation	789 MWe
unit 5	in operation	823 MWe
unit 6	in operation	1,152 MWe



Fukushima Daini NPS

unit 1	in operation	1,113 MWe
unit 2	in operation	1,116 MWe
unit 3	regular maintenance	
unit 4	in operation	1,117 MWe



Feb. 28th NPS Correspondence (1/2)

A manual containing emergency and restoration protocol in the event of a major disaster has been created.

In the event that the Japan Meteorological Agency (JMA) issues a “Tsunami Warning” for the coastline near the NPS, the following measures are to be executed:

1. The Central Control Room Operators are to maintain vigilance in monitoring plant operations.
2. The Site Superintendent is to contact employees who are on standby in a separate office room or at home.
3. If necessary, an emergency headquarter is to be set up.

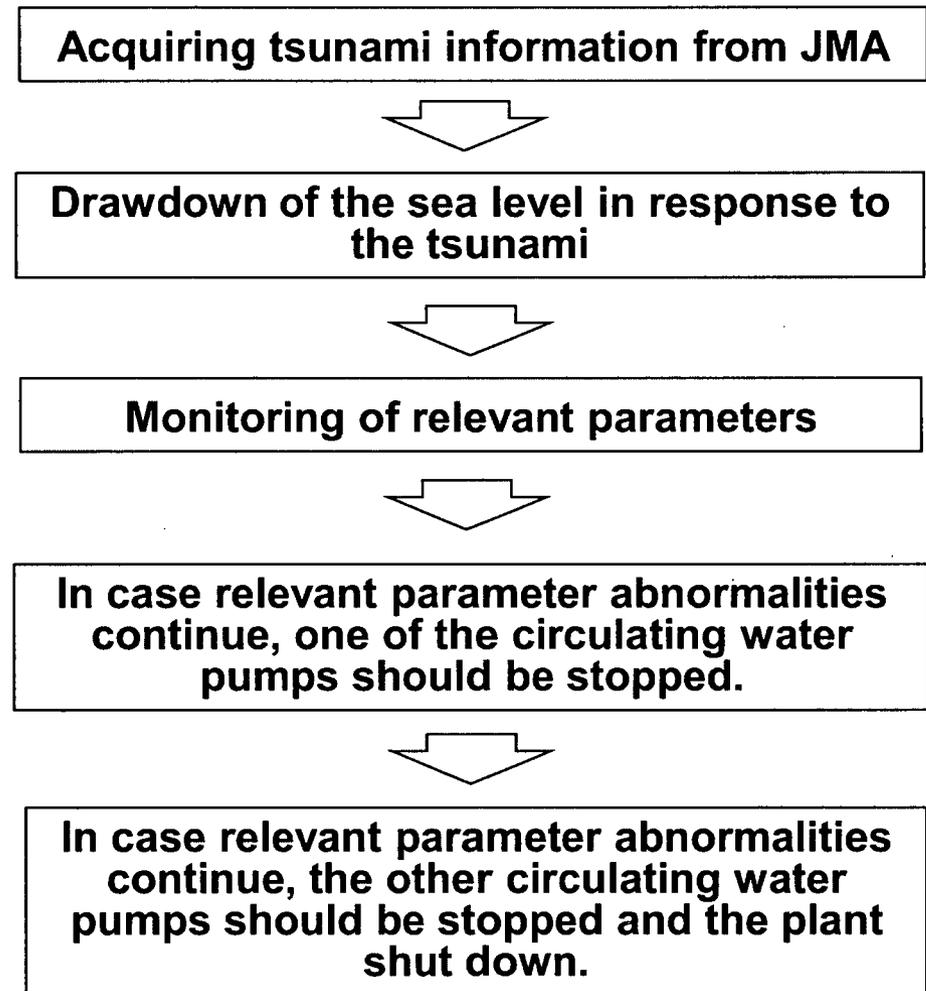
Feb. 28th NPS Correspondence (2/2)

Both Fukushima Daiichi NPS and Fukushima Daini NPS executed the below measures in response to a “Tsunami warning” issued by JMA on Feb.28.

- ✓ Discontinued the work and inspection of the area facing the ocean.
- ✓ Measured the sea level utilizing a tide gauge and via several installed TV cameras monitored the ocean conditions .
- ✓ Contacted employees to ready them for the execution of emergency disaster measures.

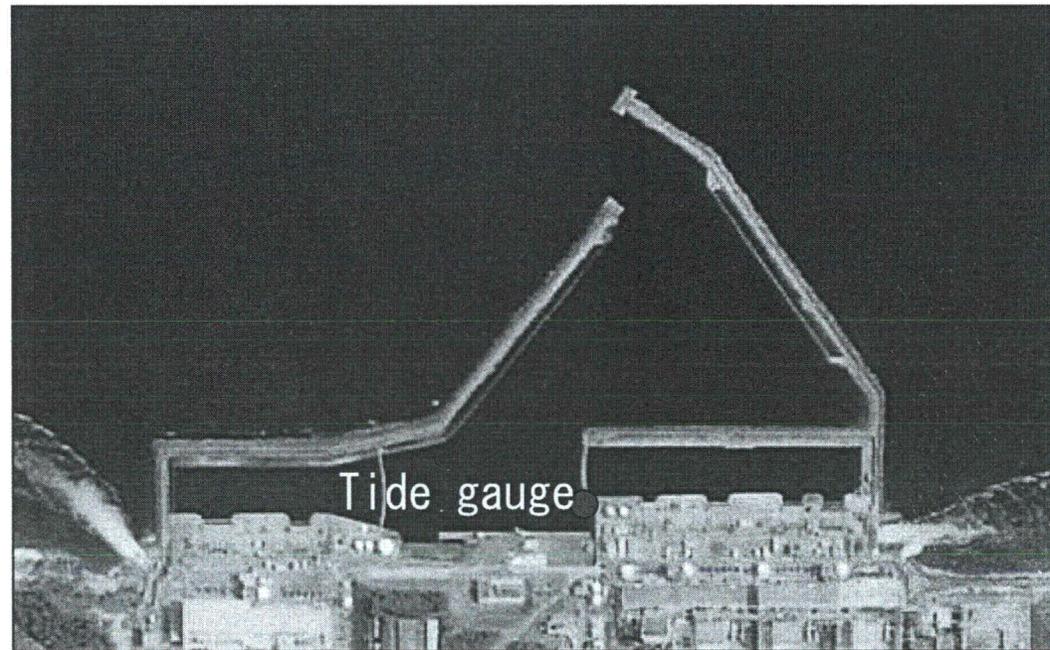
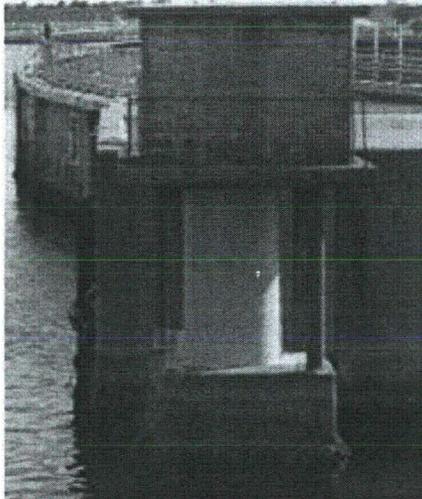
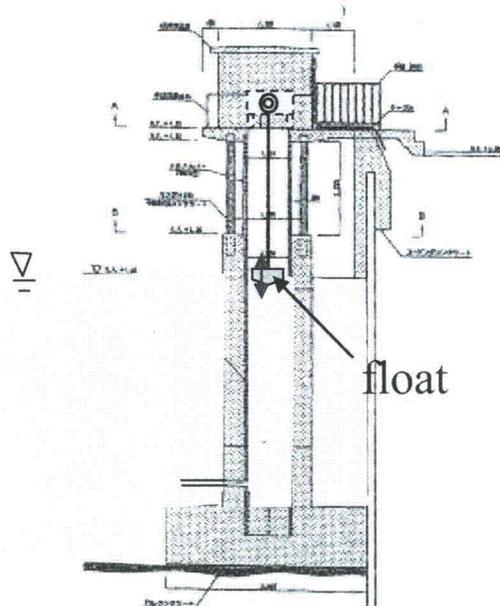
Correspondence based on Sea Level Measurements

- ✓ Utilizing the JSCE method, we assessed the ability of the NPP to withstand potential tsunamis.
- ✓ Based on the assessment results, the level of the seawater pumps was improved.
- ✓ "Accident Operating Procedure (AOP) " for tsunamis was established.



Flowchart on the basis of AOP

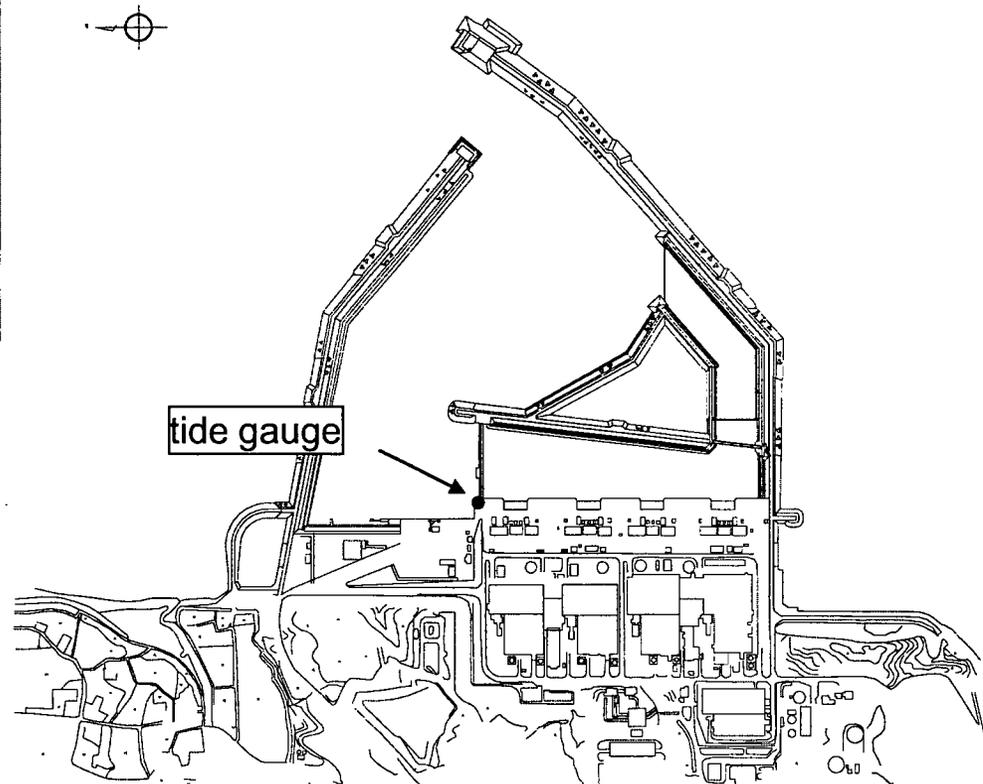
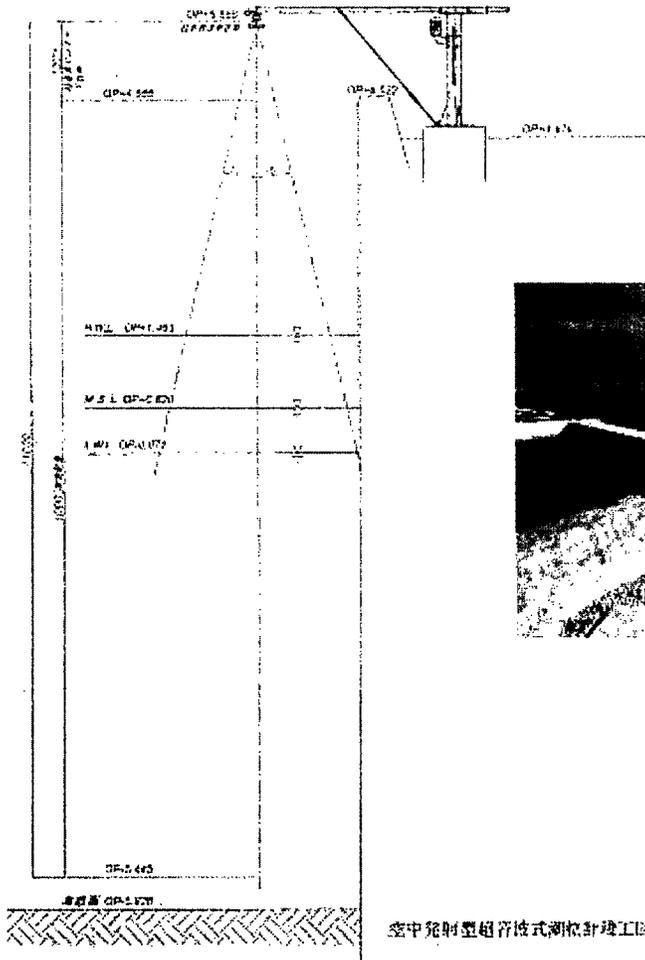
Tide gauge at Fukushima Daiichi NPS



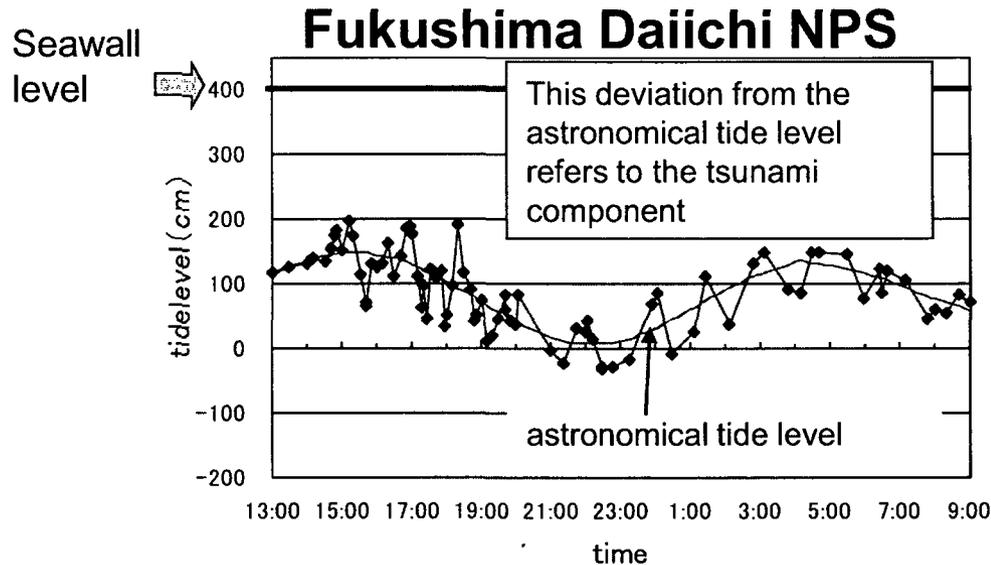
A float-type tide gauge is set up inside the harbor of the NPP.

Wave gauge at Fukushima Daini NPS

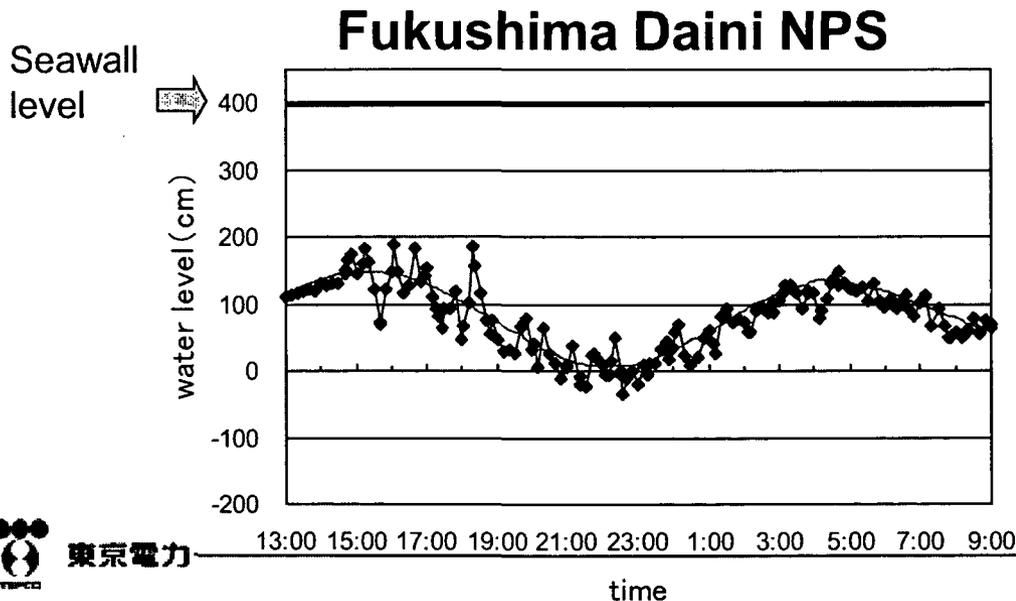
An ultrasonic-type tide gauge is installed inside the harbor of the NPP.



Observational result of Chile tsunami on Feb.28



- ✓ Deviation from the astronomical tide was observed.
- ✓ The highest sea level did not reach the seawall level.
- ✓ The lowest sea level did not fall below the intake water level of the circulating pumps.
- ✓ Normal operations were not impacted.



	Tsunami component	
	rising	drawdown
Fukushima Daiichi	+ 0.6m	- 0.8m
Fukushima Daini	+ 1.0m	- 0.8m

Summary

- ✓ **We assessed and confirmed the safety of the nuclear power plants based on the JSCE method which was published in 2002.**
- ✓ **On Feb. 28, in response to the “Tsunami warning” issued by the Japan Meteorological Agency, appropriate measures in accordance with "Accident Operating Procedures (AOP) " were executed.**
- ✓ **Daily operations were NOT impacted.**

Thank you very much for your kind attention.



ANDOU Hiroshige

King, Mark

From: Thorp, John
Sent: Saturday, March 26, 2011 9:16 AM
To: NRR_DIRS_IOEB Distribution
Subject: FW: NPJ E-News March 25, 2011 Fukushima Update

FYI Folks,

John

From: Nuclear Plant Journal [mailto:anu@goinfo.com]
Sent: Friday, March 25, 2011 7:22 PM
To: Thorp, John
Subject: NPJ E-News March 25, 2011 Fukushima Update

Having trouble viewing this email? [Click here](#)

**Nuclear
Plant
Journal**
An International Publication
Published in the United States

Nuclear Plant Journal E-News

Japan Update
March 25, 2011

Dear JOHN,

In this issue of NPJ E-News you'll find an update of the Fukushima Nuclear Plants in Japan. Information is current as of March 25, 2011, 17:00 CDT. All items are directly quoted, without any editing.

In this issue

[TEPCO Update](#)

[IAEA DG Visit](#)

[Status Document](#)

[NISA Radionuclide Update](#)

TEPCO Update

From the [TEPCO website](#):

- From 7:05 PM to 10:07 PM, Mar 25, water discharge by concrete pumping vehicle to the spent fuel pool of Unit 4 was conducted.
- We measured radioactive materials (iodine etc.) inside of the nuclear power station area

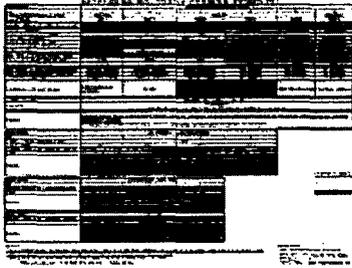
4/25/11

(outdoor) by monitoring car and confirmed that radioactive materials level is getting higher than ordinary level. As listed below, we have determined that specific incidents stipulated in article 15, clause 1 of Act on Special Measures Concerning Nuclear Emergency Preparedness (Abnormal increase in radiation dose measured at site boundary) have occurred.

[Click for more...](#)

IAEA DG Visit (JAIF)

- On the afternoon of March 18, Director General Yukiya Amano of the International Atomic Energy Agency (IAEA) spoke at the Japan National Press Club. He was making an emergency visit to Japan following the nuclear accidents caused by the Tohoku-Pacific Ocean Earthquake occurred on March 11 and subsequent giant tsunami.
[Click for more...](#)



JAIF Status Update

A [PDF document](#) provides a simple summary of each of the units at Fukushima nuclear power plants. This is a multi-page document that also provides a chronology of events and a map that details the status of each of the Japanese nuclear units.

NISA Nuclear and Industrial Safety Agency

This [PDF file](#) provides concentration measurements of radionuclides in the stagnant water on the basement floor of the turbine building of Unit 1 of Fukushima Dai-ichi Nuclear Power Station.

Quick Links...

- [NPJ Website](#)
- [Cost-free Subscription](#) (to NPJ)
- [JAIF](#)
- [TEPCO](#)
- [NISA](#)
- [U.S. NRC Actions on Japan](#)

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Weaver, Tonna

From: Taylor, Robert, *NRK*
Sent: Saturday, March 26, 2011 9:41 PM
To: RST01 Hoc
Cc: Taylor, Robert; Scott, Michael; Blamey, Alan; Giessner, John; Nakanishi, Tony; Casto, Chuck; Dorman, Dan; Monninger, John
Subject: Attention Bill Ruland: Japan Rector Team Alignment Plan
Attachments: Japan Team Reactor Issues Alignment Plan.docx

Bill,

As discussed, attached is our proposed alignment plan. We welcome feedback.

Rob

Japan Team Reactor Issues Alignment Plan

1. Identify Team Leads for Major Issues:

Spent Fuel Pools: Rob Taylor

Reactors:

Unit 1 – Alan Blamey

Unit 2 - Tony Nakanishi

Unit 3 - Jack Giessner

Note: The delineation of lead responsibilities should not inhibit effective communication among team members to assess information on any of the site issues and develop effective recommendations with the support of the RST. Nor should the RST limit distribution of information to specific members of Japan team.

2. Product: Ensure the highest quality “RST Assessment Fukushima Daiichi Units” paper is provided to our Japanese counterparts.

3. How to accomplish product:

- a. Japan team will focus on collecting best available information to feed to the RST.
- b. Japan team will ensure close coordination with RST (GE/INPO, etc.)
 - i. Japan team proposes two daily phone calls going forward
 1. 0700 JST – 30 minute alignment meeting
 - a. Goal: Feedback to Japan team on work done by RST and industry since previous day’s 1600 JST meeting.
 - b. Gain insights for 1100 JST NRC/NISA/TEPCO daily meeting
 2. 1600 JST – ~60 minute feedback meeting
 - a. Goal: Japan team input to RST and industry on information gathered during the day.
 - b. Alignment on priorities for RST and industry assessments going forward.
- c. Japan team will provide feedback on RST assessment paper to ensure highest quality and clarity before providing it to our Japanese counterparts.
- d. Japan team will provide feedback on where RST assessment paper needs to focus going forward based on new and evolving information.
- e. Japan team will consolidate messages and information prior to 1100 JST NRC/NISA/TEPCO meeting.

Weaver, Tonna

From: World Nuclear News [wnn=world-nuclear-news.org@mcsv120.net] on behalf of World Nuclear News [wnn@world-nuclear-news.org]
Sent: Monday, March 28, 2011 11:59 AM
To: Panicker, Mathew
Subject: WNN Daily: Contaminated pools to be drained

[View the WNN Daily in your browser.](#)

Wnn DAILY
world nuclear news

Today's top stories

28 March 2011

REGULATION & SAFETY: Contaminated pools to be drained
Pools of water with significant contamination are slowing down repair work in units 1, 2 and 3 at Fukushima Daiichi. It was in unit 3 that three workers recently suffered higher radiation exposure.

NEW NUCLEAR: Environmental approval for two new US reactors
There are no environmental reasons why two new reactors should not be built at the existing Vogtle nuclear power plant site in Georgia, according to the US nuclear safety regulators.

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L/259

Franovich, Mike

From: Franovich, Mike
Sent: Sunday, March 27, 2011 9:31 PM
To: Orders, William
Subject: RE: Request for copy of NRC recommendations on severe accident management measures for the Fukushima-Daiichi plant

Thx Bill.

From: Orders, William
Sent: Sunday, March 27, 2011 9:29 PM
To: Franovich, Mike; Batkin, Joshua
Cc: Coggins, Angela; Hipschman, Thomas; Marshall, Michael; Castleman, Patrick; Snodderly, Michael
Subject: Re: Request for copy of NRC recommendations on severe accident management measures for the Fukushima-Daiichi plant

Commissioner Magwood's office seconds Commissioner Ostendorff's request.

Bill

OK to release per WDM office

From: Franovich, Mike
To: Batkin, Joshua
Cc: Coggins, Angela; Hipschman, Thomas; Marshall, Michael; Castleman, Patrick; Snodderly, Michael; Orders, William
Sent: Sun Mar 27 21:24:35 2011
Subject: Request for copy of NRC recommendations on severe accident management measures for the Fukushima-Daiichi plant

Good evening Josh,

I am requesting a copy of the NRC's recommendations on severe accident management measures for the Fukushima-Daiichi plant. Last week during a periodic TA briefing, I requested a copy of the NRC's recommendations. Other Commission offices have subsequently requested a copy of the recommendations and supporting analysis. These recommendations supposedly represent a U.S. Government consensus position on additional accident management measures. The recommendations were coordinated with GE-Hitachi, EPRI, INPO, Naval Reactors, and DOE. My understanding is that this severe accident report was provided to Ambassador Roos and will be shared with NISA and TEPCO.

Last week, the ET had a caveat that the recommendations were in flux because our NRC team in Tokyo had provided feedback to the ET/RST regarding the most current situation of the Fukushima-Daiichi reactors. The ET also noted yesterday (3/26) that Ambassador Roos wanted high-level organizational approval by the involved USG agencies and organizations before he would move forward to engage his counterparts in the Japanese government. This evening during the TA briefing, Brian Sheron stated that the final recommendations have received high-level NRC approval and that I was to check with you to obtain a copy.

L/260

Weaver, Tonna

From: Panicker, Mathew *MPR*
Sent: Monday, March 28, 2011 10:47 AM
To: Mendiola, Anthony
Cc: Heller, Kevin; Kaizer, Joshua; Lehning, John; Orechwa, Yuri; Proffitt, Andrew; Tony Attard (HOME); Ward, Leonard; Wu, Shih-Liang; Attard, Anthony
Subject: RE: Contamination Question

Almost all of them listed are fission products. An exhaustive list of FPs can be found in Lamarsh, and/or in the ORNL code manual for the SCALE computer code system, or in the MCNP manual

Regarding the Co isotopes, some of them Co-59, Co-60 are also products from nuclear reactions (n,gamma) of impurities from Steel (Iron).

Some others may also come from the nuclear reactions of elements contained in the sea water which was poured over the units during the Japanese attempt to cool the reactor?

Reports in India indicate that the radiation level near the reactors is excessively high.
-Mathew

From: Mendiola, Anthony *MPR*
Sent: Monday, March 28, 2011 7:57 AM
To: Attard, Anthony; Heller, Kevin; Kaizer, Joshua; Lehning, John; Orechwa, Yuri; Panicker, Mathew; Proffitt, Andrew; Tony Attard (HOME); Ward, Leonard; Wu, Shih-Liang
Subject: Contamination Question

Here is a simple question.

The Japanese have sampled the water found in the basement of Unit 2 for the following isotopes:

Cobalt -56, 58, 60
Mo - 99
Tc - 99
Ru -106 (Ruthenium)
Ag -108 (Silver)
Te - 129, 132 (Tellurium)
I-131, 132, 134
Cs-134, 136, 137
Barium - 140
La -140 (Lanthanum)

Does anyone have any idea why they are sampling for Lanthanum, Barium, Silver, Tellurium, and Ruthenium? Specifically, what materials in the core would generate these isotopes?

Do not spend a lot of time on this, just looking for quick answers. Let me know if you find anything.

Anthony Mendiola
Chief, Nuclear Performance and Code Review Branch
SNPB/DSS/NRR/NRC
(301) 415-1054

King, Mark

From: King, Mark *MRK*
Sent: Monday, March 28, 2011 10:45 AM
To: Haskell, Russell
Cc: Garmon, David; Thorp, John; Bernardo, Robert; Tabatabai, Omid
Subject: RE: Safety Bulletin 2011-01

RE: HSS Web Site: Safety Bulletin 2011-01: **Events Beyond Design Safety Basis Analysis.**
http://www.hss.doe.gov/csa/csp/safety_bulletins/Safety-Bulletin-2011-01.pdf

It seems they(DOE) are responding to our NRC Info Notice related to the Japan event.
So I don't see where we have to do anything related to this DOE item.

FYI
Mark

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

From: Haskell, Russell *MRK*
Sent: Monday, March 28, 2011 9:43 AM
To: King, Mark
Subject: FW: Safety Bulletin 2011-01

May have some OpE relevancy.....

http://www.hss.doe.gov/csa/csp/safety_bulletins/Safety-Bulletin-2011-01.pdf

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

From: HSSUserSupport@hq.doe.gov [mailto:HSSUserSupport@hq.doe.gov]
Sent: Friday, March 25, 2011 3:20 PM
To: Haskell, Russell
Subject: Safety Bulletin 2011-01

DOE

russell,

A new document has been made available on the HSS Web Site: **Safety Bulletin 2011-01: Events Beyond Design Safety Basis Analysis.** Please go to http://www.hss.doe.gov/csa/csp/safety_bulletins/Safety-Bulletin-2011-01.pdf to view this new posting.

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Thank You
HSS Office of Information Management

4/26/2

Gibson, Lauren

From: Rodriguez, Veronica *inck*
Sent: Monday, March 28, 2011 5:56 PM
To: Dehn, Jeff; Gibson, Lauren; Karwoski, Kenneth; McHale, John; Quinones, Lauren; Regan, Christopher; Tabatabai, Omid; Tate, Travis
Cc: Hopkins, Jon; Astwood, Heather
Subject: IAEA Conference re: Japan

Folks, for info:

<http://www.iaea.org/newscenter/news/emergencyresponse.html>

More to come,
Veronica

Weaver, Tonna

From: Mendiola, Anthony *mark*
Sent: Monday, March 28, 2011 12:06 PM
To: Clifford, Paul; Attard, Anthony; Heller, Kevin; Kaizer, Joshua; Lehning, John; Orechwa, Yuri; Panicker, Mathew; Proffitt, Andrew; Tony Attard (HOME); Ward, Leonard; Wu, Shih-Liang
Subject: RE: Contamination Question AND ANSWER

I think that these isotopes have been added because of the addition of seawater because of the accident. In a BWR, integrity of the condenser tubes is evaluated by sampling the effluents for other elements, which ones I do not recall, but I doubt that it was these ones.

I just read that they have found radioactive Iodine, Cesium, Ruthenium and Tellurium in the sea surrounding the power station, which means one of the stations is leaking Radioactive Seawater.

From: Clifford, Paul *mark*
Sent: Monday, March 28, 2011 11:08 AM
To: Mendiola, Anthony; Attard, Anthony; Heller, Kevin; Kaizer, Joshua; Lehning, John; Orechwa, Yuri; Panicker, Mathew; Proffitt, Andrew; Tony Attard (HOME); Ward, Leonard; Wu, Shih-Liang
Subject: RE: Contamination Question AND ANSWER

Are these additional isotopes part of the normal chemical analysis (unrelated to accident)? If so, probably to evaluate integrity of condenser tubes.

From: Mendiola, Anthony
Sent: Monday, March 28, 2011 11:00 AM
To: Attard, Anthony; Heller, Kevin; Kaizer, Joshua; Lehning, John; Orechwa, Yuri; Panicker, Mathew; Proffitt, Andrew; Tony Attard (HOME); Ward, Leonard; Wu, Shih-Liang; Clifford, Paul
Subject: Contamination Question AND ANSWER

I think we have an answer:

Most of the "extra credit" elements are found in seawater. If they are found to be radioactive, it would imply that the seawater has been thru the core. As they were found in the Reactor building, that would imply a primary leakage path.

Here is a simple question.

The Japanese have sampled the water found in the basement of Unit 2 for the following Isotopes:

Cobalt -56, 58, 60
Mo - 99
Tc - 99
Ru -106 (Ruthenium)

2/264

Ag -108 (Silver)
Te – 129, 132 (Tellurium)
I-131, 132, 134
Cs-134, 136,137
Barium – 140
La -140 (Lanthanum)

Does anyone have any idea why are they sampling for Lanthanum, Barium, Silver, Tellurium, and Ruthenium?
Specifically, what materials in the core would generate these isotopes?

Do not spend a lot of time on this, just looking for quick answers. Let me know if you find anything.

Anthony Mendiola
Chief, Nuclear Performance and Code Review Branch
SNPB/DSS/NRR/NRC
(301) 415-1054

Weaver, Tonna

From: Hasselberg, Rick *MSIK*
Sent: Monday, March 28, 2011 3:28 PM
To: Gardocki, Stanley
Subject: RE: Updated Watchlist for Mar27-Apr2

Thanks Stanley. We'll most likely take you up on that. But I'm walking away from the watch bill until tomorrow morning.

From: Gardocki, Stanley *MSIK*
Sent: Monday, March 28, 2011 3:10 PM
To: Hasselberg, Rick; Alter, Peter
Cc: RST01 Hoc
Subject: FW: Updated Watchlist for Mar27-Apr2

I am available to fill the opening next Saturday swing shift 3-11pm , April 2nd , if needed.

Stanley Gardocki

From: OST02 HOC
Sent: Monday, March 28, 2011 3:04 PM
To: Abrams, Charlotte; Abu-Eid, Bobby; Adams, John; Afshar-Tous, Mugeh; Ahn, Hosung; Alemu, Bezakulu; Algama, Don; Alter, Peter; Anderson, Brian; Anderson, James; Arndt, Steven; Arribas-Colon, Maria; Ashkeboussi, Nima; Athey, George; Baker, Stephen; Ballam, Nick; Barnhurst, Daniel; Barr, Cynthia; Barss, Dan; Bazian, Samuel; Bensi, Michelle; Bergman, Thomas; Berry, Rollie; Bhachu, Ujagar; Bloom, Steven; Blount, Tom; Boger, Bruce; Bonnette, Cassandra; Borchardt, Bill; Bowers, Anthony; Bowman, Gregory; Boyce, Tom (RES); Brandon, Lou; Brandt, Philip; Brenner, Eliot; Brock, Kathryn; Brown, Cris; Brown, David; Brown, Eva; Brown, Frederick; Brown, Michael; Bukharin, Oleg; Burnell, Scott; Bush-Goddard, Stephanie; Campbell, Stephen; Camper, Larry; Carpenter, Cynthia; Carter, Mary; Case, Michael; Casto, Greg; Cecere, Bethany; Cervera, Margaret; Chazell, Russell; Chen, Yen-Ju; Cheok, Michael; Chokshi, Nilesh; Chowdhury, Prosanta; Chung, Donald; Circle, Jeff; Clement, Richard; Clinton, Rebecca; Coggins, Angela; Collins, Frank; Cool, Donald; Correia, Richard; Corson, James; Costa, Arlon; Couret, Ivonne; Craffey, Ryan; Crutchley, Mary Glenn; Cruz, Zahira; Cuadrado, Leira; Dacus, Eugene; DeCicco, Joseph; Decker, David; Dembek, Stephen; Devlin, Stephanie; Dimmick, Lisa; Doane, Margaret; Dorman, Dan; Dorsey, Cynthia; Dozier, Jerry; Drake, Margaret; Droggitis, Spiros; Dube, Donald; Dudes, Laura; Eads, Johnny; Easson, Stuart; Emche, Danielle; English, Lance; Erlanger, Craig; Esmaili, Hossein; Figueroa, Roberto; Fiske, Jonathan; Flanders, Scott; Flannery, Cindy; Floyd, Daphene; Foggie, Kirk; Foster, Jack; Fragoyannis, Nancy; Franovich, Rani; Frazier, Alan; Freshman, Steve; Fuller, Edward; Galletta, Thomas; Gambone, Kimberly; Gardocki, Stanley; Gartman, Michael; Gibson, Kathy; Giitter, Joseph; Gilmer, James; Glenn, Nichole; Gordon, Dennis; Gott, William; Grant, Jeffery; Greenwood, Carol; Greenwood, Carol; Grimes, Kelly; Grobe, Jack; Gross, Allen; Gulla, Gerald; Hale, Jerry; Hardesty, Duane; Hardin, Kimberly; Hardin, Leroy; Harrington, Holly; Harris, Tim; Harrison, Donnie; Hart, Ken; Hart, Michelle; Harvey, Brad; Hasselberg, Rick; Hayden, Elizabeth; Helton, Donald; Henderson, Karen; Hiland, Patrick; Holahan, Patricia; Holahan, Vincent; Holian, Brian; HOO Hoc; Horn, Brian; Howard, Tabitha; Huffert, Anthony; Hurd, Sapna; Huyck, Doug; Imboden, Andy; Isom, James; Jackson, Karen; Jacobson, Jeffrey; Jervey, Richard; Jessie, Janelle; Johnson, Michael; Jolicoeur, John; Jones, Andrea; Jones, Cynthia; Jones, Henry; Kahler, Carolyn; Kammerer, Annie; Karas, Rebecca; Kauffman, John; Khan, Omar; Kolb, Timothy; Kotzalas, Margie; Kowalczyk, Jeffrey; Kratchman, Jessica; Kugler, Andrew; Lamb, Christopher; Lane, John; Larson, Emily; Laur, Steven; LaVie, Steve; Lewis, Robert; Li, Yong; Lichatz, Taylor; Lising, Jason; Lombard, Mark; Lovell, Louise; Lubinski, John; Lui, Christiana; Lukes, Kim; Lynch, Jeffery; Ma, John; Mamish, Nader; Manahan, Michelle; Marksberry, Don; Marshall, Jane; Masao, Nagai; Maupin, Cardelia; Mayros, Lauren; Mazaika, Michael; McConnell, Keith; McCoppin, Michael; McDermott, Brian; McGinty, Tim; McGovern, Denise; McIntyre, David; McMurtray, Anthony; Merritt, Christina; Meyer, Karen; Miller, Charles; Miller, Chris; Milligan, Patricia; Miranda, Samuel; Mohseni, Aby; Moore, Scott; Morlang, Gary; Morris, Scott; Mroz (Sahm), Sara; Munson, Clifford; Murray, Charles; Nerret, Amanda; Nguyen, Caroline; Norris, Michael; Norton, Charles; Opara, Stella; Ordaz, Vonna; Owens, Janice; Padovan, Mark; Parillo, John; Patel, Jay; Patel, Pravin; Patrick, Mark; Perin, Vanice; Pope, Tia; Powell, Amy; Purdy, Gary; Quinlan, Kevin; Raddatz, Michael; Ragland, Robert; Ralph, Melissa; Ramsey, Jack; Reed, Elizabeth; Reed, Sara; Reed, Wendy; Reeves, Rosemary; Reis, Terrence; Resner, Mark; Riley (OCA), Timothy; Riner, Kelly; Rini,

4/26/5

Brett; Roach, Edward; Robinson, Edward; Rodriguez-Luccioni, Hector; Roggenbrodt, William; Ropon, Kimberly; Rosales-Cooper, Cindy; Rosenberg, Stacey; Ross-Lee, MaryJane; Roundtree, Amy; Ruland, William; Russell, Tonya; Ryan, Michelle; Salay, Michael; Salter, Susan; Salus, Amy; Sanfilippo, Nathan; Santos, Daniel; Scarbrough, Thomas; Schaperow, Jason; Schmidt, Duane; Schmidt, Rebecca; Schoenebeck, Greg; Schrader, Eric; Schwartzman, Jennifer; Seber, Dogan; See, Kenneth; Shane, Raeann; Shea, James; Shepherd, Jill; Sheron, Brian; Skarda, Raymond; Skeen, David; Sloan, Scott; Smiroldo, Elizabeth; Smith, Brooke; Smith, Stacy; Smith, Theodore; Stahl, Eric; Stang, Annette; Stark, Johnathan; Steger (Tucci), Christine; Stieve, Alice; Stone, Rebecca; Stransky, Robert; Sturz, Fritz; Sullivan, Randy; Summers, Robert; Sun, Casper; Takacs, Michael; Tappert, John; Tegeler, Bret; Temple, Jeffrey; Thaggard, Mark; Thomas, Eric; Thorp, John; Tiruneh, Nebiyu; Tobin, Jennifer; Trefethen, Jean; Tschiltz, Michael; Turtill, Richard; Uhle, Jennifer; Valencia, Sandra; Vaughn, James; Vick, Lawrence; Virgilio, Martin; Virgilio, Rosetta; Ward, Leonard; Ward, William; Wastler, Sandra; Watson, Bruce; Webber, Robert; Weber, Michael; White, Bernard; Wiggins, Jim; Williams, Donna; Williams, Joseph; Williamson, Linda; Willis, Dori; Wimbush, Andrea; Wittick, Brian; Wray, John; Wright, Lisa (Gibney); Wright, Ned; Wunder, George; Young, Francis; Zimmerman, Jacob; Zimmerman, Roy

Subject: Updated Watchlist for Mar27-Apr2

Attached is the updated schedule for this week.

There are still available shifts that need to be filled, please coordinate this through your team coordinators and the following individuals;

Liaison Team(Jeff Temple)

Reactor Safety Team (Rick Hasselberg or Peter Alter)

Protective Measures Team (Lou Brandon)

All changes to ET Director and ET Response advisor should be coordinated through Michelle Evans.

EST Admin Support

NRC Operations Center

eMail: OST02.HOC@nrc.gov

301-816-5100

Weaver, Tonna

From: Garmon, David *mgk*
Sent: Monday, March 28, 2011 3:34 PM
Subject: New OpE COMM: International - Tohoku-Taiheiyou-Oki Earthquake and Tsunami (Honshu, Japan)

This email 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: OpE COMMs contain preliminary information in the interest of timely internal communication of operating experience. OpE COMMs may be pre-decisional and may contain sensitive/proprietary information. They are not intended for distribution outside the agency

The posting may be reviewed at: [Tohoku-Taiheiyou-Oki Earthquake and Tsunami \(Honshu, Japan\)](#)

This COMM is being posted to the following groups: ***All Communications, Chemistry/Chemical Engineering, Containment (leakage, degradation, cooling system performance), Control Room Habitability, Dose Assessment, ECCS, Electrical Power Systems, Emergency Diesel Generators, Emergency Preparedness, Fire Protection, Flood Protection & Missiles, Fuels, Health Physics, Human Performance, HVAC, Inspection Programs, Instrumentation and Controls, Main Steam & Condensate/Feed Systems, Materials/Aging, Natural Phenomena, New Reactors, Piping, Pump and Valve Performance, RCPB Leakage, Reactor Vessel/Pressurizer, Safety Culture, Shutdown Risk, Spent Fuel Storage & Load Handling, Station Service Water Systems & Ultimate Heat Sink, Steam Generators, Structural, Welding/Non-Destructive Examination, Worker Fatigue***

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 [Reactor OpE Gateway](#).

Thank you for reviewing and using Operating Experience.

Regards,
David Garmon
NRR/DIRS/IOEB
(301) 415-3512
Office: O-7C20
Mail Stop OWFN-7C02A

4/26/11

Weaver, Tonna

From: Hasselberg, Rick *in SR*
Sent: Tuesday, March 29, 2011 7:29 AM
To: Gardocki, Stanley
Subject: RE: Feedback on Ops response

Thanks, Stan. That is the opinion of several other folks as well.

From: Gardocki, Stanley *in SR*
Sent: Monday, March 28, 2011 7:04 PM
To: Hasselberg, Rick
Cc: Ruland, William
Subject: Feedback on Ops response

Rick (and Bill who was my RST director for the shift)

I know you will be collecting feedback to incorporate lesson learned during this emergency response. So before it slips my mind I am sending now. My observation last Saturday was that there was a lot of discussion on what steps the Japanese should be taking. The SAMGs are guidelines specially designed for this situation. However, it seems like people are trying to second guess and seems like no clear direction. Now either the SAMG procedures are not correct, or people are not following the response directed by the SAMGs. Really seems odd to me that the industry went to such an extent to formulate an action plan and here is a clear case for their use. But it is not happening.

Just my observation.

Stan Gardocki

Jimenez, Manuel

From: Pedersen, Roger *INJR*
Sent: Tuesday, March 29, 2011 4:26 PM
To: Garry, Steven; Shoop, Undine; Conatser, Richard; Jimenez, Manuel; Clemons-Webb, Candace
Subject: Emailing: TEPCO Press Release Detection of radioactive material in the soil in Fukushima Daiichi Nuclear Power Station.htm
Attachments: TEPCO Press Release Detection of radioactive material in the soil in Fukushima Daiichi Nuclear Power Station.htm

FYI

Press Releases

Press Release (Mar 28,2011)

Detection of radioactive material in the soil in Fukushima Daiichi Nuclear Power Station

On March 28th 2011, as part of monitoring activity of the surrounding environment, we conducted analysis of plutonium contained in the soil collected on March 21st and 22nd at the 5 spots in Fukushima Daiichi Nuclear Power Station. As a result, plutonium 238, 239 and 240 were detected as shown in the attachment.

We will continue the radionuclide analysis contained in the soil.

<Results of the analysis>

- Plutonium was detected in the soil of Fukushima Daiichi Nuclear Power Station.
 - The density of detected plutonium is equivalent to the fallout observed in Japan when the atmospheric nuclear test was conducted in the past.
 - The detected plutonium from two samples out of five may be the direct result of the recent incident, considering their activity ratio of the plutonium isotopes.
 - The density of detected plutonium is equivalent to the density in the soil under normal environmental conditions and therefore poses no major impact on human health. TEPCO strengthens environment monitoring inside the station and surrounding areas.
 - We will conduct analysis of the three additional soil samples.
-

attachment1:Result of Pu measurement in the soil in Fukushima Daiichi Nuclear Power Plant(PDF 80.9KB)

attachment2:Fukushima Daiichi Nuclear Power Station Sampling Spots of Soil (PDF 112KB)

attachment3:Fukushima Daiichi Nuclear Power Station Regular Sampling Spots of Soil(PDF 135KB)

[back to page top](#)

Jimenez, Manuel

From: Boggi, Michael
Sent: Monday, March 28, 2011 10:38 AM
To: Jimenez, Manuel
Subject: radiation levels
Attachments: ENGNEWS01_1301313213P.pdf

See attached from the Japan Atomic Industrial Forum.

Mike

Earthquake Report - JAIF

No. 34

Status of Fukushima Daiichi nuclear power station as of 20:00, March 28, 2011

Here is information regarding the status of Fukushima Daiichi nuclear power station from the news reports aired by NHK Today.

- It is found that there is water accumulated in the tunnel where pipes go through at unit-2 around 15:30 on March 27. It has high radiation that is more than 1000 Sv/hr on the surface. Since the water discovered in the turbine building of unit-2 has same high level radiation, TEPCO is investigating relationship of these 2 cases. (18:40, March 28)

- Nuclear Safety Commission expressed the opinion that radioactive material from nuclear fuel once melted possibly have reached outside the containment vessel with water leaked from inside to outside the containment vessel through unidentified pathway at unit-2. This opinion is based on the fact that water accumulated in the turbine building contain high amount of radioactive material, which is 100,000 times as much as radioactive material contained in water in the reactor at normal operation. Also Nuclear Safety Commission mentioned that operation to inject water to the reactor of unit-2 can be continued even in this situation. (13:25, March 28)

- The chief cabinet secretary strongly required not to enter the area to be evacuated in light of the fact that there are some cases in which evacuating persons temporarily came back home. (13:25, March 28)

- High amount of radioactive material was detected in sea on the northern side of nuclear power station. The seawater contains radioactive iodine-131 in excess of the legal standard by 1150 times. High amount of radioactive iodine was detected also in sea on the southern side of nuclear power station few days ago. Nuclear and Industrial Safety Agency told that radioactive material possibly have moved with the sea current. (13:25, March 28)

- Ministry of Defense released movies of the power station taken around 10:00 on March 27 from the helicopter of the self defense force. This movie captured these following scenes.
 - The roof of the reactor building collapsed after hydrogen explosion at unit-1.
 - Some holes are observed on the roof and steam like white smoke is rising from these holes at unit-2.

Earthquake Report - JAIF

- There is only steel beam upper part of the reactor building and steam is rising at unit-3.
- The wall of the reactor building was blown off and some structure and equipment can be observed at unit-4. Steam is rising from some spots at unit-4.

Dr. Sekimura of Tokyo university pointed out the possibility of damage to the fuel in the spent fuel pool of unit-3 since it would appear that the heavy crane have dropped into the fuel pool in this movie. (05:40, March 28)

- It becomes difficult to discharge water accumulated in the turbine building and it would possibly delay the work to restore cooling capability. High amount of radioactive material was detected in water accumulated in the turbine building at unit-1, 2 and 3. Water found in the turbine building of unit-2 contains radioactive material 100000 times as much as radioactive material contained in water in the reactor at normal operation and radioactivity of water surface is more than 1000mSv/hr. Also water found in the turbine building of unit-1 and unit-3 contains radioactive material, which is 1000 times as much. (04:20, March 28)

End

Jimenez, Manuel

From: Pedersen, Roger *NRK*
Sent: Tuesday, March 29, 2011 5:15 PM
To: Conatser, Richard; Garry, Steven; Clemons-Webb, Candace; Jimenez, Manuel
Subject: Fukushima Airborne in Washington State, FYI
Attachments: 1103.4853v1.pdf

Arrival time and magnitude of airborne fission products from the Fukushima, Japan, reactor incident as measured in Seattle, WA, USA

J. Diaz Leon, J. Kaspar, A. Knecht,* M. L. Miller, R. G. H. Robertson, and A. G. Schubert

*Department of Physics and Center for Experimental Nuclear Physics
and Astrophysics, University of Washington, Seattle, WA 98195, USA*

(Dated: March 25, 2011)

We report results of air monitoring started due to the recent natural catastrophe on March 11, 2011 in Japan and the severe ensuing damage to the Fukushima nuclear reactor complex. On March 17-18, 2011 we detected the first arrival of the airborne fission products ^{131}I , ^{132}I , ^{132}Te , ^{134}Cs , and ^{137}Cs in Seattle, WA, USA, by identifying their characteristic gamma rays using a germanium detector. The highest detected activity to date is $\lesssim 32 \text{ mBq/m}^3$ of ^{131}I .

The recent earthquake and tsunami in Japan on March 11, 2011 resulted in severe damage to the nuclear reactor complex in Fukushima. Due to the uncertainty of the situation, limited quantitative information, and its potential impact on both local public health as well as our low-background fundamental physics program [1] we began monitoring local air samples in Seattle, WA, USA, for the potential arrival of airborne radioactive fission products. The radioactive levels in the Chernobyl accident had reached $\sim 10 \text{ Bq/m}^3$ at a distance of 1200 km [2] and traces had still been detectable at a distance of 8700 km in Seattle [3]. Therefore we expected a reasonable probability of detecting trace radioactivity signals from Fukushima, located a similar distance of $\sim 7600 \text{ km}$ from Seattle. However, because the Fukushima incident has not caused a complete reactor meltdown (as happened at Chernobyl), detection of the fission products poses a greater challenge. We have since made a definitive measurement of multiple radioactive fission products and localized their arrival in Seattle to the time window of March 17, 12pm to March 18, 2pm. The magnitude and relative composition of the fission products allow us to draw several interesting conclusions about the nature of the accident and transport properties of the fission products across the Pacific Ocean.

Our samples consist of air filters taken from the intake to the ventilation system of the Physics and Astronomy building at the University of Washington. This allows us to sample ~ 10 times more air than what had been done previously [3] and proved to be one of the key points for the successful detection of the radioactive fission products. In order to search for characteristic gamma rays stemming from radioactive fission products we place the samples inside a lead shield of 5 to 20 cm thickness next to a 0.5-kg P-type point contact germanium detector [4] for low-level counting. The detector exhibits an energy resolution of 1.4 keV FWHM at 600 keV. The level of observed background radiation inside the shield ranges from 10 counts/keV/hour at 50 keV to 2 counts/keV/hour at 800 keV. The energy and efficiency of the detector have been calibrated using 10 strong gamma lines between 200 and 1500 keV from a ^{152}Eu source to an accuracy of about

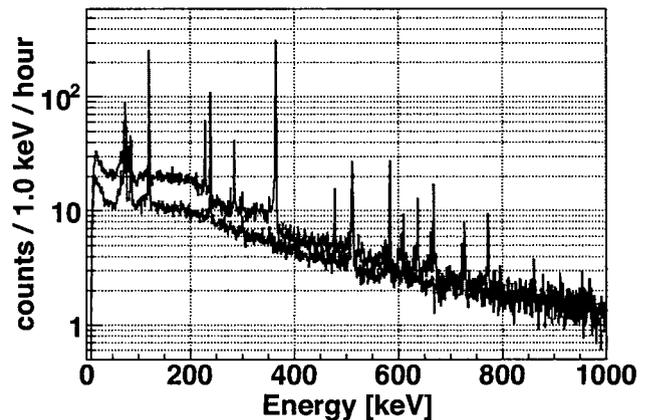


FIG. 1. (Color online) Comparison of the gamma spectra from the measurements of air filter PH1 (red, March 16-17) and air filter PH2 (blue, March 17-18) showing clearly the additional peaks due to the arrival of radioactive fission products at the US west coast. The dominant peak at 364 keV is from ^{131}I .

0.1 keV and 10%, respectively.

The air filters used are commercial ventilation filters from AmericanAirFilter [5] and Purolator [6] with dimensions $61 \times 61 \times 5 \text{ cm}$. Their efficiency for retaining particles down to a size of $5 \mu\text{m}$ amounts to 75%, drops to 35% at $1 \mu\text{m}$ and to 5% at $0.4 \mu\text{m}$. From our detection of the cosmogenic ^7Be isotope, we calculated an activity of $\sim 0.1 \text{ mBq/m}^3$ (see below). Comparing this value to the known ^7Be concentration of $2 - 8 \text{ mBq/m}^3$ [7] we deduce a filter efficiency of $\sim 2\%$ or correspondingly particle sizes of $\lesssim 0.4 \mu\text{m}$. This roughly agrees with observations of radioactive particle sizes after the Chernobyl accident [2] and measured sizes of radioactive dust in the atmosphere [8]. Auxiliary measurements, where we had stacked two filters on top of each other, resulted in a filter efficiency for the strong ^{131}I peaks of $\sim 60\%$ (particle sizes of $\sim 2 \mu\text{m}$) while the result for the weak ^7Be peak agrees both with 2 and 60%. Until this ambiguity is resolved we take the conservative approach of using the range $2 - 60\%$ for the filter efficiency. The air filters were typically exposed for one day to an air flow of

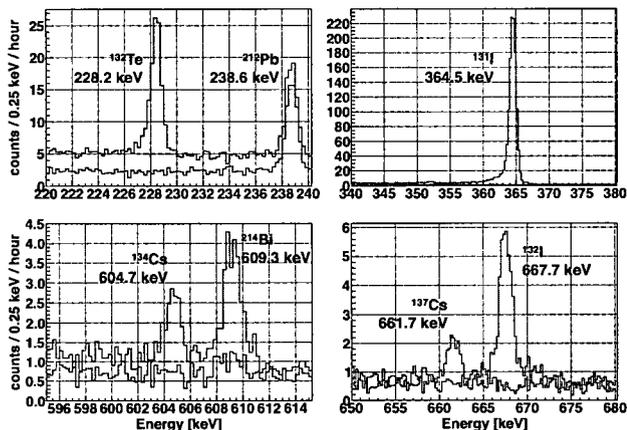


FIG. 2. (Color online) Plot of the 5 strongest gamma lines of ^{131}I , ^{132}I , ^{132}Te , ^{134}Cs , and ^{137}Cs for the air filter PH1 (red) and air filter PH4 (blue) measurements. The change in ^{214}Bi activity is due to fluctuating radon levels during the time of measurement.

$114000 \pm 8000 \text{ m}^3/\text{day}$, which was measured using a Davis 271 Turbo-Meter flowmeter. We bagged and compressed the filters into packages of approximately $10 \times 20 \times 20 \text{ cm}^3$ before placing them into the lead shield for counting. The solid angle for gamma rays emitted within that volume and interacting with the germanium detector was calculated to be $1.6 \pm 0.3\%$.

We started the air monitoring campaign on March 16, 2011. Currently, we have exposed and counted five air filters. The exact exposure and counting periods are listed in Table I. No fission products were detected in the first air filter PH1 and we were able to attribute all the visible gamma lines to known background radioactivity from cosmic-ray induced processes, various radioactive isotopes of the uranium and thorium decay chains, cosmogenic ^7Be , and ^{40}K . The subsequent sample PH2 immediately revealed the onset of several characteristic gamma lines from fission products. The identified isotopes are ^{131}I , ^{132}I , ^{132}Te , ^{134}Cs , and ^{137}Cs . Figure 1 shows the comparison between the gamma ray spectra from air filter PH1 and PH2 where the additional gamma peaks are clearly identifiable. Figure 2 demonstrates the statistical significance of the detected lines by showing the peaks of the strongest decay branches of the five identified isotopes. Finally, Table II gives the initial counting rates for all detected branches of the fission isotopes and the background isotopes ^7Be and ^{40}K . The numbers are normalized to the days of filter exposure and have been corrected for detection efficiency. We obtained the values by summing the appropriate spectral bins in the region of interest and subtracting the sum of the same amount of bins in the side bands. For the cases in which the statistical significance of the extracted signal counts was less than three sigma we calculated the upper limit at

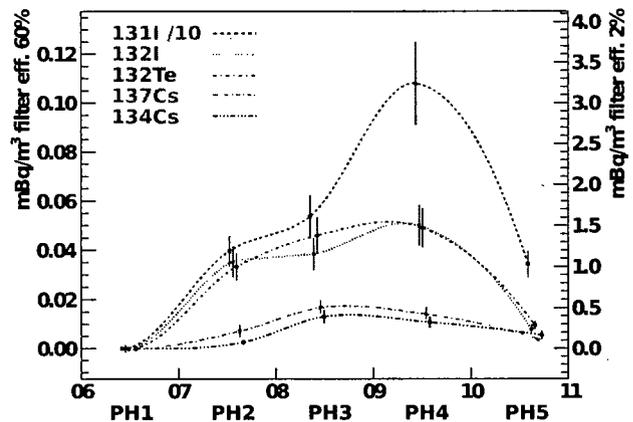


FIG. 3. (Color online) Activities of the five fission isotopes ^{131}I , ^{132}I , ^{132}Te , ^{134}Cs , and ^{137}Cs in air for the five exposed air filters (see Table I). The activity for ^{131}I has been divided by 10. Errors include the systematic errors from geometrical efficiency and air flow. The scale for a filter efficiency ϵ_{filter} of 60% is given on the left side while the right axis is for 2%. The numbers on the x-axis give the days since the earthquake. Points are shown with small offsets to increase visibility.

95% C.L. by employing the Feldman-Cousins formalism [10] for a possible signal given the number of background counts.

From the detected count rates (R_{det}) and measurements and calculations of air flow (Q), filter, geometrical and detection efficiency (ϵ_{filter} , ϵ_{geom} and ϵ_{det}) we are able to calculate the amount of activity present in air (A_{air}) using the known branching ratios (BR):

$$A_{\text{air}} = \frac{R_{\text{det}}}{\text{BR}\epsilon_{\text{det}}\epsilon_{\text{geom}}} \frac{1}{Q\epsilon_{\text{filter}}} \quad (1)$$

In addition, we correct the values for delays in the counting period t_{del} with respect to the end of the exposure using the known lifetimes τ thus calculating the activity present in the filter at the end of the exposure time:

$$A'_{\text{air}} = A_{\text{air}} e^{t_{\text{del}}/\tau} \quad (2)$$

We do not correct for decays during the exposure itself as the time structure of the arrival of the radioactive atoms is unknown. The values for the activities can be found in Fig 3. The activity of ^{131}I is at least a factor of ~ 100 below the limit given by the Environmental Protection Agency of 3.7 Bq/m^3 [11].

While the actual detection of the isotopes is statistically unambiguous a large systematic uncertainty is attributed to the filter efficiency in the air filters due to the poor knowledge of particle sizes (see above) which propagates into our results on the activities in air. Independent of that large systematic uncertainty, several conclusions on the origin of the fission products can be drawn: (i) The value of the ratio of ^{134}Cs to ^{137}Cs atoms

TABLE I. Exposure and counting periods for the data of the five air filters presented here. Times are given in Pacific Time.

Filter	Brand	Exposure	Counting
PH1	AmericanAir	3/16 10am – 3/17 12pm	3/17 4:45pm – 3/18 3:45pm
PH2	AmericanAir	3/17 12pm – 3/18 2pm	3/18 4:30pm – 3/18 7:30pm, 3/18 11:00pm – 3/19 9:00am
PH3	AmericanAir	3/18 2pm – 3/19 9:30am	3/19 11:30am – 3/19 11:30am
PH4	Purolator	3/19 9:30am – 3/20 11am	3/20 12:30pm – 3/21 9:30am
PH5	Purolator	3/20 11am – 3/21 2pm	3/21 4:20pm – 3/22 2:05pm

TABLE II. Detected initial counts per hour R_{det}^* (counts/h/d) for the five filter samples given in Table I normalized to the days of filter exposure. The values have been corrected for decays during the counting time by calculating $R_{det} = N_{det}/(\tau - \tau e^{-T/\tau})$ (counts/h/d) from the detected number of counts per day of exposure N_{det} (counts/d) and the given counting time T and isotope lifetime τ . In addition, we corrected for the measured detector efficiency ϵ_{det} by reporting $R_{det}^* = R_{det}/\epsilon_{det}$. The errors given are statistical only. In addition to the fission isotopes ^{131}I , ^{132}I , ^{132}Te , ^{134}Cs , and ^{137}Cs we also give the values for the two background isotopes ^7Be and ^{40}K . Reported upper limits are at 95% C.L. Information on half lives $T_{1/2}$, gamma energies E_γ , and branching ratios BR have been obtained from [9].

[†]Normalized by counting time and detector efficiency only (counts/h)

Isotope	$T_{1/2}$	E_γ [keV]	BR [%]	R_{det}^* (PH1)	R_{det}^* (PH2)	R_{det}^* (PH3)	R_{det}^* (PH4)	R_{det}^* (PH5)
^{40}K	1.25×10^9 y	1460.8	85.1	221 ± 14 [†]	193 ± 18 [†]	191 ± 13 [†]	222 ± 15 [†]	225 ± 15 [†]
^{131}I	8.03 d	284.3	6.1	< 6	96.4 ± 6.7	128.9 ± 6.5	245.7 ± 7.1	76.4 ± 4.9
		364.5	81.5	< 2	1272 ± 19	1633 ± 18	3364 ± 24	1068 ± 14
		637.0	7.2	< 3	115.8 ± 9.8	144.6 ± 9.7	299 ± 11	100.6 ± 7.7
		722.9	1.8	< 2	< 5	< 37	52.5 ± 8.0	< 28
^{132}I	2.30 h	522.7	16.0	< 4	< 29	27.8 ± 7.0	< 24	< 11
		630.2	13.3	< 2	< 31	< 30	< 33	< 12
		667.7	98.7	< 1	140 ± 11	127 ± 11	190 ± 11	33.6 ± 6.8
		772.6	75.6	< 6	83 ± 11	119 ± 10	143 ± 10	< 25
^{132}Te	3.20 d	954.6	17.6	< 4	< 9	31.6 ± 9.4	30.2 ± 8.2	< 9
		228.2	88.0	< 3	119.5 ± 6.4	139.3 ± 6.4	173.2 ± 6.2	30.6 ± 4.1
^{133}I	20.8 h	529.9	87.0	< 13	< 35	< 23	< 13	< 9
^{134}Cs	2.07 y	604.7	97.6	< 4	< 20	38.4 ± 8.3	26.1 ± 7.5	19.3 ± 6.0
		795.9	85.5	< 12	26.1 ± 7.8	53.2 ± 8.3	66.3 ± 7.0	26.5 ± 6.2
^{137}Cs	30.08 y	661.7	85.1	< 2	30.5 ± 8.2	45.6 ± 8.4	30.1 ± 7.3	19.6 ± 6.0

of ~ 0.1 is indicative of the release of the fission products from a nuclear reactor and not from nuclear weapons [2]. (ii) The presence of the relatively short lived isotopes ^{131}I and ^{132}Te shows that the fission products had been released primarily from recently active fuel rods as opposed to spent fuel. (iii) The notable absence of $T_{1/2} = 20.8$ h ^{133}I in our spectra, together with the known steady state ratio of ^{133}I to ^{131}I of ~ 2 [2, 12] allows us to put a lower limit of ~ 8 d on the time between the end of steady state nuclear fuel burning and the arrival of the fission products at our location. This is approximately consistent with the time between reactor shutdown and the beginning of the exposure of air filter PH2 of ~ 7 d. (iv) It is striking that we see only three of the many possible fission product elements. This points to a specific process of release into the atmosphere. The exact process and why it would be selective requires further investigation, but we can speculate that the release of fission products

to the atmosphere is the result of evaporation of contaminated steam, in which CsI is very soluble. Chernobyl debris, conversely, showed a much broader spectrum of elements [2], reflecting the direct dispersal of active fuel elements.

This report covers the first five days of air radiation monitoring at the University of Washington and is intended to inform a wider public about the exact time and nature of the arrival of fission products to the US West coast. We note that the observed radioactivity levels are well below alarming limits at our location. We will continue to monitor air radiation levels and update important findings at <http://www.npl.washington.edu/monitoring>. In addition, we are working to decrease our dominant systematic uncertainty, understand the exact nature of the release of the fission products and correlate our measurements with weather and transport models.

We are grateful to J. Orrell and H. S. Miley for the loan of equipment and advice. We also benefited from conversations with M. Savage, J. Gundlach, and B. Taylor. The support by the staff of the physics building of the University of Washington, in particular J. Alferness, proved invaluable. This work has been supported by DOE under DE-FG02-97ER41020.

* knechta@uw.edu

- [1] S. R. Elliott et al., *J. Phys.: Conf. Ser.* **173**, 012007 (2009).
- [2] L. Devell et al., *Nature* **321**, 192 (1986).
- [3] S. E. Kellogg, J. H. Gundlach and C. W. Stubbs, *CENPA Annual Report*, University of Washington, p. 59 (1986).
- [4] P.S. Barbeau et al., *JCAP* **09**, 009 (2007).
- [5] Model PerfectPleat ULTRA, <http://www.aafintl.com>.
- [6] Model DMK80-STD2, <http://www.purolatorair.com>.
- [7] M. Yoshimori et al., *Adv. Space Res.* **32**, 2691 (2003).
- [8] P. G. Bergamini et al., *Health Physics* **24**, 655 (1973).
- [9] National Nuclear Data Center, <http://www.nndc.bnl.gov>.
- [10] G. J. Feldman and R. D. Cousins, *Phys. Rev. D* **57**, 3873 (1998).
- [11] Summary at http://www.atsdr.cdc.gov/csem/iodine/standards_regulations.html.
- [12] Isotope Project, <http://ie.lbl.gov/>

Weaver, Tonna

From: Hasselberg, Rick *in SR*
Sent: Tuesday, March 29, 2011 2:21 PM
To: Brown, Eva; Brown, Frederick; Ruland, William; Holian, Brian; Hiland, Patrick; Skeen, David; Hackett, Edwin; Case, Michael; Howe, Allen; Dudes, Laura; Dozier, Jerry; Alter, Peter; RST01 Hoc; Hasselberg, Rick; Rini, Brett; Boyce, Tom (RES); Dion, Jeanne; Thomas, Eric; Collins, Frank; Orr, Mark; Morlang, Gary; Schoenebeck, Greg; Bukharin, Oleg; Circle, Jeff; Laur, Steven; Helton, Donald; Arndt, Steven; Skarda, Raymond; Mitman, Jeffrey; Gilmer, James; Ward, Leonard; Harrison, Donnie; Esmaili, Hossein; Fuller, Edward; Chung, Donald; Zoulis, Antonios; Gavrilas, Mirela; Gilmer, James; Mitman, Jeffrey; Alter, Peter; Norton, Charles; Summers, Robert; Brown, Michael; Shea, James; Shea, James; Thorp, John; Hart, Ken; Roggenbrodt, William; Williams, Donna; Solorio, Dave; Reeves, Rosemary; Bhachu, Ujagar; Gardocki, Stanley; McGovern, Denise; Padovan, Mark; Jervey, Richard; Horn, Brian; Kugler, Andrew; Bloom, Steven; Ramadan, Liliana; Dube, Donald; Thompson, Jon; Chung, Donald; Koshy, Thomas; Zoulis, Antonios; Wong, See-Meng; Skarda, Raymond; Beasley, Benjamin; Jervey, Richard; Starefos, Joelle; Kavanagh, Kerri; Bukharin, Oleg; Marshall, Shawn
Cc: Gray, Kathy; Dozier, Jerry; Alter, Peter
Subject: RST Watch Bill Updated as of 1400 on Monday March 29th
Attachments: 03-24 to 04-09 RST Watch Bill as of 1400 on 03-29-11.pdf

RST Members,

Attached is the RST watch bill as of this time (1400) on Tuesday 3/29. We have incorporated your bids to fill in some of the holes we had identified yesterday and you will see that we are much closer to meeting our objectives. But there are still some holes to fill, especially in the BWR Systems and Operations Analyst's position.

Remember, if you need to change something on the watch bill, or to offer yourself for an additional shift, please do the following:

For RST Directors, **please contact Kathy Gray**. Kathy oversees the RST Director watch standers. Kathy will pass her updates to me (Rick Hasselberg) and to Peter Alter.

For Accident Analysts/Severe Accident analysts – **please contact Jerry Dozier**. Jerry is overseeing the staffing of that position. Jerry will pass his updates to me and to Peter Alter.

For all other RST positions, please e-mail **both** me and Peter Alter. Peter and I will make all the changes on the watch bill and make sure that our changes get captured in the Master Roll-up document maintained by the OST/EST.

Please do not mark-up a watch bill sitting around the Ops Center. That doesn't help.

Please do not contact the OST/EST to make changes. That only leads to confusion. All changes have to reach either Peter Alter or me. We will get changes placed on the RST and master watch bills. Thanks!

And repeating the thought from yesterday - You folks are awesome! You're part of the history of this agency and most likely the history of the nuclear industry. For better or worse, we're all in this together. God bless us all. Thanks again!

Rick

Rick Hasselberg
Sr. Emergency Response Coordinator
NRC Reactor Safety Team
Office of Nuclear Security and Incident Response

M/S T-4A43
Office - 301-415-6417

03-24 to 04-09 RST Watch Bill as of 1400 on 03-29-11.xlsx

<u>Date</u>	<u>Day</u>	<u>Time</u>	<u>Shift</u>	<u>RST Director</u>	<u>RST Coordinator</u>	<u>Accident Analyst</u>	<u>BWR Expert</u>	<u>RST Communicator</u>
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04/01/2011	Friday	1500 - 2300	Swing	Bill Ruland	Mark Orr	Don Helton	Chuck Norton	Dave Solario
04/01/2011	Friday	2300 - 0700	Midnight	Mike Case	Frank Collins	Ray Skarda	Eva Brown	Liliana Ramadan
04/02/2011	Saturday	0700 - 1500	Day	Brian Holian	Peter Alter	Hossein Esmaili	Mike Brown	John Thorp
04/02/2011	Saturday	1500 - 2300	Swing	Pat Hiland	Brett Rini	Donald Chung	Chuck Norton	Stan Gardocki
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03-24 to 04-09 RST Watch Bill as of 1400 on 03-29-11.xlsx

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From: Nuclear Plant Journal [anu@goinfo.com]
Sent: Tuesday, March 29, 2011 5:07 PM
To: Panicker, Mathew
Subject: NPJ E-News March 29, 2011 Fukushima Update

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Nuclear Plant Journal E-News

Japan Update
March 29, 2011

Dear MATHEW,

In this issue of NPJ E-News you'll find an update of the Fukushima Nuclear Plants in Japan. Information is current as of March 29, 2011, 15:00 CDT. All items are directly quoted, without any editing.

In this issue

[TEPCO Update](#)

[Status Document](#)

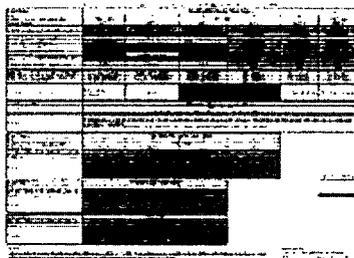
[US NRC FAQs](#)

TEPCO Update

From the [TEPCO website](#):

- From 2:17pm to 6:18pm, March 29th, water was injected into Unit 3 from a concrete pumping vehicle. Until March 28th, we had been injecting sea water, however, from March 29th, we started injecting fresh water.
- At Unit 2, seawater had been injected from the fire fighting pump, but at 4:30pm, March 29th, we started injecting fresh water from a temporary motor driven pump instead. The water was injected until 6:25pm, March 29th.

[Click for more...](#)



JAIF Status Update

Update 46, March 29, 2011

A [PDF document](#) provides a simple summary of each of the units at Fukushima nuclear power plants. This is a multi-page document that also provides a chronology of events and a map

1/27/11

that details the status of each of the Japanese nuclear units.

[Earthquake Update 36.](#)

US NRC FAQs related to Fukushima earthquake and subsequent events



NRC [frequently asked questions](#) related to the March 11, 2011 Japanese Earthquake and Tsunami. Some sample questions:

- Can an earthquake and tsunami as large as happened in Japan also happen here?
- Did the Japanese underestimate the size of the maximum credible earthquake and tsunami that could affect the plants?
- How high was the tsunami at the Fukushima nuclear plants?
- Was the damage to the Japanese nuclear plants mostly from the earthquake or the tsunami?

Quick Links...

- [NPJ Website](#)
- [Cost-free Subscription](#) (to NPJ)
- [JAIF](#)
- [TEPCO](#)
- [NISA](#)
- [U.S. NRC Actions on Japan](#)

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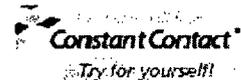
Contact Information

phone: 630-313-6739

email: NPJ@goinfo.com

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Nuclear Plant Journal · 1400 Opus Place, Suite 904 · Downers Grove IL · 60515

Weaver, Tonna

From: Grobe, Jack
Sent: Tuesday, March 29, 2011 6:19 PM
To: Bahadur, Sher; Leeds, Eric; Miller, Charles; Holahan, Gary
Cc: Ulses, Anthony; Trapp, James; Ruland, William
Subject: Re: Recommendation: Tony Ulses briefing

We need to see if it would be more effective to meet with Tony separately or with Tony and others together. Maybe Tony and Jim this week?

Jack Grobe, Deputy Director, NRR

From: Bahadur, Sher
To: Leeds, Eric; Miller, Charles; Grobe, Jack; Holahan, Gary
Cc: Ulses, Anthony; Trapp, James; Ruland, William
Sent: Tue Mar 29 17:57:08 2011
Subject: Re: Recommendation: Tony Ulses briefing

I will ask Tony Ulses to get on Task Force's calendar at the earliest availability of its members.

Sher Bahadur

Sent from a US NRC BlackBerry

From: Leeds, Eric
To: Miller, Charles; Grobe, Jack; Holahan, Gary
Cc: Ulses, Anthony; Bahadur, Sher; Trapp, James
Sent: Tue Mar 29 17:39:32 2011
Subject: Recommendation: Tony Ulses briefing

I recommend that the task force receive a brief from Tony Ulses now that he's returned from Japan. I've spoken with Tony and he is ready willing and able, and he and Jim Trapp were there the first several critical days and have info that the other team members do not.

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

4/27/11

Weaver, Tonna

From: Scott, Michael *RES*
Sent: Tuesday, March 29, 2011 8:35 PM
To: Nakanishi, Tony
Subject: FW: Spent Fuel Pools - Structural Integrity

From: Sheikh, Abdul *INER*
Sent: Tuesday, March 29, 2011 8:18 PM
To: Scott, Michael
Cc: Ali, Syed
Subject: Spent Fuel Pools - Structural Integrity

Question for 11:00 AM meeting

Have you (TEPCO/NISA) determined the extent of damage to the concrete floors at Level 5, 4, 3 around the spent fuel pool (SFP). Damage to these concrete floor slabs may affect the ability of the SFP to be filled to the top. The SFP walls may behave as 13 meters (40 feet) high cantilevers supported from the Level 3 floor.

Kock, Andrea

From: Zorn, Jason
Sent: Tuesday, March 29, 2011 7:30 AM
To: Ostendorff, William; Nieh, Ho; Kock, Andrea; Franovich, Mike
Subject: FW: Nuclear power: Science, not fear, should drive America's energy policies - SignOnSanDiego.com

Interesting editorial on the Japan accident and the US response. The author is Rep. Brian Bilbray who is on the House Energy and Commerce Committee.

<http://www.signonsandiego.com/news/2011/mar/27/science-not-fear-should-drive-americas-energy/>

4/27/4

Bozin, Sunny

From: Franovich, Mike
Sent: Tuesday, March 29, 2011 8:49 AM
To: Zorn, Jason; Ostendorff, William; Nieh, Ho; Kock, Andrea
Subject: RE: Nuclear power: Science, not fear, should drive America's energy policies - SignOnSanDiego.com

The voice of calm and reason and a good 50,000 ft perspective....

Also, not only are the seawalls 50 percent greater than at Daiichi, the maximum estimated Tsunami (at high tide) given the topography/runup is far less than what actually exists or was experienced at Daiichi or Daini.

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

From: Zorn, Jason
Sent: Tuesday, March 29, 2011 7:30 AM
To: Ostendorff, William; Nieh, Ho; Kock, Andrea; Franovich, Mike
Subject: FW: Nuclear power: Science, not fear, should drive America's energy policies - SignOnSanDiego.com

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<http://www.signonsandiego.com/news/2011/mar/27/science-not-fear-should-drive-americas-energy/>

4/275

Bozin, Sunny

From: Herr, Linda
Sent: Tuesday, March 29, 2011 7:36 AM
To: Nieh, Ho
Subject: FW:
Attachments: Invitation to Commissioner Ostendorff.doc; Conferences.pdf

Ho:
I'm getting queries as to whether WCO would be interested in doing this. The folder is on your desk.
Thanks!
Linda

From: Inglesby, Thomas [<mailto:tinglesby@upmc-biosecurity.org>]
Sent: Thursday, March 24, 2011 1:22 PM
To: CMROSTENDORFF Resource
Cc: Herr, Linda; Jasen, Maria
Subject:

Dear Commissioner Ostendorff,

I would like to invite you to speak at a mtg our Center is hosting in Washington DC on May 19th entitled: "**Advancing U.S. Resilience to a Nuclear Catastrophe.**"
(Full details of the meeting are in the attached invitation, as is information on the conference series this meeting is a part of.)

The primary focus of the meeting has been to advance policy and planning to save lives in the US after a nuclear detonation. However, given the events in Japan in the last 10 days, we think it is very important to for our meeting to now also consider how lessons from the Japanese nuclear crisis might affect US planning to respond to large scale radiation emergencies.

We would be honored to have you speak about these issues at our meeting.

Very much hope you can join us.

With best regards,
Tom Inglesby

Thomas V. Inglesby, MD
CEO & Director
Center for Biosecurity-UPMC
The Pier IV Building
621 E. Pratt Sreet., Suite 210
Baltimore, MD 21202

Telephone: (443) 573-3329
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Center for Biosecurity of UPMC

621 East Pratt Street, Suite 210 • Baltimore, MD 21202 -3143 • T: 443 573-3304 • F: 443 573-3305
www.upmc-biosecurity.org

March 24, 2011

Commissioner William C. Ostendorff
U.S. Nuclear Regulatory Commission
Mail Stop O-16G4
Washington, DC
20555-0001

Commissioner Ostendorff,

On behalf of the Center for Biosecurity of the University of Pittsburgh Medical Center (UPMC), I'd like to invite you to speak at a meeting entitled "**Advancing U.S. Resilience to a Nuclear Catastrophe**" on **Thursday, May 19**, in **Washington, DC**. The meeting is being sponsored by our organization, with funding from The Alfred P. Sloan Foundation.

This meeting will focus on policies and practices that could strengthen the capacity of major U.S. cities and the nation as a whole, to recover from a nuclear catastrophe, with particular focus on responding to a terrorist detonation of a nuclear weapon and on what we might learn from the nuclear incident in Japan. This meeting follows a year of developments since our first conference on nuclear detonation response and recovery in April 2010. The importance of these issues is all the more evident after the events in Japan last week.

Speakers will present on:

- Concrete steps for cities to implement now that would enable residents to act swiftly to prevent exposure to radioactive fallout, possibly saving tens of thousands of lives after such an event;
- High leverage actions related to medical response that could be taken to spare the most lives possible following a nuclear detonation;
- Governance challenges for managing such a crisis;
- Lessons emerging from Japan about responding to large scale radiation emergencies

We would be greatly honored if you accepted our invitation to speak on: ***Lessons for the US from the Japanese March 2011 nuclear crisis.***

Invitation to Commissioner William C. Ostendorff
March 24, 2011

We have also invited speakers from across the US Government (White House National Security Council, FEMA, DOE, CDC), leading experts from the UK and Japan as well as a variety of highly recognized technical experts, officials from the federal, state and local government as well as the private sector.

Attendees at the meeting will be Administration officials and program managers, policy analysts, scholars, public health and emergency management leaders, Congressional staff, and members of the media. We expect 150-175 attendees. The meeting will take place from 9:00 am – 5:00 pm (with a reception immediately following) at the Capitol Hill Hyatt Regency, 400 New Jersey Avenue, NW in Washington.

This meeting is part of a *Center Conference Series on Advancing Policy and Practice* which in prior meetings has included presentations by DHHS Secretary **Kathleen Sebelius**; FDA Commissioner **Margaret Hamburg**; CDC Director **Tom Frieden**; Assistant to the Secretary of Defense for Nuclear and Chemical and Biological Defense Programs, **Andy Weber**; former Secretary of the Navy **Richard Danzig**; Lawrence Livermore expert Brooke Buddemeier; NSC officials **Laura Holgate, Brian Kamoie, Ben Petro & Richard Hatchett**; former White House Homeland officials **Richard Falkenrath and Bob Kadlec**; **Jeanne Meserve** from CNN & **Richard Besser** from ABC news; **Joan Rolfing** from the Nuclear Threat Initiative; and, many other national and international leaders and experts. Information and links to past meetings on the series is in the attachment.

We would of course cover all of your travel related costs.

My email is tinglesby@upmc-biosecurity.org and phone number is 443-573-3329 if you have any questions. Thank you for considering the invitation.

With best regards,



Thomas V. Inglesby, MD
CEO & Director
Center for Biosecurity of UPMC

Conference Series on Advancing Policy and Practice

The Center for Biosecurity's ongoing Washington, DC, conference series, Advancing Policy and Practice, provides a national forum for expert discussion of future directions for U.S. federal policy to improve response to and recovery from biological and nuclear terrorism and other catastrophic health events. For all conference proceedings, please visit: www.upmc-biosecurity.org/events.



Preserving National Security: The Growing Role of the Life Sciences

March 2011

This meeting focused on the expanding and evolving connections between advances in the life sciences and U.S. national security, with exploration and discussion of topics ranging from USG programs and priorities in the life sciences and biosecurity, to U.S. competitiveness in the global life science market, to the need for scientists to learn how to engage the public in meaningful discussion.

Conference Proceedings:

<http://upmc-biosecurity.org/lifesci>



The State of Biopreparedness

September 2010

This in-depth exploration of topics in biopreparedness focused on accomplishments to date, challenges for the future, and next steps toward preparedness for catastrophic health events.

Conference Proceedings:

www.upmc-biosecurity.org/biopreparedness



Improving Global Health, Strengthening Global Security

November 2010

An exploration of policies and programs essential to improving global public health and strengthening global security, with a focus on such topics as international cooperation on BWC and IHR, surveillance and prevention of human and animal disease, and international exchange of data, pathogens, and technical information.

Conference Proceedings:

www.upmc-biosecurity.org/globalhealthsecurity



Preparing to Save Lives & Recover After a Nuclear Detonation

April 2010

The Center convened this first-of-its-kind meeting to examine interventions that could save tens of thousands of lives and help begin the recovery process following a nuclear detonation, including: planning for reliable delivery of information to and clear communication with the public, swift mobilization of emergency workers, effective medical response, and remedying vulnerabilities that threaten to undermine continuity of the U.S. government.

Conference Proceedings:

www.upmc-biosecurity.org/2010_nuke_conference

Conference Proceedings & Reports | After each conference, the Center for Biosecurity makes available the videotaped proceedings of the meeting, along with a conference report, professional biographies for each speaker, and a list of attendees. These materials may be accessed at www.upmc-biosecurity.org/events. Conference reports are also published in the journal *Biosecurity & Bioterrorism: Biodefense Strategy, Practice, & Science*: <http://www.liebertonline.com/loi/bsp/>.

Advancing Policy and Practice Series



The 2009 H1N1 Experience: Policy Implications

March 2010

This conference examined U.S. policies and programs put into place in response to the 2009 H1N1 pandemic and considered the implications of those efforts for future national infectious disease emergencies. A range of forthright discussions and new proposals were offered to improve response to future infectious disease emergencies.

Conference Proceedings:

www.upmc-biosecurity.org/2009_H1N1_experience



Resilient American Communities

December 2009

This was the first national meeting to bring together policymakers, practitioners, and scholars to provide recommendations to the federal government on building community resilience to disasters, a stated priority of the Obama Administration, as reflected in the HHS National Health Security Strategy and the DHS Quadrennial Homeland Security Review.

Conference Proceedings:

www.upmc-biosecurity.org/resilientcommunitiesconf



Prevention of Biothreats—A Look Ahead

October 2009

The first national meeting to convene leading experts and officials to examine all major components of U.S. bioprevention policy, including the status of the BWC and IHR; UN Security Council resolutions to prevent unlawful acquisition of materials, equipment, and information; deterrence strategy; forensics; and laboratory security.

Conference Proceedings:

www.upmc-biosecurity.org/preventionconf

Weaver, Tonna

From: Giessner, John
Sent: Wednesday, March 30, 2011 4:32 AM
To: Nakanishi, Tony
Subject: Fw: bullet

(Sent from Blackberry)

From: Giessner, John
To: Giessner, John
Sent: Wed Mar 30 04:31:11 2011
Subject: bullet

INRR

- good 11am meeting; a lot additional data provided. We will be reviewing.
- Slow progress setting up purge (date set up is 1-3 April maybe).
- Reactor team attempting get a measure of the sense of urgency on reactor stratgey; regarding whether to keep current conditions (meeting minimum flow rate and wait for purge) versus possible filling. We think the consortium should revisit the issue based on current plant conditions. RST to take the lead
- some difference of opinion on SFP#4. Some members of the consortium believe the pool is not an issue.

Weaver, Tonna

From: Foster, Jack *JF*
Sent: Wednesday, March 30, 2011 9:32 AM
To: Sanfilippo, Nathan; Trapp, James; Ulses, Anthony
Subject: RE: ACTION: Near-term task force

yes...

From: Sanfilippo, Nathan *NKR*
Sent: Wednesday, March 30, 2011 9:16 AM
To: Trapp, James; Foster, Jack; Ulses, Anthony
Subject: ACTION: Near-term task force

Gentlemen,

As you may or may not be aware, the agency has formed a senior level task force (led by Charlie Miller) to look at the safety of U.S. plants based on what we've learned in Japan. Now that you've returned from Japan, the task force would love to get some insights from your experience. Would you all be available on Thursday to meet with us?

Thanks,
Nathan

Jenkins, Ronaldo

From: Kang, Peter
Sent: Wednesday, March 30, 2011 3:31 PM
To: Jenkins, Ronaldo; Chopra, Om; Pal, Amar
Cc: Mathew, Roy; Wilson, George; Som, Swagata
Subject: Japan's industry minister has urged power companies to secure emergency energy sources for their nuclear power stations

Enclosed is from NHK world

Kaieda urges safety steps at other nuclear plants

Japan's industry minister has urged power companies across the country to secure emergency energy sources for their nuclear power stations.

Banri Kaieda told reporters on Wednesday that the accident at the Fukushima Daiichi plant was due to a failure to secure emergency electricity and a loss of cooling systems at the reactors.

Kaieda urged utility companies to secure mobile generators as a source of emergency power that can safely cool nuclear reactors, and to ensure water-supply routes for fire engines.

He demanded that the companies confirm emergency steps and conduct drills within a month, or stop operating their nuclear power plants.

Kaieda added that putting an immediate end to operations at nuclear power plants is out of the question, because Japan relies on them for about 30 percent of its electricity.

NHK has learned that 90 percent of the 15 nuclear power stations nationwide, excluding the 2 quake-hit plants in Fukushima, have decided to introduce new emergency power generators, including mobile generators.

Some utilities have already conducted simulations for cooling procedures based on a scenario in which emergency generators have failed to work at their nuclear reactors.

Wednesday, March 30, 2011 16:57 +0900 (JST)

Weaver, Tonna

From: World Nuclear News [wnn=world-nuclear-news.org@mcsv2.net] on behalf of World Nuclear News [wnn@world-nuclear-news.org]
Sent: Wednesday, March 30, 2011 11:59 AM
To: Panicker, Mathew
Subject: WNN Daily: Cooling standard could hit power plants

[View the WNN Daily in your browser.](#)

WNN DAILY
world nuclear news

Today's top stories

30 March 2011

REGULATION & SAFETY: Cooling standard could hit power plants
More than 600 power plants, including over half of the US nuclear fleet, may be forced to retrofit once-through cooling systems with cooling towers under a proposed rule issued by the country's Environmental Protection Agency.

CORPORATE: Future of reactors old and new
Reactors 1 to 4 at Fukushima Daiichi are highly likely to be written off, Tokyo Electric Power Company has said. The fate of undamaged units 5 and 6 may lie in the hands of local residents, as may plans for new units.

REGULATION & SAFETY: Tsunami likely filled trenches
Analysis of the trenches at Fukushima Daiichi indicates they were probably flooded by the tsunami. Low radioactivity in one trench may result from capture of radionuclides from the air but high levels in another are unexplained.

EXPLORATION & NUCLEAR FUEL: Feasibility study for Olympic Dam
BHP Billiton has announced that its plans for a massive expansion of operations at the Olympic Dam mine in South Australia have moved to the feasibility study phase.

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Carlton House, 22a St James's Square
London, Westminster SW1Y4JH

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King, Mark

From: Thompson, John *JKC*
Sent: Wednesday, March 30, 2011 1:42 PM
To: King, Mark; Garmon, David; Thomas, Eric; Thorp, John; Sigmon, Rebecca; Giantelli, Joseph; Fields, Leslie
Cc: NRR_DIRS_IOEB Distribution
Subject: RE: Japan Nuclear Incident Explanation Presentation

A bit of trivia:

I don't know who copied who between the DOE slides and Dr Braun of Areva, but there is mentioned in the Areva slides of a caution where potassium iodide pills can interfere with heart medications (p. 29). I think this is a reference to established protocol for treatment of one of the most common forms of heart arrhythmias, otherwise known as atrial fibrillation. One drug used to treat this condition is amiodarone, which is a form of iodine itself. Amiodarone is an antiarrhythmic agent (medication used for irregular heart beat) and also used for various types of tachyarrhythmias (fast forms of irregular heart beat), both ventricular and supraventricular (atrial) arrhythmias.

Amiodarone is also used in advanced cardiac life support emergency protocols for cardiac arrests and other arrhythmias. This drug is complex in that it has significant side effects that are hard to control. Taking additional iodine in the form of potassium iodide pills on top of amiodarone causes significant complications for patients.

From: King, Mark *JKC*
Sent: Wednesday, March 30, 2011 10:53 AM
To: Garmon, David
Cc: NRR_DIRS_IOEB Distribution
Subject: FW: Japan Nuclear Incident Explanation Presentation

Interesting power point slide presentation that Leslie has shared.
See the attached item:

From: Fields, Leslie
Sent: Wednesday, March 30, 2011 10:50 AM
To: King, Mark
Subject: FW: Japan Nuclear Incident Explanation Presentation

fyi

From: dave.krause@dpimc.com [mailto:dave.krause@dpimc.com]
Sent: Friday, March 25, 2011 10:40 AM
To: Fredrichs, Thomas; Pittiglio, Clayton; Simmons, Anneliese
Cc: njc@abzinc.com
Subject: Japan Nuclear Incident Explanation Presentation

Tom, Larry & Anneliese,

Nick Capik of ABZ (a nuclear decommissioning engineering firm) sent me this presentation, which does an excellent job of explaining the construction and the impact of the tsunami for one of the affected nuclear plants in Japan. To view the presentation and advance each page, left click your mouse.

Dave Krause
Duff & Phelps Investment Management Co.

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King, Mark

From: Tabatabai, Omid *MTW*
Sent: Wednesday, March 30, 2011 10:23 AM
To: King, Mark; Thorp, John; Copeland, Douglas; Craffey, Ryan; Harmon, David; Issa, Alfred; Patel, Jay
Cc: Tappert, John; Dudes, Laura
Subject: ARTICLE: NRC, critic disagree on lessons for U.S. from Japan nuclear crisis

From CNN International...

By **Mike M. Ahlers**, CNN
March 29, 2011 -- Updated 2323 GMT (0723 HKT)

- NRC executive says nothing from Japan so far suggests changes are needed in the U.S. A nuclear engineer says changes are needed in battery power and spent fuel pools "We will enhance safety as a result of Fukushima," a nuclear industry representative says

Washington (CNN) – Two weeks into Japan's nuclear crisis, a top U.S. Nuclear Regulatory Commission official and an industry critic gave Congress starkly different opinions on whether lessons can already be gleaned from the disaster and applied to U.S. plants.

The commission's executive director, Bill Borchardt, repeated the agency's view that United States' 104 nuclear reactors are safe, and said early information out of Japan does not suggest changes are needed, at least so far. But a representative from an industry watchdog group strongly disagreed, saying Fukushima Daiichi has exposed vulnerabilities in U.S. plants that deserve immediate attention. Chief among them, he said, is that U.S. plants need more emergency batteries to cope with longer power blackouts, and plants should reduce the amount of fuel stored in spent fuel pools.

"There are lessons, learned at high cost in Japan, that can and should be applied to lessen the vulnerabilities at U.S. reactors," said David Lochbaum, a nuclear engineer with the Union of Concerned Scientists.

The hearing before the Senate Energy Committee brought together representatives of government, industry and the Union of Concerned Scientists, all of whom said radiation from Fukushima Daiichi does not pose a significant health threat to people in the United States. But they differed on whether the Japanese experience demonstrates a need for immediate action in the United States.

Last week, the Nuclear Regulatory Commission launched a 90-day review of the Fukushima disaster and ordered its staff to release "quick reports" in 30 and 60 days.

"I'll knock on wood as I ask this question," said Sen. Bob Corker, R-Tennessee. "Your sense is that you've seen nothing in Japan so far that you haven't already tried to engineer or change in our own existing facilities of that nature?"

"I would say that's true," Borchardt replied. "But that's why we're doing this extensive both short-term and long-term review."

Borchardt said past incidents have led to safety improvements. The 1979 accident at Three Mile Island near Harrisburg, Pennsylvania, led to expansion of a program placing resident inspectors at every nuclear power plant, he noted. The United States also requires inert gas inside containment buildings to protect them from hydrogen explosions, and requires plants to have severe accident mitigation guidelines.

But the Lochbaum criticized the pace of change.

"If the past three decades have demonstrated anything, it's that the NRC will likely come up with a solid action plan to address problems revealed at Fukushima, but will be glacially slow in implementing those identified safety upgrades," he said.

Lochbaum said the agency should require nuclear plants to be able to withstand longer power shortages. Among other things, the United States should upgrade the batteries that are a back-up source of power. Like Fukushima, 11

U.S. nuclear plants have eight hours of battery capacity, Lochbaum said. Ninety-three have only four hours of capacity, he said.

"I think we can do that. I don't think it's difficult. I think Japan showed the price of not doing that," Lochbaum said.

"So I think it's cheap insurance for the reactors in the United States to go ahead and do that."

An industry representative agreed with Lochbaum that the industry should develop severe accident mitigation plans for spent fuel pools.

"We have some measures in place, but not to the extent we do for the reactors," said Anthony Pietrangelo of the Nuclear Energy Institute.

Pietrangelo told the committee the Fukushima incident has prompted the industry to review existing measures, and consider staging emergency equipment regionally.

"One thing I can say going forward is that our industry, our hallmark is learning from operating experience,"

Pietrangelo said. "We will enhance safety as a result of Fukushima, we will get these lessons learned. ... We started that already but it's going to take a long time to get a full understanding of what transpired there. But when we do, I can assure you that we will enhance safety margins across the industry."

Thanks,
Omid

King, Mark

From: King, Mark *MR*
Sent: Wednesday, March 30, 2011 10:53 AM
To: Garmon, David
Cc: NRR_DIRS_IOEB Distribution
Subject: FW: Japan Nuclear Incident Explanation Presentation
Attachments: Fukuchima_eng_20110320.pps

Interesting power point slide presentation that Leslie has shared.
[See the attached item.](#)

From: Fields, Leslie
Sent: Wednesday, March 30, 2011 10:50 AM
To: King, Mark
Subject: FW: Japan Nuclear Incident Explanation Presentation

fyi

From: dave.krause@dpimc.com [<mailto:dave.krause@dpimc.com>]
Sent: Friday, March 25, 2011 10:40 AM
To: Fredrichs, Thomas; Pittiglio, Clayton; Simmons, Anneliese
Cc: njc@abzinc.com
Subject: Japan Nuclear Incident Explanation Presentation

Tom, Larry & Anneliese,

Nick Capik of ABZ (a nuclear decommissioning engineering firm) sent me this presentation, which does an excellent job of explaining the construction and the impact of the tsunami for one of the affected nuclear plants in Japan. [To view the presentation and advance each page, left click your mouse.](#)

Dave Krause
Duff & Phelps Investment Management Co.

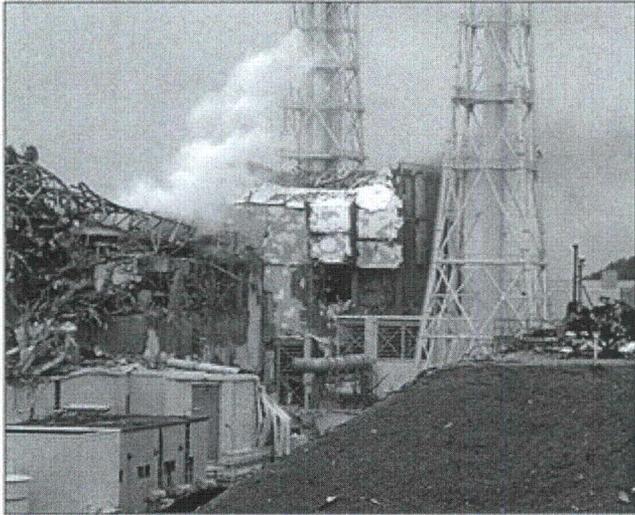
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King, Mark

From: King, Mark *in RR*
Sent: Wednesday, March 30, 2011 10:51 AM
To: Fields, Leslie
Subject: RE: Japan Nuclear Incident Explanation Presentation Also see - the Senate hearing link from C-span

- Nuclear Regulators Give Update on Crisis in Japan

Updated 50 min. ago



Associated Press / Tokyo Electric Power Co. via Kyodo News

- **SENATE ENERGY HEARING: LIVE NOW ON C-SPAN3**
- [US Senators ask nuclear regulators about U.S. risk](#)

As the Japanese continue their efforts to stabilize the damaged nuclear power plant in Fukushima and contain radiation, public concern has grown in the United States about existing nuclear plants such as New York's Indian Point, and the Diablo Canyon and San Onofre nuclear plants in California, which lie near fault lines.

Today, lawmakers on Capitol Hill are reviewing U.S. nuclear safety regulations in light of the devastation following the earthquake and tsunami in Japan. Nuclear Regulatory Commission Chairman Greg Jaczko and Department of Energy Acting Assistant Secretary for Nuclear Energy Pete Lyon provide an update on the ongoing review of U.S. nuclear plants at today's Senate Appropriations Subcommittee on Energy and Water Development Subcommittee. Jaczko has just returned from a trip to Japan and will brief the members on his visit.

MORE »

From: Fields, Leslie
Sent: Wednesday, March 30, 2011 10:50 AM
To: King, Mark
Subject: FW: Japan Nuclear Incident Explanation Presentation

fyi

From: dave.krause@dpimc.com [<mailto:dave.krause@dpimc.com>]
Sent: Friday, March 25, 2011 10:40 AM
To: Fredrichs, Thomas; Pittiglio, Clayton; Simmons, Anneliese
Cc: njc@abzinc.com
Subject: Japan Nuclear Incident Explanation Presentation

4/284

om, Larry & Anneliese,

Nick Capik of ABZ (a nuclear decommissioning engineering firm) sent me this presentation, which does an excellent job of explaining the construction and the impact of the tsunami for one of the affected nuclear plants in Japan. To view the presentation and advance each page, left click your mouse.

Dave Krause
Duff & Phelps Investment Management Co.

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From: [Janbergs, Holly](#) on behalf of [OPA Resource](#)
To: [McIntyre, David](#)
Subject: FW: Japan's reactors
Date: Wednesday, March 30, 2011 9:55:00 AM

Unsure how to handle - do we have someone who can address technical comments like this, or should we give him the stock "we're doing what we can" answer?

-Bethany

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

From: Love, Michael Lynn. (MSFC-AS42)[URS Logistics] [<mailto:michael.love@nasa.gov>]
Sent: Wednesday, March 30, 2011 9:33 AM
To: OPA Resource
Subject: Japan's reactors

Currently I have read about the use of seawater for cooling and the contamination.

May I suggest that they begin to pump nitrogen into the containment with the water to add much more cooling effect and the nitrogen is a neutron absorbent. After some relative cooling then pump water with a borax solution to kill the neutron activity even more by encapsulation.

The nitrogen gas would become radioactive but nitrogen -17 half life is extremely short (4.3 sec.) and would not pose a air hazard.

Michael Love

L/285

Deavers, Ron

From: Janbergs, Holly on behalf of OPA Resource
Sent: Wednesday, March 30, 2011 8:25 AM
To: Bonaccorso, Amy; Deavers, Ron
Subject: FW:

From: Ed Geleski [<mailto:ed@dooleyelectric.com>]
Sent: Wednesday, March 30, 2011 8:17 AM
To: OPA Resource
Subject:

Please fix the 18 year leaking saftety mechanisms at indian point ASAP.

Ed Geleski
Project Engineer
Dooley Electric Company
(718) 840-2200 ext 07
fax (718) 840-2816
ed@dooleyelectric.com

2/284

From: Orr, Mark
To: RES_ChurchStreetBldg
Subject: FW: ASMEnews: Crisis in Japan -- What ASME Is Doing, What You Can Do; ASME Launches Major Website Redesign
Date: Wednesday, March 30, 2011 8:48:06 AM

To all of you who are member of the American Society of Mechanical Engineers (ASME) –

ASME has agreed to match member contributions (up to \$10,000) to the Red Cross to aid the Japanese relief effort. The details are below.

Mark Orr

From: bounce-12162-1144042@lyris.asmestaff.org on behalf of ASME News Online
Sent: Tue 3/29/2011 8:00 PM
To:
Subject: ASMEnews: Crisis in Japan -- What ASME Is Doing, What You Can Do; ASME Launches Major Website Redesign

Error! Filename not specified.

This edition of ASMEnews is brought to you by Smalley Steel Ring Co.,
Dassault/Simulia, COMSOL, and the ME-Simulia Webinar.

Crisis in Japan: What ASME is Doing and What You Can Do

In the days since the 9.0 magnitude earthquake and ensuing tsunami that devastated northeastern Japan on March 11, people and organizations the world over have been seeking ways to assist with relief efforts for victims of the natural disaster.

For its part, ASME has pledged to match donations from its staff members to the American Red Cross' disaster relief initiatives in Japan up to \$10,000. In addition, the Society's president and executive director, Robert T. Simmons and Thomas G. Loughlin, wrote a letter to Dr. Yoichiro Matsumoto, president of the Japan Society of Mechanical Engineers, expressing their concern and offering consolation and encouragement to the organization and the people of Japan.

"We at ASME were extremely saddened to learn about the devastating earthquake and tsunami that struck Japan last week. On behalf of ASME, we wish to extend our heartfelt condolences to you, your families, and all the Japanese people affected by this tragedy," Simmons and Loughlin wrote. "Our partnership is important and ASME stands ready to assist and support you and the JSME membership during this critical period. Please do not hesitate to contact us if we can assist you in any way."

From the Executive Director...

"Despite the complexity of technological and scientific methods and the work by engineers and scientists to forecast potential catastrophic events, we are reminded all too often how vulnerable we remain to natural events beyond our control.

The tragic and unfolding news stemming from the historic earthquake and tsunami that hit Japan this month and its impact on the Fukushima Daiichi nuclear power station in that region saddens us deeply. It also energizes the commitment we have as engineers to search for technology solutions to complications arising from complex systems, even when they are provoked by acts of nature."

4/287

One way that individual members of the Society can find out how to personally contribute to the relief effort is by going to Engineering for Change (E4C), www.engineeringforchange.org, the humanitarian web platform that was recently launched by founding partners ASME, Engineers Without Borders-USA, and IEEE (formerly the Institute of Electrical and Electronics Engineers).

The E4C site has dedicated a page, located at https://www.engineeringforchange.org/news/2011/03/12/japans_earthquake_and_tsunami_heres_how_to_help.html, that lists the various charities and organizations that are accepting donations for and providing services to the victims of the earthquake and tsunami, which left thousands of people dead, injured or missing, and millions more affected by lack of electricity, water and transportation.

Among the resources included on the page, "Japan's earthquake and tsunami: Here's how to help," are the Google Crisis Response page, which provides the latest information about the disaster, resources for those affected, and ways to contribute to relief efforts in Japan; the Ushahidi's Disaster Site Sinsai, which offers help in the search for missing people and survivors who need assistance; and Second Harvest, Japan, which publishes a wish list of equipment and supplies that rescue workers and victims need in Japan.

You are also welcome to use the E4C site's Workspace section, located at <https://www.engineeringforchange.org/workspace/viewAll/0/0/1>, to suggest a project or offer your expertise to assist the recovery effort..

ADVERTISEMENT

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Latest News

+ ASME Launches Major Website Redesign

Last week, the Society introduced its newly redesigned website at www.asme.org. The revamped site is dramatically different from the earlier version, as it has been designed to be more focused on perspectives, insights and news related to the general engineering profession.

Major improvements to the site include a clean, modern visual design; easier, more intuitive navigation; an improved search capability; and a wide range of timely and relevant content in the form of articles, profiles, case studies and video. [Click here](#) and take a tour of the new site.

NEW – 2011 Edition of Multiphysics Presentations CD

At the recent COMSOL Conferences in Boston, Paris and Bangalore, over 950 COMSOL Multiphysics users presented state-of-the-art achievements in multiphysics simulation. CD features hundreds of papers, presentations and animations highlighting applications in

[Read more >](#)

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Standards & Certification

E4C Architect Discusses New Site on ME Blog

Now on the *Mechanical Engineering* "From the Editor's Desk" blog: ME magazine's Editor-in-Chief John Falcioni interviews Noha El-Ghobashy, president of Engineering for Change (E4C), LLC. [Click here](#) to hear El-Ghobashy talk about the site and to use it.

Twelve More ASME Press Books Now Kindle-ready

Since the debut of its first Kindle electronic book last December, ASME Press has supplemented its collection of Kindle books on the Amazon.com website with a dozen additional titles. The e-books can be viewed on any Amazon Kindle portable reader or other Kindle-compatible device.

One of the newly released electronic books, *Energy*

FEA, CFD, and more. Request your complimentary copy:
http://www.comsol.com/activity/us_mealert_feb11/1

+ Team Wins Special ASME Award During EWeek

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Students from the St. Mary School in Swormville, N.Y., were named the winners of the special ASME "Best Futuristic City Award" at the Future City Competition National Finals in Washington, D.C., last month during Engineers Week. The award was presented to student Michael Pearl, teacher Rosanne Davis, and students Hannah Davis and Caitlyn Leong (front row, left to right) during the event's awards ceremony. The team's mentor, Ronald Leong, joined the award's judges ASME President-Elect Victoria Rockwell and ASME President Robert Simmons (back row, left to right) during the presentation of the special award. Rockwell and Simmons also served on the judges panel for the overall contest finals. The competition's grand prize, a trip to U.S. Space Camp, went to the team from Our Lady Help of Christians School in Abington, Pa.

ADVERTISEMENT

Cluster Computing with Realistic Simulation

Industry trends toward developing more complex products and creating higher-fidelity models to simulate real-world behavior have resulted in longer run times for many simulation users. Concurrently, the advent of multicore chips and inexpensive computing clusters has made parallel computing far more affordable.

Learn how Mercury Marine is using Abaqus FEA on a Windows server-based cluster to enhance design quality, reduce overall costs, and improve productivity. Register for this FREE webinar:
<http://memagazine.asme.org/Events/Webinars.cfm>.

+ Spencer Dedication is a Landmark Event

Error! Filename not specified.

Approximately 120 people gathered at the North Carolina Transportation Museum in Spencer, N.C., on March 19 for the dedication of a new ASME Mechanical Engineering Historical Landmark: the Spencer Shops Roundhouse and Turntable. The fun-filled event was an enormous success, and featured a number of activities including the unveiling of the ASME Landmark plaque by Keith Hardison, director of NC state historic sites, and ASME Past President Sue Skemp (top), as well as rides on some of the trains housed at the 57-acre facility (bottom). Skemp, who represented ASME President Bob Simmons at the event, was interviewed by a local Fox-TV affiliate, and by a reporter for the Salisbury Post. Larry Lee, the representative for the History & Heritage Committee, was also interviewed by FOX.com.

Press coverage of this event can be viewed at the following

Choices: A Guide to Facts and Perspectives, edited by Keith Thayer and Phil Grossweiler, is available for only \$3.99. A second Kindle book, *ASME Steam Tables — Compact Edition*, is now for sale on the website for \$7.99.

Seven others can be purchased for \$9.99: *Elements of Mechanical Design* by James G. Skakoon; *Fundamentals of Agile Project Management* by Marcus Goncalves and Raj Heda; *Intellectual Property: A Guide for Engineers* by the American Bar Association and ASME; *Managing Systems Development 101: A Guide for Designing Effective Products & Systems for Engineers and their Bosses/CEOs* by James T. Karam; *Natural Negotiation for Engineers and Technical Professionals* by James S. Jetton; *Patent Project Management* by Kirk Teska; and *The Unwritten Laws of Engineering: Revised and Updated Edition* by W.J. King and James G. Skakoon.

Three more ASME Press publications — *Taguchi on Robust Technology Development* by G. Taguchi and S.C. Tsai, *Total Quality Development: A Step by Step Guide to World Class Concurrent Engineering* by Don Clausing, and *More Hot Air* by Tony Kordyban — are available for \$33, \$44 and \$46, respectively. *Hot Air Rises and Heat Sinks*, ASME Press' first Kindle title, costs \$44.

To order a Kindle version of any of these ASME Press books, visit www.amazon.com. For more information on ASME Press publications, contact Mary Grace Stefanchik, e-mail StefanchikM@asme.org.

Newsmakers

Four ASME Fellows were among the 68 members and nine foreign delegates who

links:

<http://www.salisburypost.com/News/032011-transportation-museum-historic-mechanical-engineering-landmark-qcd>

http://www.myfox8.com/news/wghp-story-spencer-national-landmark-110319,0,5039570_story

http://www.wgnc.net/index.php?option=com_content&view=article&id=7006:transportation-museum-becomes-landmark-salisbury-nc&catid=82:nc-news-by-google&Itemid=241

Photos by Marina Stenos

+ Member Benefits: Work Smarter with ASME

Each time we conduct a member survey and ask why you joined the Society and what benefits you value most from your ASME membership, two things always stand out; access to technical information and sharing ideas and experiences with a community of like-minded individuals. My column this month focuses on both of these benefits. One is an incredible source of online technical information, and the other offers members a terrific way to connect with other members. Best of all, both of these benefits are free for ASME members.

The enhanced ASME e-Library

The e-Library, powered by Knovel, provides members with unlimited access to more than 75 engineering books and reference titles, many with built-in interactive calculators, graphs, tables and analytical tools.

Recently, Knovel upgraded the e-Library, so browsing and searching for topics is easier and more powerful than ever before. In addition, you can customize your e-Library experience with MyKnovel, which will enable you to save your searches, favorite books, interactive tools, or clip outside content to create virtual project folder to always have access to your most used information, at home or work.

Thousands of ASME members have already taken advantage the e-Library. If you haven't tried it yet, there is no better time than now.

were elected recently to the National Academy of Engineering. Election to the National Academy of Engineering is considered one of the highest professional distinctions accorded to an engineer.

One of the ASME Fellows named to the NAE was **Nadine N. Aubry, Ph.D.**, the Raymond J. Lane Distinguished Professor and head of the mechanical engineering department, Carnegie Mellon University in Pittsburgh. Aubry was selected for her contributions to low-dimensional models of turbulence and microfluidic devices, and for leadership in engineering education.

A second Fellow, **Ares J. Rosakis, Ph.D.**, was elected to the Academy for the discovery of intersonic rupture, contributions to understanding dynamic failure, and the development of methods to determine stresses in thin-film structures. Rosakis is the Theodore von Kármán Professor of Aeronautics and professor of mechanical engineering, and chair of the engineering and applied science department at California Institute of Technology, Pasadena.

ASME Fellow **Alexander J. Smits, Ph.D.**, the Eugene Higgins Professor of Mechanical and Aerospace Engineering and chair of mechanical and aerospace engineering at Princeton University was also selected as a member of the Academy. Smits received the honor for his contributions to the measurement and understanding of turbulent flows, fluids engineering, and education.

Wallace R. Wade, an ASME Life Fellow, was also named to the Academy during the announcement last month. A consultant and retired chief engineer and technical fellow

Simply log-in to your Members Only page at <https://my.asme.org> and click on the link for the e-Library. Spend a few minutes browsing the titles and explore what interests you, or take one of the video tutorials on the site. Before you know it, you'll be solving problems faster, working smarter, and enjoying the extra free time you've earned.

ASME's new Mentoring Program

As reported in the last issue of *ASMEnews*, ASME is piloting a new Mentoring Program in partnership with WisdomShare, a Web-based platform that matches the expertise and experience of seasoned leaders with the talent that is critical to the engineering field's success, now and in the future. We invite you to become a mentor or a mentee by going to <http://go.asme.org/mentoring>.

The ASME Mentoring Program is designed to facilitate experiences that both mentor and mentee can learn and grow from. This is a unique opportunity for you to either gain career-guiding insight and advice from an engineering professional with more or different experience, or share your own valuable insights with another engineer. The website's targeted-matching capability does a great job of pairing you with another ASME member who can truly be a valuable partner in your career, and help you work smarter.

— *Michael Kreisberg, Director, ASME Membership Development*

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Spotlight On: ASME President-Elect Victoria Rockwell Moderates STEM Briefing on Capitol Hill

Earlier this month, ASME conducted a briefing for new members of Congress and their staff titled "STEM 101: An Overview of Science, Technology, Engineering, and Mathematics (STEM) Education Policy and Issues." ASME President-Elect Victoria Rockwell provided opening remarks and moderated the briefing, which was hosted by the House STEM Education Caucus. House STEM Education Caucus Co-Chair Rep. Daniel Lipinski (D-IL) also spoke during the session's opening, as did Caucus members Reps. Roscoe Bartlett (R-MD) and Marcia Fudge (D-OH).

The briefing, held on March 10, was co-sponsored by ASME and the American Association of University Women, the American Chemical Society, the National Council of Teachers of Mathematics, the National Defense Industrial Association (NDIA), the National Science Teachers Association, and the Society of Women Engineers.

at Ford Motor Co.'s Powertrain Systems Technology and Processes Division in Novi, Mich., Wade was honored for the implementation of low-emission technologies in the automotive industry.

NAE membership recognizes individuals who have made outstanding contributions to "engineering research, practice, or education, including, where appropriate, significant contributions to the engineering literature," and to the "pioneering of new and developing fields of technology, making major advancements in traditional fields of engineering, or developing/implementing innovative approaches to engineering education" according to the academy.

Meetings & Courses

Upcoming ASME Events:

Offshore Technology Conference (OTC 2011)
May 2-5, 2011
Reliant Park
Houston, TX

ASME 19th Annual North American Waste-to-Energy Conference (NAWTEC 19)
May 11-13, 2011
Lancaster Marriott at Penn Square
Lancaster, PA

ASME Applied Mechanics and Materials Conference
May 31-June 2, 2011
Fairmont Hotel
Chicago, IL

ASME Turbo Expo 2011
June 6-10, 2011
Vancouver Convention & Exhibition Centre
Vancouver, British Columbia, Canada

ASME 2011 Annual Meeting
June 10-15, 2011
Intercontinental Dallas
Addison, TX

30th International

At the request of House STEM Caucus Co-Chair Daniel Lipinski, Heather Gonzalez and Jeff Kuenzi, policy analysts from the Congressional Research Service, began the briefing, offering attendees an overview of STEM programs at the Department of Education and National Science Foundation in President Obama's FY 2012 budget request.

Edward Swallow, chair of the STEM Workforce Division of NDIA followed, providing attendees with industry's perspective, specifically discussing the defense industry's growing need to find U.S. graduates who can work in secure environments in order to maintain U.S. national security competitiveness.

Finally, James Brown, the executive director of the STEM Education Coalition, closed out the program by discussing a number of potential STEM-related policy issues that may be discussed and debated in the 112th Congress. Some of these issues include how science will be included in the proposed new accountability system of the Elementary and Secondary Education Act, why better coordination of federal STEM programs is necessary, and what STEM programs are currently being targeted in the proposed FY 2011 continuing resolutions.

— *Melissa Carl, ASME Government Relations*

Conference on Ocean,
Offshore and Arctic
Engineering (OMAEE 2011)
June 19-24, 2011
Beurs-World Trade Center
Rotterdam
Rotterdam, The Netherlands

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[id=1144042.51de80b2f41f584e533e5de57ef00842&n=T&l=asme_news_newsletter&o=12162](http://lyris.asmestaff.org/u?id=1144042.51de80b2f41f584e533e5de57ef00842&n=T&l=asme_news_newsletter&o=12162)
(It may be necessary to cut and paste the above URL if the line is broken)

or send a blank email to leave-12162-1144042.51de80b2f41f584e533e5de57ef00842@lyris.asmestaff.org

ASME, Three Park Avenue, New York, NY 10016-5990

From: Bonaccorso, Amy
To: [Donaldson, Leslie](#)
Subject: FW: Public Inquiry Desk to the Rescue
Date: Wednesday, March 30, 2011 10:51:00 AM

Hey Leslie:

OMG – Glenn put a huge picture of me on the article I did for the Reporter. I did his first bylined piece – he said it was the “inaugural bylined piece.” Didn’t expect to see my face on it though!

Amy

From: Picon-Colon, Reinaldo
Sent: Wednesday, March 30, 2011 10:48 AM
To: Bonaccorso, Amy
Subject: Public Inquiry Desk to the Rescue

<http://www.internal.nrc.gov/news/nrcreporter/2011/articles/03/79.html>

Amy,

Well Done!!



Reinaldo "Rey" Picón-Colón

Human Resources Management Analyst

U.S. Nuclear Regulatory Commission (NRC)

Office of Human Resources (HR)

Program Management, Policy Development
and Analysis Staff (PMDA)

Reinaldo.Picon-Colon@nrc.gov

1 (301) 492-2272 (office)

1 (301) 492-2241 (fax)

2/288

From: Bonaccorso, Amy
To: [Picon-Colon, Reinaldo](#)
Subject: RE: Public Inquiry Desk to the Rescue
Date: Wednesday, March 30, 2011 10:48:00 AM

Thank you!

From: Picon-Colon, Reinaldo
Sent: Wednesday, March 30, 2011 10:48 AM
To: Bonaccorso, Amy
Subject: Public Inquiry Desk to the Rescue

<http://www.internal.nrc.gov/news/nrcreporter/2011/articles/03/79.html>

Amy,

Well Done!!



Reinaldo "Rey" Picón-Colón

Human Resources Management Analyst
U.S. Nuclear Regulatory Commission (NRC)
Office of Human Resources (HR)
Program Management, Policy Development
and Analysis Staff (PMDA)

Reinaldo.Picon-Colon@nrc.gov

1 (301) 492-2272 (office)

1 (301) 492-2241 (fax)

L/289

From: [Courret, Ivonne](#)
To: [Bonaccorso, Amy](#)
Cc: [Janbergs, Holly](#); [Akstulewicz, Brenda](#); [Shannon, Valerie](#); [McIntyre, David](#); [Medina, Veronika](#)
Subject: RE: Laptop is toast
Date: Wednesday, March 30, 2011 10:54:53 AM

Yeah!!!

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

From: Bonaccorso, Amy
Sent: Wednesday, March 30, 2011 10:54 AM
To: Courret, Ivonne
Cc: Janbergs, Holly; Akstulewicz, Brenda; Shannon, Valerie; McIntyre, David; Medina, Veronika
Subject: RE: Laptop is toast

My computer is now functioning and I think I'll be over to WF after lunch. I have one more thing I need to do here.

Thanks,

Amy

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

From: Courret, Ivonne
Sent: Wednesday, March 30, 2011 8:43 AM
To: Bonaccorso, Amy
Cc: Janbergs, Holly; Akstulewicz, Brenda; Shannon, Valerie; McIntyre, David; Medina, Veronika
Subject: RE: Laptop is toast

Sorry to hear. Holly is out today. I'm copying the others on your current status. Ugh.. been there..hope the resolve it and you don't lose much. Ivonne

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

From: Bonaccorso, Amy
Sent: Wednesday, March 30, 2011 8:40 AM
To: Harrington, Holly; Courret, Ivonne
Cc: Donaldson, Leslie
Subject: Laptop is toast

Good morning all:

After I tried to email Ivonne the emails regarding Japan last night- my laptop died. It is permanently frozen on the login screen. CSC is trying to send someone to me. I'll hang out here until then- may sign in at a touchdown if it takes too long.

Thx,
Amy

4/290

Franovich, Mike

From: Franovich, Mike
Sent: Wednesday, March 30, 2011 9:40 AM
To: Kock, Andrea
Subject: RE: Question on article on MOX at Japan

Unit 3 definitely as some MOX fuel loaded in the core and possibly in the U3 SFP. We may want to ask for the Catawba MOX proposal/safety evaluation report (which the project is now dead) and the Browns Ferry (?) proposal if the staff can provide the dose/health consequence analysis and a synopsis of their take on the MOX issue in terms of public risk. Duke had done extensive work, but I don't know where TVA is on this. The amendment to use MOX in the reactor would be handled by NRR with support from NMSS as needed (at least that was the previous arrangement).

From: Kock, Andrea
Sent: Wednesday, March 30, 2011 9:31 AM
To: Franovich, Mike
Subject: Question on article on MOX at Japan

Mike: below is the question I plan to forward to OEDO asking for more information on the article below on MOX fuel that WCO asked about this morning. Is there anything I should add to the questions or do you have additional information on this topic?Thanks!

Hi Alan! I am copying Kathy in case one or both of you is tied up in the Ops Center. Commissioner Ostendorff would like additional information regarding the article below that was in the "NRC in the News" yesterday. Specifically, has the NRC staff verified the claim that Reactor 3 contains MOX fuel, and if so, has the fact that some of the fuel is MOX posed any safety challenges during the event. Also, more generally, has the staff evaluated the concerns that MOX fuel poses greater safety or security concerns? If so, can you forward the staff's assessment. Thanks.

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

Andrea Kock
Technical Assistant for Materials
Office of Commissioner Ostendorff
301-415-2896

From: Bonaccorso, Amy
To: Couret, Ivonne
Cc: Janbergs, Holly; Akstulewicz, Brenda; Shannon, Valerie; McIntyre, David; Medina, Veronika
Subject: RE: Laptop is toast
Date: Wednesday, March 30, 2011 12:58:00 PM

I'm in!

301-415-1822

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

From: Couret, Ivonne
Sent: Wednesday, March 30, 2011 8:43 AM
To: Bonaccorso, Amy
Cc: Janbergs, Holly; Akstulewicz, Brenda; Shannon, Valerie; McIntyre, David; Medina, Veronika
Subject: RE: Laptop is toast

Sorry to hear. Holly is out today. I'm copying the others on your current status. Ugh.. been there..hope the resolve it and you don't loose much. Ivonne

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

From: Bonaccorso, Amy
Sent: Wednesday, March 30, 2011 8:40 AM
To: Harrington, Holly; Couret, Ivonne
Cc: Donaldson, Leslie
Subject: Laptop is toast

Good morning all:

After I tried to email Ivonne the emails regarding Japan last night- my laptop died. It is permanently frozen on the login screen. CSC is trying to send someone to me. I'll hang out here until then- may sign in at a touchdown if it takes too long.

Thx,
Amy

2/292

From: [Janbergs, Holly](#)
To: [Bonaccorso, Amy](#)
Subject: RE: From the NRC Allegation Inbox
Date: Wednesday, March 30, 2011 2:28:29 PM

I might tell him what the EPA's been doing to monitor stuff, connect him to RadNet, etc. You could also send him to the FAQs here <http://www.nrc.gov/about-nrc/radiation/related-info/faq.html> and say if he wants to test himself he could try <http://www.nrc.gov/about-nrc/radiation/health-effects/detection-radiation.html>

but that's not the sort of thing we do? It's sort of a strange request.

From: Bonaccorso, Amy
Sent: Wednesday, March 30, 2011 2:25 PM
To: Janbergs, Holly
Subject: FW: From the NRC Allegation Inbox

Well this is different...any idea what to tell him?

I have no idea who would test his samples.

From: Janbergs, Holly **On Behalf Of** OPA Resource
Sent: Wednesday, March 30, 2011 1:05 PM
To: Bonaccorso, Amy
Subject: FW: From the NRC Allegation Inbox

We've gone over this with Allegations and they decided it didn't meet their criteria. Video is shots of "yellow rain" (pollen) with a music soundtrack. Video description is as follows:

On March 22, 2011 I noticed many yellow puddles on my driveway during the rain. I took these pictures and also collected a sample. I have noticed in many news articles that people have been reporting yellow rain in Japan, Oregon, and elsewhere following the disaster at Fukushima Daiichi nuclear power complex. This has been officially attributed to pollen, not radioactive fallout. I found this explanation questionable, so I just wanted to upload these pictures to let everyone know that this also happened in Phoenix, Arizona during the rain we were having.

Comments suggest he's trying to find someone to analyze the substance for him.

From: Hernandez, Pete
Sent: Wednesday, March 30, 2011 11:21 AM
To: OPA Resource
Subject: From the NRC Allegation Inbox

Good morning OPA,

4/29/11

While no nuclear safety concern was detailed in the body of the attached email, I am unable to determine if there is an allegation present. Are you able to view the attached youtube link? If so, please let me know the details if it seems to be an allegation.

Thank you,

Pete Hernandez

Deavers, Ron

From: Janbergs, Holly
Sent: Wednesday, March 30, 2011 1:33 PM
To: Bonaccorso, Amy; Deavers, Ron
Subject: Citizen Request for Information

Jordan Townsend
jtownsend@ttcorp.com
202-261-1318

Wants information about the proposed review process the NRC will be conducting in the wake of the situation in Japan, especially any information about whether or not there will be periods for public comment

Beth Janbergs
Public Affairs Assistant
301-415-8211

Shannon, Valerie

From: Shannon, Valerie
Sent: Wednesday, March 30, 2011 12:14 PM
To: 'Ivonne Couret'
Subject: Media Call

Name: Jessica

From: Japanese Daily News

Phone: 310-916-8589 ~~EX-6~~

E-mail: Mainichila@mainichila.com

Re: Interview

She said that she has been in touch with Eliot.

Royer, Deanna

From: Royer, Deanna
Sent: Wednesday, March 30, 2011 3:06 PM
To: Couret, Ivonne
Subject: Media - Wall street Journal-Question

Rebecca Smith
Wall street Journal
(415-385-7224) ~~Ext~~
Rebecca.smith@wsj.com
Re: Reactor Emergency Plan

Deanna Royer
Contract Secretary
Division of New Reactor Licensing
(301) 415-7158
Deanna.Royer@nrc.gov

From: [Bonaccorso, Amy](#)
To: [Bonaccorso, Amy](#)
Subject: FW: Info request
Date: Wednesday, March 30, 2011 1:40:31 PM

She found what she need on EPA's website.

From: Akstulewicz, Brenda
Sent: Wednesday, March 30, 2011 9:20 AM
To: Deavers, Ron; Bonaccorso, Amy
Subject: Info request

Stephanie Daigle
Law Firm Washington, DC

~~(202-508-8915)~~

Confirmation on radioactive particles in rainwater in the area

Brenda Akstulewicz
Administrative Assistant
Office of Public Affairs
301-415-8209
brenda.akstulewicz@nrc.gov



4/297

From: [Bonaccorso, Amy](#)
To: [Harrington, Holly](#)
Subject: FW:
Date: Wednesday, March 30, 2011 1:38:00 PM

Should I give him a standard "our plants are safe" response or should someone else who knows more about Indian Point craft a response?

Thanks,

Amy

From: Janbergs, Holly **On Behalf Of** OPA Resource
Sent: Wednesday, March 30, 2011 8:25 AM
To: Bonaccorso, Amy; Deavers, Ron
Subject: FW:

From: Ed Geleski [mailto:ed@dooleyelectric.com]
Sent: Wednesday, March 30, 2011 8:17 AM
To: OPA Resource
Subject:

Please fix the 18 year leaking safety mechanisms at indian point ASAP.

Ed Geleski
Project Engineer
Dooley Electric Company
(718) 840-2200 ext 07
fax (718) 840-2816
ed@dooleyelectric.com

2/298

Medina, Veronika

From: Couret, Ivonne
Sent: Wednesday, March 30, 2011 8:14 AM
To: Medina, Veronika
Subject: RE: Today

Okay I can use the help then. Ivonne

From: Medina, Veronika
Sent: Wednesday, March 30, 2011 7:53 AM
To: Couret, Ivonne
Subject: Today

Hi Ivonne,

I've two meetings today in TWB that I have to attend. One is in the morning and the other one is in the afternoon. I'll be in OPA from 10am – 1:30pm.

Regards,
Veronika Medina
Communications and Document Specialist
US Nuclear Regulatory Commission
Office of Administration/ADSC/HCB
Email: veronika.medina@nrc.gov
Phone: (301) 492-3467

Anderson, Brian

From: Anderson, Brian
Sent: Wednesday, March 30, 2011 10:24 AM
To: Hayden, Elizabeth
Subject: RE: Press release

Yes. I received and incorporated suggested edits. I'm just waiting on bio information.

From: Hayden, Elizabeth
Sent: Wednesday, March 30, 2011 10:23 AM
To: Anderson, Brian
Subject: RE: Press release

Is this press release for the Task Force?

Beth Hayden
Senior Advisor
Office of Public Affairs
U.S. Nuclear Regulatory Commission
— Protecting People and the Environment
301-415-8202
elizabeth.hayden@nrc.gov

From: Anderson, Brian
Sent: Wednesday, March 30, 2011 10:14 AM
To: Sanfilippo, Nathan
Cc: Burnell, Scott; Hayden, Elizabeth
Subject: RE: Press release

Thanks, Nathan. As soon as I have the bios, I'll move the press release along in the process.

From: Sanfilippo, Nathan
Sent: Wednesday, March 30, 2011 8:52 AM
To: Anderson, Brian
Cc: Burnell, Scott
Subject: Press release

Brian,

I'll have shortened bios for the press release to you later this morning.

Thanks,
Nathan

4/300

Anderson, Brian

From: Anderson, Brian
Sent: Wednesday, March 30, 2011 2:22 PM
To: Sanfilippo, Nathan
Cc: Burnell, Scott; Hayden, Elizabeth
Subject: Timing of task force press release

Nathan – It appears that the charter is still working through concurrence. We're hoping to time the press release with the charter completion/issuance. If it doesn't happen today, it should happen tomorrow.

I'll keep you updated,
Brian

From: Hayden, Elizabeth
Sent: Wednesday, March 30, 2011 1:37 PM
To: Anderson, Brian; Sanfilippo, Nathan
Cc: Burnell, Scott
Subject: RE: Press release

We would hope to put out the press release when the charter is made public.

Beth Hayden
Senior Advisor
Office of Public Affairs
U.S. Nuclear Regulatory Commission
--- Protecting People and the Environment
301-415-8202
elizabeth.hayden@nrc.gov

From: Anderson, Brian
Sent: Wednesday, March 30, 2011 1:36 PM
To: Sanfilippo, Nathan
Cc: Burnell, Scott; Hayden, Elizabeth
Subject: RE: Press release

Understood. Thanks.

From: Sanfilippo, Nathan
Sent: Wednesday, March 30, 2011 1:12 PM
To: Anderson, Brian
Cc: Burnell, Scott; Hayden, Elizabeth
Subject: RE: Press release

Sure – and I'm stating the obvious by saying we'll want to make sure Bill signs the charter and we can make it public before we issue the release.

From: Anderson, Brian
Sent: Wednesday, March 30, 2011 1:07 PM
To: Sanfilippo, Nathan
Cc: Burnell, Scott; Hayden, Elizabeth
Subject: RE: Press release

Beth Hayden is reviewing it now. I hope to issue the release today. I'll keep you posted as I work it through concurrence.

Sound good?

From: Sanfilippo, Nathan
Sent: Wednesday, March 30, 2011 12:53 PM
To: Anderson, Brian
Cc: Burnell, Scott; Hayden, Elizabeth
Subject: RE: Press release
Importance: High

Brian,

The Chairman has given Bill the go ahead on the charter, so Bill could sign later this afternoon. Do you think we can get the release out today, or should we wait til tomorrow morning?

Thanks,
Nathan

From: Anderson, Brian
Sent: Wednesday, March 30, 2011 11:38 AM
To: Sanfilippo, Nathan
Cc: Burnell, Scott; Hayden, Elizabeth
Subject: RE: Press release

Thanks, Nathan. The bios looked fine to me. I added them at the end of the press release, which includes the revisions you provided last night. I'll keep you posted.

Thanks,
Brian

From: Sanfilippo, Nathan
Sent: Wednesday, March 30, 2011 11:13 AM
To: Anderson, Brian
Cc: Burnell, Scott; Hayden, Elizabeth
Subject: RE: Press release

Attached. Didn't have a lot of time to proofread...

Thanks,
Nathan

From: Anderson, Brian
Sent: Wednesday, March 30, 2011 10:14 AM
To: Sanfilippo, Nathan
Cc: Burnell, Scott; Hayden, Elizabeth
Subject: RE: Press release

Thanks, Nathan. As soon as I have the bios, I'll move the press release along in the process.

From: Sanfilippo, Nathan
Sent: Wednesday, March 30, 2011 8:52 AM
To: Anderson, Brian

Cc: Burnell, Scott
Subject: Press release

Brian,

I'll have shortened bios for the press release to you later this morning.

Thanks,
Nathan

From: Bonaccorso, Amy
To: jtownsend@ttcorp.com
Subject: REPLY: Citizen Request for Information
Date: Wednesday, March 30, 2011 2:41:00 PM

Hello Mr. Townsend:

The press release on the task force is here: <http://www.nrc.gov/reading-rm/doc-collections/news/2011/11-055.pdf>.

While it does not specify a time for public comment, you will certainly have an opportunity to comment via the NRC Blog. The Blog was recently launched and routinely has posts about current events and activities. <http://public-blog.nrc-gateway.gov/>

Also, a schedule of Commission meetings can be found here: <http://www.nrc.gov/public-involve/public-meetings/schedule.html>. Currently, there are at least five in April and May that are open to the public, but the one on May 2 will be of particular interest to you. That meeting will focus on providing an update about the progress of the Task Force.

Thank you,

Amy

Jordan Townsend
jtownsend@ttcorp.com
(202-261-1318)



Wants information about the proposed review process the NRC will be conducting in the wake of the situation in Japan, especially any information about whether or not there will be periods for public comment

4/302

From: [Bonaccorso, Amy](#)
To: Jfletcher@westmont.edu
Subject: REPLY: public - Question
Date: Wednesday, March 30, 2011 4:05:00 PM

Hello Mr. Fletcher:

I just got your message about concerns about radiation in China.

Since the U.S. Nuclear Regulatory Commission primarily deals with the safety of nuclear power plants in the U.S., we are referring travel questions to the State Department.

1-888-407-4747

Or, www.travel.state.gov

The airlines are also a good resource for travel advisories.

Thank you,

Amy

Jeremy Fletcher

Westmont College

805-565-6218

Jfletcher@westmont.edu

Re: Students going to China for project June 15-July 15. Concerns about radiation

4/30/3

From: Janbergs, Holly
To: Couret, Ivonne
Subject: Testimony Request
Date: Wednesday, March 30, 2011 10:04:00 AM

Regina Bediako from NHK would like the opening remarks whenever possible.

bediako@nhkdc.com

Beth Janbergs
Public Affairs Assistant
301-415-8211

4/304

From: [Janbergs, Holly](#)
To: [Couret, Ivonne](#)
Subject: Testimony Request
Date: Wednesday, March 30, 2011 9:55:00 AM

Christine Bilski from Nikkei would like a copy of the Chairman's testimony from this morning whenever available

202-204-2109
Bilski_wdc@nikkei.com

Beth Janbergs
Public Affairs Assistant
301-415-8211

4305

From: Couret, Ivonne
To: Bonaccorso, Amy
Cc: Janbergs, Holly; Akstulewicz, Brenda; Shannon, Valerie; McIntyre, David; Medina, Veronika
Subject: RE: Laptop is toast
Date: Wednesday, March 30, 2011 8:42:44 AM

Sorry to hear. Holly is out today. I'm copying the others on your current status. Ugh.. been there..hope the resolve it and you don't loose much. Ivonne

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

From: Bonaccorso, Amy
Sent: Wednesday, March 30, 2011 8:40 AM
To: Harrington, Holly; Couret, Ivonne
Cc: Donaldson, Leslie
Subject: Laptop is toast

Good morning all:

After I tried to email Ivonne the emails regarding Japan last night- my laptop died. It is permanently frozen on the login screen. CSC is trying to send someone to me. I'll hang out here until then- may sign in at a touchdown if it takes too long.

Thx,
Amy

4/30/11

From: [Janbergs, Holly](#) on behalf of [OPA Resource](#)
To: [Courret, Ivonne](#)
Subject: FW: Japanese reactor water
Date: Wednesday, March 30, 2011 8:24:00 AM

From: Russell Jones [<mailto:Jonesr@api.org>]
Sent: Wednesday, March 30, 2011 8:00 AM
To: OPA Resource
Subject: Japanese reactor water

According to the Japanese NHK website.

TEPCO halts work to remove radioactive water

The operator of the troubled Fukushima Daiichi nuclear power plant has suspended work to move highly radioactive water from the basement of the turbine building into the turbine condenser at the No. 1 reactor.

Tokyo Electric Power Company suspended the operation on Tuesday morning after the condenser became full of water.

Instead of adding more NEW water to cool the reactors and stored fuel rods, why not re-use the water in the basements, etc. Yes it is already radioactive, but it probably is relatively cool. So sacrifice a few pumps – small loss given everything else going on over there.

Russell Jones
API
1220 L Street, NW
Washington, DC 20005
202-682-8545
Fax 202-682-8408
jonesr@api.org
www.api.org

4/30/11

From: Janbergs, Holly
To: Bonaccorso, Amy; Deavers, Ron
Subject: Citizen Request for Information
Date: Wednesday, March 30, 2011 1:32:00 PM

Jordan Townsend
jtownsend@ttcorp.com
202-261-1318

Wants information about the proposed review process the NRC will be conducting in the wake of the situation in Japan, especially any information about whether or not there will be periods for public comment

Beth Janbergs
Public Affairs Assistant
301-415-8211

4/308

From: Janbergs, Holly
To: Couret, Ivonne
Subject: On record interview - CNN Money
Date: Wednesday, March 30, 2011 12:55:00 PM

Steve Hargreaves from CNN Money would like to speak to someone this afternoon around 3. He's doing a print piece for the web on the storage of nuclear waste in spent fuel pools.

212-275-8275

Steve.hargreaves@turner.com

He requests that if no one is available, we get back to him to let him know that ASAP

Beth Janbergs
Public Affairs Assistant
301-415-8211

4/30/11

From: Couret, Ivonne
To: [Uselding, Lara](#); [Dricks, Victor](#); [Hannah, Roger](#); [Ledford, Joey](#); [Chandrathil, Prema](#); [Mitlyng, Viktoria](#); [Screnci, Diane](#); [Sheehan, Neil](#); [Janbergs, Holly](#)
Subject: FYI - Resources for TMI and Chernobyl for public/media calls
Date: Wednesday, March 30, 2011 11:53:52 AM

Getting lots of public/media request – just in case they ask the regions I had placed this in HQs G: drive Wacky Folder. Here is the content. Ivonne

Resources:

TMI

“We Survived TMI” film clips from WHTM ABC27

Dickerson College has a fountain of information - <http://www.threemileisland.org/> and resources direct link at http://www.threemileisland.org/resource_center/index.php

Penn State

Smithsonian American History Museum at <http://americanhistory.si.edu/tmi/tmi03.htm> .

Penn State - TMI Recovery and Decontamination Collection at <http://www.libraries.psu.edu/tmi/> .

PBS program at <http://www.pbs.org/wgbh/amex/three/> .

National Archives at <http://www.archives.gov/historical-docs/todays-doc/index.html?dod-date=404> .

President Carter Library at <http://gil.usg.edu:8765/jclquery.html?col=jcl&charset=iso-8859-1&ht=0&qp=&qt+=three+mile+island> .

Kemeny Report at <http://www.dartmouth.edu/kemeny/theman/3mileisle.html> .

Thornburgh Papers then Governor of PA at <http://www.library.pitt.edu/thornburgh/>

World Nuclear Association at <http://www.world-nuclear.org/info/inf36.html>

NEI at <http://nei.org/search> You can also speak with their media folks for possible video footage at 202-139-8000.

Chernobyl

IAEA at <http://www.iaea.org/NewsCenter/Focus/Chernobyl/> .

NEI as a source at

<http://nei.org/keyissues/safetyandsecurity/factsheets/chernobylconsequencespage6> .

ANS at <http://www.ans.org/pi/resources/sptopics/chernobyl/> .

L/310

World Nuclear Association at <http://www.world-nuclear.org/info/chernobyl/inf07.html>

Ivonne L. Couret
Public Affairs Officer
Office of Public Affairs
Media Desk
opa.resource@nrc.gov
301-415-8200

Visit our online photo gallery. Incorporate graphics and photographs to tell your story!
<http://www.nrc.gov/reading-rm/photo-gallery/>

2010-2011 Information Digest - Where you can find NRC Facts at a Glance
<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1350/>

From: Couret, Ivonne
To: Bonaccorso, Amy
Cc: Janbergs, Holly; Akstulewicz, Brenda; Shannon, Valerie; McIntyre, David; Medina, Veronika
Subject: RE: Laptop is toast
Date: Wednesday, March 30, 2011 10:54:53 AM

Yeah!!!

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

From: Bonaccorso, Amy
Sent: Wednesday, March 30, 2011 10:54 AM
To: Couret, Ivonne
Cc: Janbergs, Holly; Akstulewicz, Brenda; Shannon, Valerie; McIntyre, David; Medina, Veronika
Subject: RE: Laptop is toast

My computer is now functioning and I think I'll be over to WF after lunch. I have one more thing I need to do here.

Thanks,

Amy

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

From: Couret, Ivonne
Sent: Wednesday, March 30, 2011 8:43 AM
To: Bonaccorso, Amy
Cc: Janbergs, Holly; Akstulewicz, Brenda; Shannon, Valerie; McIntyre, David; Medina, Veronika
Subject: RE: Laptop is toast

Sorry to hear. Holly is out today. I'm copying the others on your current status. Ugh.. been there..hope the resolve it and you don't lose much. Ivonne

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

From: Bonaccorso, Amy
Sent: Wednesday, March 30, 2011 8:40 AM
To: Harrington, Holly; Couret, Ivonne
Cc: Donaldson, Leslie
Subject: Laptop is toast

Good morning all:

After I tried to email Ivonne the emails regarding Japan last night- my laptop died. It is permanently frozen on the login screen. CSC is trying to send someone to me. I'll hang out here until then- may sign in at a touchdown if it takes too long.

Thx,
Amy

4/3/11

From: [Bonaccorso, Amy](#)
To: [Janbergs, Holly](#)
Subject: RE: Laptop is toast
Date: Wednesday, March 30, 2011 10:55:31 AM

Yeah - I am so happy!

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

From: Janbergs, Holly
Sent: Wednesday, March 30, 2011 10:55 AM
To: Bonaccorso, Amy
Subject: RE: Laptop is toast

Yay, functioning computer!

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

From: Bonaccorso, Amy
Sent: Wednesday, March 30, 2011 10:54 AM
To: Couret, Ivonne
Cc: Janbergs, Holly; Akstulewicz, Brenda; Shannon, Valerie; McIntyre, David; Medina, Veronika
Subject: RE: Laptop is toast

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Thanks,

Amy

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

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Sent: Wednesday, March 30, 2011 8:43 AM
To: Bonaccorso, Amy
Cc: Janbergs, Holly; Akstulewicz, Brenda; Shannon, Valerie; McIntyre, David; Medina, Veronika
Subject: RE: Laptop is toast

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Cc: Donaldson, Leslie
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Thx,
Amy

L/312

From: Owens, Janice
To: Baker, Stephen; Caverly, Jill; Chimood, Jane; Mavros, Lauren; Newell, Trenton; Savoy, Joanne; Schwartzman, Jennifer; Shepherd, Jill; Smith, Brooke; Tobin, Jennifer
Cc: Kim, Grace; Sutttenberg, Jeremy
Subject: FW: Response to Question About the Level of Acceptable Trace Radiation in Imported Products
Date: Wednesday, March 30, 2011 3:42:34 PM

FYI – Lots of interest in this subject

From: Owens, Janice
Sent: Wednesday, March 30, 2011 3:16 PM
To: McIntosh, Angela
Subject: RE: Response to Question About the Level of Acceptable Trace Radiation in Imported Products

Thank you, Angela. Here is a link to a press release from Customs and Border Protection.

http://www.customs.gov/xp/cgov/newsroom/news_releases/national/03172011_6.xml

From: McIntosh, Angela
Sent: Wednesday, March 30, 2011 10:38 AM
To: James M Burnham
Cc: Cai, June; Owens, Janice
Subject: Response to Question About the Level of Acceptable Trace Radiation in Imported Products

Mr. Burnham: this is in response to your question concerning what would be the U.S. government's response to the identification of an imported consumer product containing trace levels of radiation. You wanted to know if there is a level at which the U.S. government would consider the import unsafe and reject it. (Your entire question is in context below).

I have consulted with Ms. Janice Owens, Chief of the Export Controls and International Organizations Branch in NRC's Office of International Programs in the provision of the following response.

The answer depends on the type of consumer product that is contaminated, the radiation level detected, and whether the U.S. Customs and Border Protection (CPB) finds it suspicious and/or a public health, safety or environmental hazard. In the latter case, CBP would immediately seize and isolate the shipment or the items in question. If determined to be too dangerous to return to the sender, it would be sent to a licensed disposal facility in the U.S. If CBP determines that the product is not immediately dangerous (e.g., it appears to have been inadvertently contaminated), they might alert the US consignee and give them the option of accepting or rejecting the shipment. If rejected, the items might be returned to the sender. If the U.S. consignee accepts the shipment, the items become their responsibility. CBP has established lines of communications with the NRC, the Environmental Protection Agency and other Federal agencies to address these types of issues.

Importers of certain products (e.g., irradiated gemstones) must be authorized to possess them under a valid NRC or Agreement State¹ license or they must be authorized by the NRC to distribute them under an NRC exempt distribution license. If the US importer has the appropriate domestic authorizations, then the import would be authorized under an

4/3/12

NRC general import license in 10 CFR 110.27. Once in the U.S., it is subject to domestic regulations. If the U.S. consignee is not appropriately authorized, they would be in violation of U.S. requirements and subject to NRC enforcement action.

If a contaminated product is being imported solely for disposal or processing prior to disposal, it could be considered radioactive waste if not excluded from the definition of radioactive waste in 10 CFR 110.2. To import radioactive waste, a specific NRC import license is required.

If the quantity of radioactive material is less than the amount that would require an NRC or Agreement State license, then it would not be subject to NRC import licensing. In other words, if exempt from or not regulated by NRC or an Agreement State, it is not subject to NRC import licensing.

I hope this is responsive to your question. However, if you have any more questions, please feel free to contact Ms. Owens directly at 301-415-3684, or Janice.Owens@nrc.gov

Best Regards,

Angela R. McIntosh

**Office of Federal and State Materials
and Environmental Management Programs
U.S. Nuclear Regulatory Commission
Mail Stop T8-E24
Angela.McIntosh@nrc.gov
(301) 415-5030**

¹ Agreement States are those States that have entered into a formal agreement with the NRC, by which those States have assumed regulatory responsibility over certain byproduct, source, and small quantities of special nuclear material. Click the following link to locate a listing of the Agreement States: <http://nrc-stp.ornl.gov/>

From: James M Burnham [<mailto:jmburnham@jonesday.com>]
Sent: Monday, March 28, 2011 12:04 PM
To: McIntosh, Angela
Subject: Trace Radiation

Ms. McIntosh:

As I explained on the phone, we are trying to find out what level of trace radiation would cause a product that does not normally emit radiation--like a car wheel or a toaster--to be deemed "unsafe" and denied entry into the United States. I know that CPB's scanners can detect tiny amounts of radiation (like the amount in a banana) and that if something triggers a scanner, the product goes to a secondary review. My question is what standards the government then uses to decide whether that product will be admitted into the country (i.e., if it is 20x background it can't come in, etc.).

Any guidance you can provide would be extremely helpful. Thank you in advance for your time.

Warm regards,

James Burnham



James Burnham • Law Clerk/Not Yet Admitted to the Bar

77 West Wacker • Chicago, IL 60601-1692
DIRECT 312.269.4084 • **FAX** 312.782.8585 • jmburnham@jonesday.com

=====

This e-mail (including any attachments) may contain information that is private, confidential, or protected by attorney-client or other privilege. If you received this e-mail in error, please delete it from your system without copying it and notify sender by reply e-mail, so that our records can be corrected.

=====

From: Janbergs, Holly
To: medeirosd@us.panasonic.com
Subject: Re: Import Radiation Measurements
Date: Wednesday, March 30, 2011 10:43:00 AM

Ms. Medeiros,

In accordance with established protocols, the U.S. Customs and Border Protection (CBP) employs several types of radiation detection equipment in its operations at both air and sea ports, and uses this equipment, along with specific operational protocols, to resolve any security or safety risks that are identified with inbound cargo. Out of an abundance of caution, CBP has issued field guidance reiterating its operational protocols and directing field personnel to specifically monitor maritime and air traffic from Japan. CBP will continue to evaluate the potential risks posed by radiation contamination on inbound cargo and will adjust its detection and response protocols, in coordination with its interagency partners, as developments warrant.

For further information, I would contact the CBP directly. They have issued a statement regarding their current protocol on Japan cargo here:

http://cbp.gov/xp/cgov/newsroom/news_releases/national/03172011_6.xml

You can reach them by phone at (202) 344-1780. Someone there will be able to address your concerns more fully.

Thank you,
Bethany

Beth Janbergs
Public Affairs Assistant
301-415-8211

4/3/14

From: [Courret, Ivonne](#)
To: [Hayden, Elizabeth](#)
Cc: [McIntyre, David](#); [Janbergs, Holly](#)
Subject: FW: ACRS briefing on April 7th
Date: Wednesday, March 30, 2011 3:31:52 PM
Attachments: [image001.png](#)
Importance: High

Next Thursday they are having a briefing on Japanese event and they are requesting OPA support and attend. I will not be here I thought perhaps Bethany could attend. Please advise. Ivonne

From: Diaz-Sanabria, Yoira
Sent: Wednesday, March 30, 2011 2:59 PM
To: Courret, Ivonne
Cc: Hackett, Edwin; Santos, Cayetano; Berrios, Ilka
Subject: ACRS briefing on April 7th
Importance: High

Ivonne,

Per our conversation. ACRS briefing on Events at the Fukushima Reactor Site in Japan (open/closed) will be held on April 7, 2011 from 10:45 am – 12:45 pm. Portions of the briefing will be closed to the public to protect information that is in confidence by the Japan authorities. The open session will be the first 15-20 min. The NRC staff is the only audience allow during the closed session. It will be ideal to have the support from OPA due to the sensitivity and high profile of this subject. Please feel free to contact me if you need further information.

Thanks in advance,

Yoira K. Diaz-Sanabria

Advisory Committee on Reactor Safeguards

☒ T2-E26 | ☎ 301-415-8064 | FAX 301-415-5589

Yoira.Diaz-Sanabria@nrc.gov



Please consider the environment before printing this e-mail. Thank you.

4315

From: [Janbergs, Holly](#)
To: [Bonaccorso, Amy](#)
Subject: RE: Citizen Request for Information
Date: Wednesday, March 30, 2011 2:31:00 PM

PR sounds good- he can also watch the video of the commission briefing on the topic. I think there are dates set for upcoming open Commission meetings too, so you can let him know about those.

From: Bonaccorso, Amy
Sent: Wednesday, March 30, 2011 2:29 PM
To: Janbergs, Holly
Subject: FW: Citizen Request for Information

Holly's out – do you know or know who would know if we have a plan for public comments re: the review? It seems like we should because of the Open Government Initiative.

If we don't, I could just refer him to the press release and say that the blog typically has posts that relate to current events and he can post comments there.

From: Janbergs, Holly
Sent: Wednesday, March 30, 2011 1:33 PM
To: Bonaccorso, Amy; Deavers, Ron
Subject: Citizen Request for Information

Jordan Townsend
jtownsend@ttcorp.com
202-261-1318

Wants information about the proposed review process the NRC will be conducting in the wake of the situation in Japan, especially any information about whether or not there will be periods for public comment

Beth Janbergs
Public Affairs Assistant
301-415-8211

4/3/16

From: Janbergs, Holly
To: Bonaccorso, Amy
Subject: RE: From the NRC Allegation Inbox
Date: Wednesday, March 30, 2011 2:28:00 PM

I might tell him what the EPA's been doing to monitor stuff, connect him to RadNet, etc. You could also send him to the FAQs here <http://www.nrc.gov/about-nrc/radiation/related-info/faq.html> and say if he wants to test himself he could try <http://www.nrc.gov/about-nrc/radiation/health-effects/detection-radiation.html>

but that's not the sort of thing we do? It's sort of a strange request.

From: Bonaccorso, Amy
Sent: Wednesday, March 30, 2011 2:25 PM
To: Janbergs, Holly
Subject: FW: From the NRC Allegation Inbox

Well this is different...any idea what to tell him?

I have no idea who would test his samples.

From: Janbergs, Holly **On Behalf Of** OPA Resource
Sent: Wednesday, March 30, 2011 1:05 PM
To: Bonaccorso, Amy
Subject: FW: From the NRC Allegation Inbox

We've gone over this with Allegations and they decided it didn't meet their criteria. Video is shots of "yellow rain" (pollen) with a music soundtrack. Video description is as follows:

On March 22, 2011 I noticed many yellow puddles on my driveway during the rain. I took these pictures and also collected a sample. I have noticed in many news articles that people have been reporting yellow rain in Japan, Oregon, and elsewhere following the disaster at Fukushima Daiichi nuclear power complex. This has been officially attributed to pollen, not radioactive fallout. I found this explanation questionable, so I just wanted to upload these pictures to let everyone know that this also happened in Phoenix, Arizona during the rain we were having.

Comments suggest he's trying to find someone to analyze the substance for him.

From: Hernandez, Pete
Sent: Wednesday, March 30, 2011 11:21 AM
To: OPA Resource
Subject: From the NRC Allegation Inbox

Good morning OPA,

4/3/17

While no nuclear safety concern was detailed in the body of the attached email, I am unable to determine if there is an allegation present. Are you able to view the attached youtube link? If so, please let me know the details if it seems to be an allegation.

Thank you,

Pete Hernandez

From: Hayden, Elizabeth
To: WebWork Resource; WebContractor Resource; Hardy, Sally
Cc: Couret, Ivonne; Janbergs, Holly
Subject: Request to Post photo to website
Date: Wednesday, March 30, 2011 3:35:08 PM
Attachments: aSD-138_10.jpg
Final - Written Testimony for SAC Energy and Water 3 30 11.docx
Importance: High

Please use this caption and post by 4 pm today. The resolution may not be very good, but perhaps you can clean it up a bit.

NRC Chairman Gregory B. Jaczko testified at the March 30th Senate Appropriations Energy and Water Subcommittee hearing on the recent tragic events in Japan. He reiterated the agency's continuing confidence in the safety of the U.S. commercial nuclear reactor power plants.

Can you link the attached written statement (testimony) to the word "testified"?

I will also need to put the statement up on the Japan page as a new item at the top under "Commission Activity" as "Chairman Statement at March 30 Hearing" OCA is working to get the statement in ADAMS.

Then flip/flop the order of the existing items listed under Commission Activity (on Japan page) so that the 3 items are listed in descending date order—the most recent on top.

Beth Hayden
Senior Advisor
Office of Public Affairs
U.S. Nuclear Regulatory Commission
--- Protecting People and the Environment
301-415-8202
elizabeth.hayden@nrc.gov

From: Couret, Ivonne
Sent: Wednesday, March 30, 2011 11:21 AM
To: Hayden, Elizabeth
Subject: Best Images from Senate Hearing today
Importance: High

Here are the best shots. Ivonne

Ivonne L. Couret
Public Affairs Officer
Office of Public Affairs
Media Desk
opa.resource@nrc.gov
301-415-8200

Visit our online photo gallery. Incorporate graphics and photographs to tell your story!
<http://www.nrc.gov/reading-rm/photo-gallery/>

4/318

2010-2011 Information Digest - Where you can find NRC Facts at a Glance
<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1350/>



WRITTEN STATEMENT
BY GREGORY B. JACZKO, CHAIRMAN
UNITED STATES NUCLEAR REGULATORY COMMISSION
TO THE
APPROPRIATIONS COMMITTEE
SUBCOMMITTEE ON ENERGY AND WATER
UNITED STATES SENATE
MARCH 30, 2011

Chairman Feinstein, Ranking Member Alexander, and Members of the Subcommittee, I appreciate the opportunity to appear before you to address the response of the United States Nuclear Regulatory Commission (NRC) to the recent tragic events in Japan. People across the country and around the world who have been touched by the magnitude and scale of this disaster are closely following the events in Japan and the repercussions in this country and in other countries.

I traveled to Japan over the past weekend, and just returned yesterday. I wanted to convey a message of support and cooperation to our Japanese counterparts there and to assess the current situation. I also met with senior Japanese government and TEPCO officials, and consulted with our NRC team of experts who are in Japan as part of our assistance effort.

I would first like to reiterate my condolences to all those who have been affected by the earthquake and tsunami in Japan. Our hearts go out to all who have been dealing with the aftermath of these natural disasters, and we are mindful of the long and difficult road they will face in recovering. We know that the people of Japan are resilient and strong, and we have every confidence that they will come through this horrific time and move forward, with resolve, to

rebuild their vibrant country. Our agency stands together with the people of Japan at this most difficult and challenging time.

The NRC is an independent agency, with approximately 4000 staff. We play a critically important role in protecting the American people and the environment. Our agency sets the rules by which commercial nuclear power plants operate, and nuclear materials are used in thousands of academic, medical and industrial settings in the United States. We have at least two resident inspectors who work full-time at every nuclear plant in the country, and we are proud to have world-class scientists, engineers and professionals representing nearly every discipline.

Since Friday, March 11, when the earthquake and tsunami struck, the NRC's headquarters 24-hour Emergency Operations Center has been fully activated, with staffing augmented to monitor and analyze events at nuclear power plants in Japan. At the request of the Japanese government, and through the United States Agency for International Development (USAID), the NRC sent a team of its technical experts to provide on-the-ground support, and we have been in continual contact with them. Within the United States, the NRC has been working closely with other Federal agencies as part of our government's response to the situation.

During these past several weeks, our staff has remained focused on our essential safety and security mission. I want to recognize their tireless efforts and their critical contributions to the U.S. response to assist Japan. In spite of the evolving situation, the long hours, and the intensity of efforts over the past week, NRC staff has approached their responsibilities with dedication, determination and professionalism, and I am incredibly proud of their efforts. The American people also can be proud of the commitment and dedication within the Federal workforce, which is exemplified by our staff every day.

The NRC's primary responsibility is to ensure the adequate protection of the public health and safety of the American people. Toward that end, we have been very closely monitoring the activities in Japan and reviewing all currently available information. Review of this information, combined with our ongoing inspection and licensing oversight, gives us confidence that the U.S. plants continue to operate safely. To date, there has been no reduction in the licensing or oversight function of the NRC as it relates to any of the U.S. licensees.

Our agency has a long history of conservative regulatory decision-making. We have been intelligently using risk insights to help inform our regulatory process, and, for more than 35 years of civilian nuclear power in this country, we have never stopped requiring improvements to plant designs, and modifying our regulatory framework as we learn from operating experience.

Despite the very high level of support being provided by the NRC in response to the events in Japan, we continue to remain focused on our domestic responsibilities.

I'd like to begin with a brief overview of our immediate and continuing response to the events in Japan. I then want to further discuss the reasons for our continuing confidence in the safety of the U. S. commercial nuclear reactor fleet, and the path forward for the NRC in order to learn all the lessons we can, in light of these events.

On Friday, March 11th, an earthquake hit Japan, resulting in the shutdown of more than 10 reactors. The ensuing tsunami appears to have caused the loss of normal and emergency alternating current power to the six unit Fukushima Daiichi site. It is those six units that have received the majority of our attention since that time. Units One, Two, and

Three were in operation at the time of the earthquake. Units Four, Five, and Six were in previously scheduled outages.

Shortly after 4:00 AM EDT on Friday, March 11th, the NRC Emergency Operations Center made the first call, informing NRC management of the earthquake and the potential impact on U.S. plants. We went into the monitoring mode at our Emergency Operations Center, and the NRC's first concern was possible impacts of the tsunami on U.S. plants and radioactive materials on the West Coast, and in Hawaii, Alaska, and U. S. Territories in the Pacific. We were in communication with licensees and NRC resident inspectors at Diablo Canyon Power Plant and San Onofre Nuclear Generating Station in California, and the Radiation Control Program Directors for California, Washington, Oregon and Hawaii.

On that same day, we began interactions with our Japanese regulatory counterparts and dispatched two experts to Japan to help at the U.S. embassy in Tokyo. By Monday, March 14, we had dispatched a total of 11 NRC staff to provide technical support to the American embassy and the Japanese government. We have subsequently rotated in additional staff to continue our on-the-ground assistance in Japan. The areas of focus for this team are: 1) to assist the Japanese government and respond to requests from our Japanese regulatory counterparts; and 2) to support the U. S. ambassador and the U.S. government assistance effort.

On Wednesday, March 16, we collaborated with other U. S. government agencies and decided to advise American citizens to evacuate within a 50-mile range around the plant. This decision was a prudent course of action and would be consistent with what we would do under similar circumstances in the United States. This evacuation range was predicated on a combination of the information that we had available at the time, which indicated the possibility that reactor cores and spent fuel pools may have been compromised, and hypothetical

calculations of the approximate activity available for release from one reactor and two spent-fuel pools at a four-reactor site.

We have an extensive range of stakeholders with whom we have ongoing interaction regarding the Japan situation, including the White House, Congressional staff, our state regulatory counterparts, a number of other federal agencies, and international regulatory bodies around the world.

The NRC response in Japan and our Emergency Operations Center continue with the dedicated efforts of over 250 NRC staff on a rotating basis. The entire agency is coordinating and working together in response to this event so that we can provide assistance to Japan while continuing the vital activities necessary to fulfill our domestic responsibilities.

It is important to note that the U. S. government has an extensive network of radiation monitors across this country. Monitoring at nuclear power plants and the U. S. Environmental Protection Agency's (EPA) system has not identified any radiation levels that effect public health and safety in this country. In fact, natural background radiation from sources such as rocks, the sun, and buildings, is 100,000 times more than doses attributed to any level that has been detected in the U.S. to date. Therefore, based on current data, we feel confident that there is no reason for concern in the United States regarding radioactive releases from Japan.

There are many factors that assure us of ongoing domestic reactor safety. We have, since the beginning of the regulatory program in the United States, used a philosophy of Defense-in-Depth, which recognizes that nuclear reactors require the highest standards of design, construction, oversight, and operation, and does not rely on any single layer of protection for public health and safety. Designs for every individual reactor in this country take into account site-specific factors and include a detailed evaluation for natural events, such as

earthquakes, tornadoes, hurricanes, floods, and tsunamis, as they relate to that site.

There are multiple physical barriers to radiation in every reactor design. Additionally, there are both diverse and redundant safety systems that are required to be maintained in operable condition and frequently tested to ensure that the plant is in a high condition of readiness to respond to any situation.

We have taken advantage of the lessons learned from previous operating experience to implement a program of continuous improvement for the U. S. reactor fleet. We have learned from experience across a wide range of situations, including most significantly, the Three Mile Island accident in 1979. As a result of those lessons learned, we have significantly revised emergency planning requirements and emergency operating procedures. We have addressed many human factors issues regarding how control room employees operate the plant, added new requirements for hydrogen control to help prevent explosions inside of containment, and created requirements for enhanced control room displays of the status of pumps and valves.

The NRC has a post-accident sampling system that enables the monitoring of radioactive material release and possible fuel degradation. One of the most significant changes after Three Mile Island was an expansion of the Resident Inspector Program, which now has at least two full-time NRC inspectors on site at each nuclear power plant. These inspectors have unfettered access to all licensees' activities related to nuclear safety and security.

As a result of operating experience and ongoing research programs, we have developed requirements for severe accident management guidelines. These are components and procedures developed to ensure that, in the event all of the above-described precautions failed and a severe accident occurred, the plant would still protect

public health and safety. The requirements for severe accident management have been in effect for many years and are frequently evaluated by the NRC inspection program.

As a result of the events of September 11, 2001, we identified important pieces of equipment that, regardless of the cause of a significant fire or explosion at a plant, the NRC requires licensees to have available and staged in advance, as well as new procedures and policies to help deal with a severe situation.

Our program of continuous improvement, based on operating experience, will now include evaluation of the significant events in Japan and what we can learn from them. We already have begun enhancing inspection activities through temporary instructions to our inspection staff, including the resident inspectors and the region-based inspectors in our four Regional offices, to look at licensees' readiness to deal with both design-basis accidents and beyond-design-basis accidents.

We have also issued an information notice to licensees to make them aware of the events in Japan, and the kinds of activities we believe they should be engaged in to verify their readiness. It is expected that licensees review the information related to their capabilities to mitigate conditions that result from severe accidents, including the loss of significant operational and safety systems, to ensure that they are in effect and operational.

During the past 20 years, there have been a number of new rulemakings that have enhanced the domestic fleet's preparedness against some of the problems we are seeing in Japan. The "station blackout" rule requires every plant in this country to analyze what the plant response would be if it were to lose all alternating current so that it could respond using batteries for a period of time, and then have procedures in place to restore alternating current to the site and provide cooling to the core.

The hydrogen rule requires modifications to reduce the impacts of hydrogen generated for beyond-design-basis events and core damage. There are equipment qualification rules that require equipment, including pumps and valves, to remain operable under the kinds of environmental temperature and radiation conditions that you would see under a design-basis accident.

With regard to the type of containment design used by the most heavily damaged plants in Japan, the NRC has had a Boiling Water Reactor Mark I Containment Improvement Program since the late 1980s. This program required installation of hardened vent systems for containment pressure relief, as well as enhanced reliability of the automatic depressurization system.

A final factor that underpins our belief in the ongoing safety of the U. S. fleet is the emergency preparedness and planning requirements in place that provide ongoing training, testing, and evaluations of licensees' emergency preparedness programs. In coordination with our federal partner, the Federal Emergency Management Administration (FEMA), these activities include extensive interaction with state and local governments, as those programs are evaluated and tested on a periodic basis.

Along with our confidence in the safety of U.S. nuclear power plants, our agency has a responsibility to the American people to undertake a systematic and methodical review of the safety of our domestic facilities, in light of the natural disaster and the resulting nuclear situation in Japan.

Examining all available information is an essential part of the effort to analyze the event and understand its impact on Japan and its implications for the United States. Our focus is always on keeping nuclear plants and radioactive materials in this country safe and secure.

On Monday, March 21, my colleagues on the Commission and I met to review the status of the situation in Japan and identify the steps needed to conduct that review. We consequently decided to establish a senior level agency task force to conduct a comprehensive review of our processes and regulations to determine whether the agency should make additional improvements to our regulatory system, and to make recommendations to the Commission for its policy direction.

The review will be conducted in both a short-term and a longer-term timeframe. The short-term review has already begun, and the task force will brief the Commission at 30, 60 and 90 day intervals, to identify potential or preliminary near-term operational or regulatory issues. The task force then will undertake a longer-term review as soon as NRC has sufficient information from the events in Japan. That longer-term review will be completed in six months from the beginning of the evaluation.

The task force will evaluate all technical and policy issues related to the event to identify additional potential research, generic issues, changes to the reactor oversight process, rulemakings, and adjustments to the regulatory framework that may warrant action by the NRC. We also expect to evaluate potential interagency issues, such as emergency preparedness, and examine the applicability of any lessons learned to non-operating reactors and materials licensees. We expect to seek input from all key stakeholders during this process. A report with appropriate recommendations will be provided to the Commission within six months of the start of this evaluation. Both the 90-day and final reports will be made

publicly available.

In conclusion, I want to reiterate that we continue to make our domestic responsibilities for licensing and oversight of the U.S. licensees our top priority and that the U.S. plants continue to operate safely. In light of the events in Japan, there will be a near-term evaluation of their relevance to the U.S. fleet, and we are continuing to gather the information necessary to take a longer, more comprehensive and thorough look at the events in Japan and their lessons for us. Based on these efforts, we will take all appropriate actions necessary to ensure the continuing safety of the American people.

Chairman Feinstein, Ranking Member Alexander, and Members of the Subcommittee, on behalf of the Commission, thank you for the opportunity to appear before you. I look forward to continuing to work with you to advance the NRC's important safety mission.

From: McIntyre, David
To: Couret, Ivonne; Hayden, Elizabeth
Cc: Janbergs, Holly
Subject: RE: ACRS briefing on April 7th
Date: Wednesday, March 30, 2011 3:49:27 PM
Attachments: image001.png

They really think people are going to shlep all the way out here for a 20-minute public session??

From: Couret, Ivonne
Sent: Wednesday, March 30, 2011 3:32 PM
To: Hayden, Elizabeth
Cc: McIntyre, David; Janbergs, Holly
Subject: FW: ACRS briefing on April 7th
Importance: High

Next Thursday they are having a briefing on Japanese event and they are requesting OPA support and attend. I will not be here I thought perhaps Bethany could attend. Please advise. Ivonne

From: Diaz-Sanabria, Yaira
Sent: Wednesday, March 30, 2011 2:59 PM
To: Couret, Ivonne
Cc: Hackett, Edwin; Santos, Cayetano; Berrios, Ilka
Subject: ACRS briefing on April 7th
Importance: High

Ivonne,

Per our conversation. ACRS briefing on Events at the Fukushima Reactor Site in Japan (open/closed) will be held on April 7, 2011 from 10:45 am – 12:45 pm. Portions of the briefing will be closed to the public to protect information that is in confidence by the Japan authorities. The open session will be the first 15-20 min. The NRC staff is the only audience allow during the closed session. It will be ideal to have the support from OPA due to the sensitivity and high profile of this subject. Please feel free to contact me if you need further information.

Thanks in advance,

Yaira K. Diaz-Sanabria

Advisory Committee on Reactor Safeguards

✉ T2-E26 | ☎ 301-415-8064 | FAX 301-415-5589

Yaira.Diaz-Sanabria@nrc.gov



 Please consider the environment before printing this e-mail. Thank you.

L/319

From: [Hayden, Elizabeth](#)
To: [Couret, Ivonne](#); [Harrington, Holly](#)
Cc: [McIntyre, David](#); [Janbergs, Holly](#)
Subject: RE: ACRS briefing on April 7th
Date: Wednesday, March 30, 2011 5:46:47 PM
Attachments: [image001.png](#)

That may be a bit much to ask of Bethany by herself. We will have you, Scott and Eliot out that day.

Holly, could you help out at the beginning of the meeting to make sure the place isn't overrun by reporters, cameras, etc? If there are very few reporters there, perhaps you can leave Bethany to give the ACRS peace of mind.

Beth Hayden
Senior Advisor
Office of Public Affairs
U.S. Nuclear Regulatory Commission
--- Protecting People and the Environment
301-415-8202
elizabeth.hayden@nrc.gov

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Sent: Wednesday, March 30, 2011 3:32 PM
To: Hayden, Elizabeth
Cc: McIntyre, David; Janbergs, Holly
Subject: FW: ACRS briefing on April 7th
Importance: High

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Cc: Hackett, Edwin; Santos, Cayetano; Berrios, Ilka
Subject: ACRS briefing on April 7th
Importance: High

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Thanks in advance,

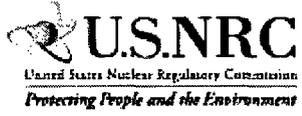
4/320

Yoira K. Diaz-Sanabria

Advisory Committee on Reactor Safeguards

☒ T2-E26 | ☎ 301-415-8064 | FAX 301-415-5589

Yoira.Diaz-Sanabria@nrc.gov



Please consider the environment before printing this e-mail. Thank you.

From: [Burnell, Scott](#)
To: [Screnci, Diane](#); [Sheehan, Neil](#); [Hannah, Roger](#); [Ledford, Joey](#); [Chandrathil, Prema](#); [Mitlyng, Viktoria](#); [Dricks, Victor](#); [Uselding, Lara](#)
Cc: [McIntyre, David](#); [Harrington, Holly](#); [Couret, Ivonne](#); [Janbergs, Holly](#); [Hayden, Elizabeth](#); [Brenner, Eliot](#)
Subject: Question on Chairman's testimony
Date: Thursday, March 31, 2011 1:42:48 PM

All;

Here's the verbiage HQ has used to reply to questions on the Chairman's testimony today:

The six plants were as of the end of the assessment year (March-Feb.), we're actually down to three at this point.

The six the Chairman referred to are Fort Calhoun (Neb.), Robinson Unit 2 (S.C.), Wolf Creek (Kansas) and the three units at Oconee (S.C.). Oconee has subsequently improved and is back to our normal level of oversight.

http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/actionmatrix_summary.html

Every plant receives at least the normal level of inspection and oversight, called "Licensee Response." If enough items of low significance appear, a plant will move to the second level of inspection, called "Regulatory Response." Items that aren't resolved in a reasonable amount of time, or new items of somewhat higher significance, can move a plant to the third level of even more inspection and oversight, "Degraded Cornerstone," and that's where the six plants were (and three still are). Serious issues, or significant issues that last even longer, move a plant to the fourth level, "Multiple (or Repetitive) Degraded Cornerstone," where there's intensive inspection and attention from senior NRC management. The last level is "Unacceptable Performance," where we shut a plant down until we determine it's safe to reopen.

Short version, the NRC felt the six (now three) required significant additional oversight but continue to operate safely.

Scott

4321

From: [Janbergs, Holly](#) on behalf of [OPA Resource](#)
To: [Courret, Ivonne](#)
Subject: FW: Japan review -- chairman says six US units under intensive review?
Date: Thursday, March 31, 2011 11:06:00 AM

FYI

From: Dolley, Steven [mailto:Steven_Dolley@platts.com]
Sent: Thursday, March 31, 2011 10:51 AM
To: Hayden, Elizabeth
Cc: OPA Resource
Subject: Japan review -- chairman says six US units under intensive review?

Hi Beth, The chairman just said during his Senate testimony that six US nuclear units are under intensive review in the wake of the Fukushima I accident.

Which six units are being reviewed? What issues are being reviewed and how long will it take? Why are these six units considered a particular priority?

I'm writing for our daily, 5 pm EDT deadline.

Thanks,
Steve

Steven Dolley
Managing Editor, Inside NRC
Platts Nuclear
202-383-2166 Office
202-383-2187 Fax

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L/322

From: [Harrington, Holly](#)
To: [Hayden, Elizabeth](#); [Courret, Ivonne](#)
Cc: [McIntyre, David](#); [Janbergs, Holly](#)
Subject: RE: ACRS briefing on April 7th
Date: Thursday, March 31, 2011 8:39:52 AM
Attachments: [image001.png](#)

No problem.

Ivonne, get with me to discuss at some point

From: Hayden, Elizabeth
Sent: Wednesday, March 30, 2011 5:47 PM
To: Courret, Ivonne; Harrington, Holly
Cc: McIntyre, David; Janbergs, Holly
Subject: RE: ACRS briefing on April 7th

That may be a bit much to ask of Bethany by herself. We will have you, Scott and Eliot out that day.

Holly, could you help out at the beginning of the meeting to make sure the place isn't overrun by reporters, cameras, etc? If there are very few reporters there, perhaps you can leave Bethany to give the ACRS peace of mind.

Beth Hayden
Senior Advisor
Office of Public Affairs
U.S. Nuclear Regulatory Commission
--- Protecting People and the Environment
301-415-8202
elizabeth.hayden@nrc.gov

From: Courret, Ivonne
Sent: Wednesday, March 30, 2011 3:32 PM
To: Hayden, Elizabeth
Cc: McIntyre, David; Janbergs, Holly
Subject: FW: ACRS briefing on April 7th
Importance: High

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From: Diaz-Sanabria, Yoira
Sent: Wednesday, March 30, 2011 2:59 PM
To: Courret, Ivonne
Cc: Hackett, Edwin; Santos, Cayetano; Berrios, Ilka
Subject: ACRS briefing on April 7th
Importance: High

Ivonne,

1/323

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Thanks in advance,

Yoira K. Diaz-Sanabria

Advisory Committee on Reactor Safeguards

✉ T2-E26 | ☎ 301-415-8064 | FAX 301-415-5589

Yoira.Diaz-Sanabria@nrc.gov



Please consider the environment before printing this e-mail. Thank you.

From: Couret, Ivonne
To: Janbergs, Holly; Akstulewicz, Brenda; Royer, Deanna; Medina, Veronika; Bonaccorso, Amy; Deavers, Ron; Anderson, Brian; Shannon, Valerie
Cc: Sheehan, Neil; Screnci, Diane; Chandrathil, Prema; Dricks, Victor; Mitlyng, Viktoria; Uselding, Lara; Hannah, Roger; Ledford, Joey; Harrington, Holly
Subject: FYI - Possible calls today - Update on Ongoing Monitoring
Date: Thursday, March 31, 2011 8:34:29 AM

All,
Just in case, we may get some public/media inquires after the recent news stories of radioactive traces found in milk....see links to sources below to direct folks where to go.
Ivonne

From: U.S. EPA [mailto:usaepa@govdelivery.com]
Sent: Wednesday, March 30, 2011 5:20 PM
To: Couret, Ivonne
Subject: Air News Release (HQ): JOINT EPA/FDA STATEMENT: Update on Ongoing Monitoring

CONTACT:
EPA Press Office
press@epa.gov

FDA Press Office
fdaopa@fda.hhs.gov

FOR IMMEDIATE RELEASE
March 30, 2011

JOINT EPA/FDA STATEMENT: Update on Ongoing Monitoring

WASHINGTON – In response to the ongoing situation in Japan, the U.S. Environmental Protection Agency (EPA) has taken steps to increase the level of nationwide monitoring of milk, precipitation, drinking water, and other potential exposure routes.

EPA conducts radiological monitoring of milk under its RADNET program, while the U.S. Food and Drug Administration has jurisdiction over the safety, labeling and identity of milk and milk products in interstate commerce. States have jurisdiction over those facilities located within their territory.

Results from a screening sample taken March 25 from Spokane, Wash. detected 0.8 pCi/L of iodine-131, which is more than 5,000 times lower than the Derived Intervention Level set by the U.S. Food and Drug Administration. These types of findings are to be expected in the coming days and are far below levels of public health concern, including for infants and children. Iodine-131 has a very short half-life of approximately eight days, and the level detected in milk and milk products is therefore expected to drop relatively quickly.

“Radiation is all around us in our daily lives, and these findings are a minuscule amount compared to what people experience every day. For example, a person would be exposed to low levels of radiation on a round trip cross country flight, watching television, and even from construction materials,” said Patricia Hansen, an FDA senior scientist.

EPA's recommendation to state and local governments is to continue to coordinate closely with EPA,

L/324

FDA and CDC. EPA will continue to communicate our nationwide sampling results as they come in.

EPA: <http://www.epa.gov/japan2011>

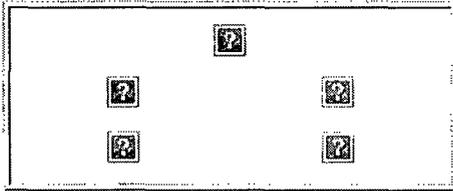
FDA: <http://www.fda.gov/NewsEvents/PublicHealthFocus/ucm247403.htm>

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Sent by the U.S. Environmental Protection Agency · 1200 Pennsylvania Avenue NW · Washington DC 20460 · 202-564-4355

From: Janbergs, Holly on behalf of [OPA Resource](#)
To: [Courret, Ivonne](#)
Subject: FW: BBC Newsnight interview request
Date: Thursday, March 31, 2011 11:24:00 AM

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

From: Ben Bevington [<mailto:ben.bevington@bbc.co.uk>]
Sent: Thursday, March 31, 2011 11:20 AM
To: OPA Resource
Subject: BBC Newsnight interview request

Hello,

My name is Ben Bevington and I am the Washington producer for BBC Newsnight, the UK's flagship daily news and current affairs TV programme. It is the BBC's equivalent to Nightline or 60 Minutes.

I'd like to talk to somebody please for help with our coverage on safety at nuclear power stations and the lessons learned from the disaster in Japan. We're looking for two things:

1. a LIVE INTERVIEW for tomorrow FRIDAY APRIL 1 with a spokesman from the NRC who can explain how the agency is responding to concerns raised by Fukushima and why it is confident that the US nuclear industry is better prepared. This would follow a short news story and be at 5.30pm EST - we could do it from our studio in Washington.

2. I'm also working on a much more in-depth 15-minute investigative/analysis TV piece with our Science Editor Susan Watts to run later in Europe. It would be great to talk to someone at the NRC as part of my research. And to see what filming opportunities there may be. We want to highlight the extra safety and security measures in place at US plants so is there any way to join a team of inspectors on a tour?

This would be for a high-profile BBC story that would be shown in the US as well as internationally on the BBC's global TV, radio and online outlets.

If someone is free to chat by phone today that would be incredibly helpful. My number is 202 2439306.

Thank you for your help with this. I look forward to hearing from you.

Regards,

Ben Bevington

Sent via BlackBerry from T-Mobile

4/325

Deavers, Ron

From: Couret, Ivonne
Sent: Thursday, March 31, 2011 8:34 AM
To: Janbergs, Holly; Akstulewicz, Brenda; Royer, Deanna; Medina, Veronika; Bonaccorso, Amy; Deavers, Ron; Anderson, Brian; Shannon, Valerie
Cc: Sheehan, Neil; Screnci, Diane; Chandrathil, Prema; Dricks, Victor; Mitlyng, Viktoria; Uselding, Lara; Hannah, Roger; Ledford, Joey; Harrington, Holly
Subject: FYI - Possible calls today - Update on Ongoing Monitoring

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Sent: Wednesday, March 30, 2011 5:20 PM
To: Couret, Ivonne
Subject: Air News Release (HQ): JOINT EPA/FDA STATEMENT: Update on Ongoing Monitoring

CONTACT:
EPA Press Office
press@epa.gov

FDA Press Office
fdaopa@fda.hhs.gov

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EPA's recommendation to state and local governments is to continue to coordinate closely with EPA, FDA and CDC. EPA will continue to communicate our nationwide sampling results as they come in.

EPA: <http://www.epa.gov/japan2011>

4/326

FDA: <http://www.fda.gov/NewsEvents/PublicHealthFocus/ucm247403.htm>

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Deavers, Ron

From: Royer, Deanna
Sent: Thursday, March 31, 2011 3:47 PM
To: Deavers, Ron; Bonaccorso, Amy
Subject: public questions

Shawn Burke
UBS Securities
203-719-4748

Re: 6 plants under serious safety review

Deanna Royer
Contract Secretary
Division of New Reactor Licensing
(301) 415-7158
Deanna.Royer@nrc.gov

Medina, Veronika

From: Janbergs, Holly
Sent: Thursday, March 31, 2011 2:50 PM
To: Akstulewicz, Brenda; Anderson, Brian; Brenner, Eliot; Burnell, Scott; Chandrathil, Prema; Couret, Ivonne; Cuadrado, Jose; Dricks, Victor; Ellmers, Glenn; Ghneim, Munira; Hannah, Roger; Harrington, Holly; Hayden, Elizabeth; Janbergs, Holly; Landau, Mindy; Ledford, Joey; McIntyre, David; Medina, Veronika; Mitlyng, Viktoria; Parks, Benjamin; Royer, Deanna; Screnci, Diane; Shannon, Valerie; Sheehan, Neil; Shoop, Undine; Taylor, Robert; Uselding, Lara
Subject: We made the Onion

<http://www.theonion.com/articles/nuclear-energy-advocates-insist-us-reactors-comple,19740/>

Beth Janbergs
Public Affairs Assistant
301-415-8211

Royer, Deanna

From: Royer, Deanna
Sent: Thursday, March 31, 2011 2:12 PM
To: Couret, Ivonne
Subject: Media - MSNBC.COM-Question

Kari Huus

MSNBC.COM

(415-706-1844) *Ex 6*

Kari.huus@msnbc.com

Re: Japan – Danger of handling bodies that have been exposed to high levels of radiation.

Deanna Royer

Contract Secretary

Division of New Reactor Licensing

(301) 415-7158

Deanna.Royer@nrc.gov

Norato, Michael

From: Joe Colvin [president@ans.org]
Sent: Thursday, March 31, 2011 5:02 AM
To: Norato, Michael
Subject: ANS Member Activities and Fukushima

Dear ANS Member,

In the days since Japan's earthquake and tsunami combined to create the situation at Fukushima, nuclear professionals across the country have been united in our deep concern over the events in Japan and have contributed countless hours working to ensure that information provided to the public and media was based on fact and reason rather than hysteria and misinformation. I want to take this opportunity to express my appreciation to the many ANS Members who stepped forward to support the efforts of the Society in this time of great need.

The Society has played—and is continuing to play—a major role in addressing the scientific and technical aspects of the accident at Fukushima with the public, policy makers and the media. ANS Headquarters, the ANS Corporate Officers, and our media, social media and federal consultants have worked diligently, with the support of many members, to improve the public understanding of the situation in Japan. Within several hours of the events at Fukushima, ANS initiated the Crisis Communications Team, which has met daily by conference call since the accident to coordinate the Society's activities, including media outreach. Though ANS Members could not be everywhere, we have had a significant and positive effect.

ANS Members have participated in more than 150 interviews in venues like *The Today Show*, *CBS Evening News*, *NBC Nightly News*, *CBS Morning News* & local affiliates, *CNN*, *NPR*, *Good Morning America*, the *New York Times*, the *Washington Post*, and the *Wall Street Journal*—to name a few. Over one hundred members volunteered their services when Candace Davison, ANS Public Information Committee Chair, explained the urgent need for media resources.

Thanks to your efforts, ANS Members reached more than 81 million people through proactive media outreach. That's over one in four U.S. households—a truly remarkable effort!

While some ANS Members could not serve as media spokespersons due to company restrictions, they provided essential analysis of the ongoing technical events in Japan. That analysis helped to formulate documents such as the *Japan Backgrounder* and the *ANS Talking Points*. ANS Social Media Group members actively engaged in positive, proactive media outreach—something they have done so successfully in the past. They identified and shared media opportunities and formed the backbone of the early media efforts.

Those who could not speak helped those who could by lending information, analysis, and advice.

The [ANS Nuclear Cafe](#) blog site was repurposed as an information clearinghouse during the early morning hours of March 11. As ANS Members shared links to factual, non-alarmist information provided on the blog, traffic to the site increased by a factor of 100.

The strength of the Society is rooted in our membership and catalyzed by effective and talented expertise. ANS Student Sections, Nuclear Engineering Departments, and Local Sections have engaged in efforts across the country to reach out via public forums, webinars, presentations, conversations with friends and colleagues, and social networks. Visit the [ANS website](#) and be inspired by the wealth of activities catalogued under 'Featured Content.'

ANS Members have engaged in the vital grassroots efforts that drive greater understanding—and thus greater acceptance—of nuclear science and technology.

In response to your overwhelming feedback, ANS established the ANS Japan Relief Fund to help our friends, colleagues, and their families in Japan who have been affected by the earthquake and tsunami. This fund symbolizes how the international nuclear community stands together to help one another.

ANS will continue to play a key role in placing the Fukushima incident into perspective, as well examining the factors that have contributed to the incident. We are in the process of outlining the important role that the Society can play in developing a greater understanding into the scientific and technical issues surrounding the accident at Fukushima. Nuclear professionals will continue to set the bar high for nuclear energy, which remains the safest source of electricity generation.

I look forward to working with you, the dedicated and passionate members of this Society, as we continue to promote the awareness and understanding of nuclear science and technology.

Sincerely,

Joe Colvin
ANS President

Visit the ANS Nuclear Cafe: <http://ansnuclearcafe.org/>

Follow ANS on Twitter: [@ans_org](#)

Like ANS on Facebook: [American Nuclear Society](#)

Join the ANS LinkedIn Group: [ANS](#) (reserved for ANS Members)

Weaver, Tonna

From: Joe Colvin [president@ans.org]
Sent: Thursday, March 31, 2011 4:56 AM
To: Panicker, Mathew
Subject: ANS Member Activities and Fukushima

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I look forward to working with you, the dedicated and passionate members of this Society, as we continue to promote the awareness and understanding of nuclear science and technology.

Sincerely,

Joe Colvin
ANS President

Visit the ANS Nuclear Cafe: <http://ansnuclearcafe.org/>

Follow ANS on Twitter: [@ans_org](#)

Like ANS on Facebook: [American Nuclear Society](#)

Join the ANS LinkedIn Group: [ANS](#) (reserved for ANS Members)

King, Mark

From: King, Mark *NRRC*
Sent: Thursday, March 31, 2011 4:48 PM
To: Garmon, David
Subject: Items for consideration for your Japan OpE COMM - updates

Dave,
I noticed the INFO NOTICE we issued isn't linked... it probably should be.

in2011-05	03/18/2011	Tohoku-Taiheiyou-Oki Earthquake Effects On Japanese Nuclear Power Plants
-----------	------------	--

Also a recent EDO update message stated the following about Japan - use selected info as you see fit. FYI

Monitoring the Situation in Japan

We continue to monitor the developments at the Fukushima-Daiichi site. It is too soon to say when the situation will be sufficiently stable that we can wind down our extra staffing in Japan and the Ops Center. We just sent the 3rd wave to Tokyo as others have returned back home to the U.S. Some of the team members have had to endure hundreds of significant aftershocks, food shortages, long work hours, and other difficult working and living conditions. Please make them feel welcome as they return. The Office of Nuclear Reactor Regulation has compiled a collection of Questions and Answers about the events at Fukushima and how they relate to U.S. commercial reactors, which I encourage you to visit here:
<http://portal.nrc.gov/edo/nrr/dorl/japan/Shared%20Documents/Questions%20and%20Answers.aspx>. I will, of course, keep you informed of any significant new developments.

Review Teams

In response to the Fukushima events, the Commission directed the staff to convene an agency task force of senior leaders and experts to conduct a methodical and systematic review of relevant NRC regulatory requirements, programs, and processes, and their implementation, to recommend whether the agency should make near-term improvements to our regulatory system. The task force, which will report to Deputy Executive Director for Reactor and Preparedness Programs Marty Virgilio, will consist of:

Lead: Charles Miller, FSME
Senior Managers: Daniel Dorman, NMSS; Jack Grobe, NRR; Gary Holahan, NRO
Senior Staff: Amy Cabbage, NRO; Nathan Sanfilippo, OEDO
Administrative Assistant: Cynthia Davidson, OGC

The task force will update the Commission on the near-term review at approximately 30 and 60 days, and provide its observations, findings, and recommendations in the form of a written report and briefing at the completion of the near-term effort occurring at approximately 90 days. Of course, if the task force—or any part of the agency—discovers some urgent action that needs to be taken we will not wait for these deadlines but will act promptly. In addition to this "quick look," we are also planning a longer, more in-depth examination of what the NRC can learn from the incidents in Japan.

L/332

Heida, Bruce

From: Cheok, Michael *MRK*
Sent: Thursday, March 31, 2011 12:58 PM
To: NRR_DRA_AADB Distribution; NRR_DRA_AFPB Distribution; NRR_DRA_APLA Distribution; NRR_DRA_APOB Distribution; NRR_DRA_DO Distribution
Subject: FW: NRR Q&A Database
Importance: High

FYI – a good database for Qs & As for the Fukushima events.

From: Nelson, Robert *MRK*
Sent: Thursday, March 31, 2011 12:46 PM
To: Leeds, Eric; Grobe, Jack; Boger, Bruce; Bahadur, Sher; Blount, Tom; Brown, Frederick; Cheok, Michael; Evans, Michele; Ferrell, Kimberly; Galloway, Melanie; Giitter, Joseph; Givvines, Mary; Hiland, Patrick; Holian, Brian; Howe, Allen; Lee, Samson; Lubinski, John; McGinty, Tim; Quay, Theodore; Ruland, William; Skeen, David; Thomas, Brian; Westreich, Barry
Subject: FYI: NRR Q&A Database
Importance: High

Up and running & populated with OPA approved Qs & As. EDO may announce in an EDO Update. Content control maintained by DORL. Link below.

<http://portal.nrc.gov/edo/nrr/dorl/japan/Shared%20Documents/Questions%20and%20Answers.aspx>

Valentine, Nicholee

From: Purdie, Michael *MPK*
Sent: Thursday, March 31, 2011 11:10 AM
To: Clayton, Brent
Subject: FW: Japan Status Report
Attachments: NRC Status Update 3 31 11--0430.pdf

First one I have gotten in a while.

Michael Purdie
NRR/DPR/PFIB (Rotation)
O-12E13
415-0244

From: Gran, Zachary
Sent: Thursday, March 31, 2011 11:09 AM
To: Yoo, Mark; Purdie, Michael; Green, Brian
Subject: FW: Japan Status Report

From: LaVera, Ronald
Sent: Thursday, March 31, 2011 10:44 AM
To: Cervera, Margaret; NRO_DCIP_CHPB; Schaffer, Steven
Subject: Japan Status Report

Valentine, Nicholee

From: McGinty, Tim *incc*
Sent: Thursday, March 31, 2011 5:29 PM
To: Regan, Christopher; Astwood, Heather; Quinones, Lauren; Rodriguez, Veronica; Hopkins, Jon; Cullingford, Michael
Cc: Blount, Tom; Quay, Theodore; Boger, Bruce
Subject: FW: EDO Update

Please see the testimonial in the bottom paragraph regarding the importance of your/our international work. I know that you were already aware of the relative importance, but I think a wider audience now better understands.

So, thanks. Tim

From: EDO Update [mailto:nrc.announcement@nrc.gov]
Sent: Thursday, March 31, 2011 4:29 PM
To: Taylor, Renee
Subject: EDO Update



EDO

Thursday, March 31, 2011



Once again I would like to keep you informed about a number of significant new

Continuing Resolution

The current Continuing Resolution passed by Congress will expire next Friday, April 1, 2011. Even if there is a lapse in appropriations, we intend to stay open an additional week. We will provide you with appropriate information. Please consult the FAQ if you have any questions. <http://portal.nrc.gov/edo/staff/Lists/Announcements/DispForm.aspx?ID=16&Source=1> should mention that even during a furlough, we expect to have sufficient staff to

Congressional Hearings

As you may be aware, the Chairman and other senior NRC leaders have testified before the House and Senate scheduled four different hearings—some of which you may be attending beyond. In addition, the Regions have been coordinating briefings, hearings, and meetings with the Operations (Ops) Centers, these hearings have required people to ensure that our “regular” responsibilities still get met. I appreciate the effort all of you are making to ensure the NRC Values and an Open, Collaborative Work Environment.

Monitoring the Situation in Japan

We continue to monitor the developments at the Fukushima-Daiichi site. It is too

4335

extra staffing in Japan and the Ops Center. We just sent the 3rd wave to Tokyo and they had to endure hundreds of significant aftershocks, food shortages, long work hours, and we hope to be as welcome as they return. The Office of Nuclear Reactor Regulation has compiled a list of questions that relate to U.S. commercial reactors, which I encourage you to visit here: <http://portal.nrc.gov/edo/nrr/dorl/japan/Shared%20Documents/Questions%20and%20Answers> for more information on these developments.

Review Teams

In response to the Fukushima events, the Commission directed the staff to conduct a comprehensive systematic review of relevant NRC regulatory requirements, programs, and procedures to identify near-term improvements to our regulatory system. The task force, which will be headed by Virgilio, will consist of:

Lead: Charles Miller, FSME

Senior Managers: Daniel Dorman, NMSS; Jack Grobe, NRR; Gary Holahan, NRO

Senior Staff: Amy Cabbage, NRO; Nathan Sanfilippo, OEDO

Administrative Assistant: Cynthia Davidson, OGC

The task force will update the Commission on the near-term review at approximately the end of the year in the form of a written report and briefing at the completion of the near-term effort. If the agency discovers some urgent action that needs to be taken we will not wait for the end of the year—also planning a longer, more in-depth examination of what the NRC can learn from the Fukushima event.

Review Meeting in Vienna

The Chairman and I will join the NRC team in Vienna, Austria, next week for the first time. The Fukushima Japan cast a bright light on the importance of what we do here at the NRC and the need for safety and security. The meeting will include a special session requested by International Atomic Energy Agency to discuss the current situation and actions that IAEA has planned in response. Thank you for your participation in this meeting. I look forward to sharing insights from the meeting with you upon our return.



Bill Borchardt, EDO

Weaver, Tonna

From: World Nuclear News [wnn=world-nuclear-news.org@mcsv62.net] on behalf of World Nuclear News [wnn@world-nuclear-news.org]
Sent: Thursday, March 31, 2011 11:52 AM
To: Panicker, Mathew
Subject: WNN Daily: Swiss nuclear organisation targeted

[View the WNN Daily in your browser.](#)

wnn DAILY

world nuclear news

Today's top stories

31 March 2011

CORPORATE: Swiss nuclear organisation targeted
A suspected letter bomb has exploded in the offices of the Swiss nuclear trade organisation, swissnuclear, injuring two people.

REGULATION & SAFETY: Further evacuations a possibility
Japanese authorities are considering the evacuation of some people beyond the current evacuation area around the Fukushima Daiichi nuclear power plant after a more serious spot of radionuclide disposition was identified. Some restrictions on tap water are being lifted but discharges to sea continue.

CORPORATE: Big money moves for Areva
Areva has made some financial changes to allow investment from Kuwait. It is soon to pay around €1.62 billion (\$2.29 billion) to buy out Siemens' 34% stake in their shared reactor business.

INDUSTRY TALK: Uranium property swap for Uravan and Cameco
Uranium exploration company Uravan Minerals has completed a deal to swap various Canadian interests with major producer Cameco.

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London, Westminster SW1Y4JH

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Weaver, Tonna

From: World Nuclear Association [wnn=world-nuclear-news.org@mail15.us2.mcsv.net] on behalf of World Nuclear Association [wnn@world-nuclear-news.org]
Sent: Thursday, March 31, 2011 12:52 PM
To: Panicker, Mathew
Subject: WNA Weekly Digest 31 March

31 March 2011

[View email in your browser.](#)



World
Nuclear
Association

Weekly Digest

Significant nuclear-related news items in perspective

Fukushima accident rolls on

Some 400 Tepco staff and contractors continue work to re-establish full cooling to three reactors and four spent fuel ponds at Fukushima Daiichi. They are hindered by radioactively-contaminated water which was originally knee-deep in the buildings - this is being removed and stored for treatment. Meanwhile Tepco has indicated that units 1-4 will be written off and decommissioned. WNA data will now reflect that.

WNN to 31/3/11. [Fukushima](#). [Japan](#)

European "stress tests" follow Fukushima accident

In response to EU energy ministers agreeing on their need, the Western European Nuclear Regulators' Association (WENRA) has proposed "stress tests" for European nuclear plants - targeted reassessment of the safety margins of those plants in the light of the events at Fukushima. For a given plant, the reassessment will report on the most probable behaviour of the plant for each of the situations considered. The results may indicate a need for additional technical or organisational safety provisions.

The scope of the assessment will take into account: Earthquake and/or flooding exceeding the design basis, other extreme external conditions leading to loss of safety functions, prolonged total loss of electrical power, prolonged loss of the ultimate heat sink. Accident management issues will include core melt accident, including consequential effects such as hydrogen accumulation, and degraded conditions in the spent fuel storage. Consideration should be given to: automatic actions, operators' actions specified in emergency operating procedures, and any other planned measures of prevention, recovery and mitigation of accidents. The situation outside the plant and the possibility of several units being affected at the same time will be taken into account. Clear guidance for each scenario will be developed by WENRA. Since the licensee has the prime responsibility for safety, it is up to the licensees to perform the reassessments, and the regulatory bodies can then independently review them expeditiously and publish them.

WNN 23/3/11. [Safety of NPP](#)

UK plutonium options canvassed

A new UK report outlines options for using or otherwise dealing with the UK's civil plutonium. This comprises some 100 tonnes of separated reactor-grade material and also that in 6000 tonnes of used AGR fuel from UK reactors - about half as much again if separated. Three of four options involve using the separated plutonium in mixed-oxide fuel, the main question is what to do with the AGR fuel - treat as waste, or reprocess at UK's THORP facility. The report suggests none of the options will be profitable, but some will have more economic and resource benefit than others. In essence, the report shows that it makes sense to produce MOX fuel from the plutonium. The

question for the UK is whether it wants to offset this with extra savings and revenues from the potentially expensive return to the full nuclear fuel cycle that would come with a refurbishment of THORP. The public consultation ends on May 11. WNN 29/3/11. [UK](#)

Further US reactor licence extension

The US Nuclear Regulatory Commission has renewed the licence of the Vermont Yankee nuclear plant for 20 years, to 2032. It is a 620 MWe BWR. This is the 63rd such extension. However, the renewal also requires approval of the state legislature, which is uncertain.

WNN 23/3/11. [US Nuclear Power](#)

UK government to introduce carbon floor price

The UK has become the first country in the world to schedule the introduction of a carbon price floor for the power generation sector, from April 2013, aimed at "driving investment in the low-carbon power sector," according to the Chancellor's budget speech.

WNN 23/3/11.

Other papers updated on the WNA Public Information Service (see WNA web site):

[India](#), [Earthquakes & NPP](#)

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World Nuclear News

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London, Westminster SW1Y4JH

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Weaver, Tonna

From: Titus, Brett *MBR*
Sent: Thursday, March 31, 2011 2:10 PM
To: Titus, Brett; Balarabe, Sarah; Weaver, Tonna; Bahadur, Sher; Ruland, William; Bailey, Stewart; Casto, Greg; Clifford, Paul; Collins, Timothy; Dennig, Robert; Mendiola, Anthony; Ulses, Anthony
Subject: RE: ACTION: FOIA 2011-0147

I have created folders on the G-drive to help this process go more smoothly. Please have your staff create sub-folders with their last names under your branch folders. This will tell us who has/hasn't responded, and it will also alleviate the issue associated with duplicate names for emails. They may also create sub-folders within their sub-folders, if that is helpful...e.g. "Titus Sent" within the "Titus" folder.

The path is G:\ADES\DSS\FOIA 2011-0147

Let me know if you have any questions.

Brett Titus
301-415-3075

From: Titus, Brett
Sent: Thursday, March 31, 2011 12:45 PM
To: Balarabe, Sarah; Weaver, Tonna; Bahadur, Sher; Ruland, William; Bailey, Stewart; Casto, Greg; Clifford, Paul; Collins, Timothy; Dennig, Robert; Mendiola, Anthony; Ulses, Anthony
Subject: FW: ACTION: FOIA 2011-0147
Importance: High

Please see the FOIA request below.

In theory, the previous FOIA from the Associated Press overlapped this one up until March 16th, so you should only have to focus on items between the 16th and the 24th.

Note the due date is April 12.

Let me know if you have any questions.

Thanks,

Brett Titus
301-415-3075

From: Craver, Patti *MBR*
Sent: Thursday, March 31, 2011 12:16 PM
To: Titus, Brett; Cusumano, Victor; Roquecruz, Carla; Scales, Kerby; Cartwright, William; Meighan, Sean; Heida, Bruce; Nguyen, Quynh; Wertz, Trent
Cc: Ruland, William; Lubinski, John; Hiland, Patrick; Cheok, Michael; Nelson, Robert; Westreich, Barry; Leeds, Eric; Craver, Patti
Subject: ACTION: FOIA 2011-0147
Importance: High

Good Afternoon,

NRR along with NMSS, NRO, EDO, NSIR, OCA, OIP, OPA, RES, SECY and the Regions have been assigned this FOIA request from Greenpeace seeking records regarding the ongoing nuclear crisis in Japan, including but not limited to any and all information on the status of the damage to reactors and spent fuel pools at the Fukushima Daiichi nuclear plant and the resulting release of radiation.

This request covers all records relating to the ongoing Nuclear crisis in Japan from March 11th thru March 24, 2011. You do not need to produce records that are covered by previous FOIA requests.

This request has been granted a fee waiver. Therefore, NO estimates are required.

Please provide me your response by April 12, 2011. I will type up the appendices, so you just need to provide me your records and let me know what can be released and what needs to be withheld. Harm statements will be needed if the reason to withhold is not obvious.

Please let me know if you have any questions.

Charge your time to TAC ZF0001.

Thanks so much,
Patti Craver
FOIA Coordinator
Infrastructure Services Branch
Program Management, Policy Development
and Analysis Staff
Office of Nuclear Reactor Regulation
(301) 415-1513
patti.craver@nrc.gov

Royer, Deanna

From: Royer, Deanna
Sent: Thursday, March 31, 2011 2:15 PM
To: Couret, Ivonne
Subject: Media - Discovery News.com-question

Alyssa Danigelis
Discovery News.com
(617-817-7462) ~~Ext 6~~

Re: Technology for detecting problems and response time for evacuation and such.

Deanna Royer
Contract Secretary
Division of New Reactor Licensing
(301) 415-7158
Deanna.Royer@nrc.gov

Royer, Deanna

From: Royer, Deanna
Sent: Thursday, March 31, 2011 2:31 PM
To: Couret, Ivonne
Subject: Media - Philadelphia Inquirer

Faye Flam
Philadelphia Inquirer
(215-854-4977) *Ext 6*
fflam@phillynews.com
Re: Japan crises

Deanna Royer
Contract Secretary
Division of New Reactor Licensing
(301) 415-7158
Deanna.Royer@nrc.gov

Royer, Deanna

From: Royer, Deanna
Sent: Thursday, March 31, 2011 2:43 PM
To: Couret, Ivonne
Subject: Media - USA Today-Question

Rita Ruben
USA Today
(703-854-3494) ~~Ext 6~~
rrubin@usatoday.com

Re: a comment from Edwin Lyman today saying he doesn't think the NRC has planned a wide enough evacuation area for US plants

Deanna Royer
Contract Secretary
Division of New Reactor Licensing
(301) 415-7158
Deanna.Royer@nrc.gov

Royer, Deanna

From: Royer, Deanna
Sent: Thursday, March 31, 2011 3:19 PM
To: Couret, Ivonne
Subject: Media - Bloomberg News-Question

Edward Klump
Bloomberg News
(713-651-4607) ~~Ex 6~~
eklump@bloomberg.net

Re: When will evacuation plans be reviewed.

Deanna Royer
Contract Secretary
Division of New Reactor Licensing
(301) 415-7158
Deanna.Royer@nrc.gov

Royer, Deanna

From: Royer, Deanna
Sent: Thursday, March 31, 2011 3:47 PM
To: Couret, Ivonne
Subject: Media - Associated Press-question

Ray Henry
Associated Press
(404-308-9916) ~~Ext 6~~
Re: NRC require safety changes for GE Mark 1 Boiling water

Deanna Royer
Contract Secretary
Division of New Reactor Licensing
(301) 415-7158
Deanna.Royer@nrc.gov

From: [Bonaccorso, Amy](#)
To: [Harrington, Holly](#)
Subject: RE:
Date: Thursday, March 31, 2011 9:05:00 AM

Okay, thanks!

From: Harrington, Holly
Sent: Thursday, March 31, 2011 9:05 AM
To: Bonaccorso, Amy
Subject: RE:

No need for a response IMHO.

From: Bonaccorso, Amy
Sent: Wednesday, March 30, 2011 1:38 PM
To: Harrington, Holly
Subject: FW:

Should I give him a standard "our plants are safe" response or should someone else who knows more about Indian Point craft a response?

Thanks,

Amy

From: Janbergs, Holly **On Behalf Of** OPA Resource
Sent: Wednesday, March 30, 2011 8:25 AM
To: Bonaccorso, Amy; Deavers, Ron
Subject: FW:

From: Ed Geleski [<mailto:ed@dooleyelectric.com>]
Sent: Wednesday, March 30, 2011 8:17 AM
To: OPA Resource
Subject:

Please fix the 18 year leaking safety mechanisms at indian point ASAP.

Ed Geleski
Project Engineer
Dooley Electric Company
(718) 840-2200 ext 07
fax (718) 840-2816
ed@dooleyelectric.com

4/344

From: [Akstulewicz, Brenda](#)
To: [Bonaccorso, Amy](#)
Subject: RE: sifting through this pile-o-paper
Date: Thursday, March 31, 2011 5:39:08 PM
Attachments: [image001.png](#)

Enjoy your day off...the new pile is on the desk beside me.

From: Bonaccorso, Amy
Sent: Thursday, March 31, 2011 5:37 PM
To: Akstulewicz, Brenda
Subject: Re: sifting through this pile-o-paper

Oh no- not even done with this one yet.

Will be out tomorrow and back on Monday.

Thx,
Amy

From: Akstulewicz, Brenda
To: Bonaccorso, Amy
Sent: Thu Mar 31 17:27:27 2011
Subject: RE: sifting through this pile-o-paper

Amy,

Sorry to say I have another pile-o-paper for you.

B



From: Bonaccorso, Amy
Sent: Thursday, March 31, 2011 12:56 PM
To: Harrington, Holly; Akstulewicz, Brenda
Subject: sifting through this pile-o-paper

I got some weird things in this pile-o-paper. One is info for a meeting in the White House situation room. Seems like it was for our information, but the date has passed. Can I toss the paper or should I save it?

I responded to one via email – don't know if I should save the paper inquiry or not.

Thanks,

4/3/11

Amy

From: [Bonaccorso, Amy](#)
To: [Bush-Goddard, Stephanie](#)
Subject: Info from UCLA - Andrew Norris
Date: Thursday, March 31, 2011 1:37:00 PM

Hi Stephanie:

I am sifting through public inquiries and see one from Andrew Norris at the Department of Radiation Oncology in LA. Enclosed is a document entitled, "Radioprotective Properties of Tetracycline." I thought you may be interested and wanted to see if I should drop it off with you.

Thanks,

Amy

4/34/6

From: [Bonaccorso, Amy](#)
To: [Akstulewicz, Brenda](#)
Subject: Re: sifting through this pile-o-paper
Date: Thursday, March 31, 2011 5:37:08 PM
Attachments: [image001.png](#)

Oh no- not even done with this one yet.

Will be out tomorrow and back on Monday.

Thx,
Amy

From: Akstulewicz, Brenda
To: Bonaccorso, Amy
Sent: Thu Mar 31 17:27:27 2011
Subject: RE: sifting through this pile-o-paper

Amy,

Sorry to say I have another pile-o-paper for you.

B



From: Bonaccorso, Amy
Sent: Thursday, March 31, 2011 12:56 PM
To: Harrington, Holly; Akstulewicz, Brenda
Subject: sifting through this pile-o-paper

I got some weird things in this pile-o-paper. One is info for a meeting in the White House situation room. Seems like it was for our information, but the date has passed. Can I toss the paper or should I save it?

I responded to one via email – don't know if I should save the paper inquiry or not.

Thanks,

Amy

4/347

From: [Bonaccorso, Amy](#)
To: bgrey1@cox.net
Subject: Response from the U.S. Nuclear Regulatory Commission
Date: Thursday, March 31, 2011 12:51:00 PM

Hello Ms. Grey:

Thank you for sending your idea regarding the underground pathway that could contain and recycle radioactive steam. We appreciate suggestions that work toward resolving the situation in Japan; it's reassuring to see how helpful and dedicated private citizens have been in light of this disaster.

The NRC has some of the most expert people in the world available to assist the Japanese authorities in whatever way they request. We are fully staffed in all our response teams at this time and working 24-hours a day.

Thank you,

Amy

2/348

From: [Bonaccorso, Amy](#)
To: [Wang, Alan](#); [Hall, Randy](#)
Subject: FW: Petitions
Date: Thursday, March 31, 2011 8:58:00 AM

Good morning:

I am assisting the Office of Public Affairs with public inquiries regarding Japan. We got a petition about Diablo Canyon and San Onofre. OPA recommended that I give the documents to NRC employees who work issues for these two plants. I have two copies, so I can give one to someone working on Diablo Canyon and another to someone who is working on San Onofre.

Although at first glance, it looked like they didn't want the licenses renewed, upon a closer look, they actually want seismic studies to be completed before requests to renew are submitted.....among other things.

Let me know if I can drop these off with you.

Thank you,

Amy

From: Couret, Ivonne
Sent: Tuesday, March 29, 2011 4:33 PM
To: Bonaccorso, Amy
Cc: Harrington, Holly
Subject: RE: Petitions?

Hope this moves the ball forward....

There is currently an application for renewal for Diablo Canyon - License Renewal Contacts - Diablo Canyon Nuclear Units 1 and 2

Safety Review PM – Nathan Ferrer, 415-1045
Environmental PM – Andrew Stuyvenberg, 415-4006
Branch Chief - David Wrona, 415-2292
Scoping and Screening Team Leader - Bill Rogers, 415-2945
Attorney – Susan Uttal, 415-1582

The regular PM contacts for Diablo are

Diablo Canyon 1 & 2	Alan B Wang (ABW)	415-1445	8H-3	M. Thadani	J. Burkhardt
---------------------	-------------------	----------	------	------------	--------------

Currently there is not a license renewal application for San Onofre under review. The current contacts are

San Onofre 2 & 3	Randy Hall (JRH)	415-4032	8D-14	K. Kalyanam	J. Burkhardt

From: Harrington, Holly
Sent: Tuesday, March 29, 2011 3:59 PM
To: Bonaccorso, Amy

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Cc: Couret, Ivonne
Subject: RE: Petitions?

Can you find out the project managers for the license renewal of those two plants so Amy can forward these to them?

From: Bonaccorso, Amy
Sent: Tuesday, March 29, 2011 3:00 PM
To: Harrington, Holly
Subject: Petitions?

Holly:

I got a few petitions (they were faxed) to not renew the license for San Onofre and Diablo Canyon. What do I do with them? I assume we should keep them but there is really no return address – just a bunch of people’s handwritten endorsements. They have addresses, but are hard to read.

Thanks,

Amy

From: [Bonaccorso, Amy](#)
To: [Tobin, Jennifer](#)
Subject: RE: Nuclear energy? PBR (pebble bed reactor) me ASAP!
Date: Thursday, March 31, 2011 9:54:00 AM

Okay - I didn't know that - that's why I ask you these things! I will edit the response.

Thanks,

Amy

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

From: Tobin, Jennifer
Sent: Thursday, March 31, 2011 9:52 AM
To: Bonaccorso, Amy
Subject: RE: Nuclear energy? PBR (pebble bed reactor) me ASAP!

Amy,

There is potential to review this design in the future but there have been no applications submitted for the PBR reactor. RES may be looking at some aspects of the design but the unit is not being evaluated wholly at this time since a U.S. company has not expressed interest in building one.

Thanks!

-Jenny

Jenny (Tobin) Wollenweber
Export Licensing Officer
Office of International Programs
office: 301-415-2328

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

From: Bonaccorso, Amy
Sent: Thursday, March 31, 2011 9:13 AM
To: Tobin, Jennifer
Subject: FW: Nuclear energy? PBR (pebble bed reactor) me ASAP!

Hey Jenny:

Wanted to bounce this off of you. According to our website, PBRs are just one design that NRC is considering licensing. So, do you think this response is okay or should I add something else?

"Thank you for your email. Yes, the U.S. Nuclear Regulatory Commission (NRC) is evaluating PBRs for licensing. The design is referenced at the bottom of this webpage on advanced reactors:
<http://www.nrc.gov/reactors/advanced.html>

The NRC, however, does not promote any one design, but rather, evaluates the designs for safe operation and licensing.

Thank you,

Amy

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

From: Janbergs, Holly On Behalf Of OPA Resource
Sent: Thursday, March 31, 2011 7:50 AM
To: Bonaccorso, Amy; Deavers, Ron
Subject: FW: Nuclear energy? PBR (pebble bed reactor) me ASAP!

L/350

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

From: Marcetich, Adam [<mailto:marcetia@msoe.edu>]
Sent: Wednesday, March 30, 2011 8:45 PM
To: OPA Resource
Subject: Nuclear energy? PBR (pebble bed reactor) me ASAP!

Confusion and division over fission

Dear Chairman Jaczko,

The recent disasters in Japan highlight the disadvantages of nuclear power. fission power offers many advantages over fossil fuels and renewable energy. zero emissions, low prices and steady generation can electrify cities with a small physical plant footprint.

On the other hand, disposal and safety have not been addressed adequately. Compared to fossil fuels and renewables, nuclear power can be tricky at all stages. Nuclear fuel can be diverted for weapons, operating plants risk meltdown if attacked or damaged, and waste can contaminate huge areas if released en route to a burial site.

One critical difference has not been addressed between nuclear and other technology. Current coal, gas and oil plants do not burn fuels in the same way as fifty years ago. instead of lumps of coal shoveled into a furnace, pulverizers first grind coal dust, and entrain it in an airstream before it burns at maximum efficiency.

Likewise, new turbine designs optimize windmills. These are not the same windmills that milled grains into flour hundreds of years ago, but computer designed airfoils with optimized shapes.

Fears, suspicion and misinformation have limited funding into nuclear power research. Accidents and fears have prevented new plants from being built in the US for over 30 years. The result is a power industry that splits uranium atoms much in the same way as three or even more decades ago. Would we expect coal to provide the same efficiency or safety if were shoveled into open furnaces by hand, as it was decades ago? Fossil fuel and renewable energy are competitive today in a large part from ongoing research. Considering new technologies at least for research would allow testing for safer, more efficient designs. It's time to focus on the advantages of nuclear power, and explore its possibilities with research.

pebble bed reactors (PBR's) use a different technology to provide a homogenous, standardized fuel shape. they resist diverting material since each pebble can be counted rather than weighed and analyzed. this passive safety avoids meltdown, since the pebbles cannot form a critical mass even in the tightest packed configuration.

Is the US NRC actively evaluating next-generation nuclear power technology? In light of both the gulf coast oil spill and Japanese energy disasters, the realities of nuclear power are a ripe field to explore.

Thanks,

Adam in Alexandria, VA

http://en.wikipedia.org/wiki/Pebble_bed_reactor
http://en.wikipedia.org/wiki/Coal_power

From: [Courret, Ivonne](#)
To: [Janbergs, Holly](#); [Akstulewicz, Brenda](#); [Royer, Deanna](#); [Medina, Veronika](#); [Bonaccorso, Amy](#); [Deavers, Ron](#); [Anderson, Brian](#); [Shannon, Valerie](#)
Cc: [Sheehan, Neil](#); [Screnci, Diane](#); [Chandrathil, Prema](#); [Dricks, Victor](#); [Mitlvg, Viktoria](#); [Uselding, Lara](#); [Hannah, Roger](#); [Ledford, Joey](#); [Harrington, Holly](#)
Subject: FYI - Possible calls today - Update on Ongoing Monitoring
Date: Thursday, March 31, 2011 8:34:29 AM

All,
Just in case, we may get some public/media inquires after the recent news stories of radioactive traces found in milk....see links to sources below to direct folks where to go.
Ivonne

From: U.S. EPA [<mailto:usaepa@govdelivery.com>]
Sent: Wednesday, March 30, 2011 5:20 PM
To: Courret, Ivonne
Subject: Air News Release (HQ): JOINT EPA/FDA STATEMENT: Update on Ongoing Monitoring

CONTACT:
EPA Press Office
press@epa.gov

FDA Press Office
fdaopa@fda.hhs.gov

FOR IMMEDIATE RELEASE
March 30, 2011

JOINT EPA/FDA STATEMENT: Update on Ongoing Monitoring

WASHINGTON – In response to the ongoing situation in Japan, the U.S. Environmental Protection Agency (EPA) has taken steps to increase the level of nationwide monitoring of milk, precipitation, drinking water, and other potential exposure routes.

EPA conducts radiological monitoring of milk under its RADNET program, while the U.S. Food and Drug Administration has jurisdiction over the safety, labeling and identity of milk and milk products in interstate commerce. States have jurisdiction over those facilities located within their territory.

Results from a screening sample taken March 25 from Spokane, Wash. detected 0.8 pCi/L of iodine-131, which is more than 5,000 times lower than the Derived Intervention Level set by the U.S. Food and Drug Administration. These types of findings are to be expected in the coming days and are far below levels of public health concern, including for infants and children. Iodine-131 has a very short half-life of approximately eight days, and the level detected in milk and milk products is therefore expected to drop relatively quickly.

“Radiation is all around us in our daily lives, and these findings are a minuscule amount compared to what people experience every day. For example, a person would be exposed to low levels of radiation on a round trip cross country flight, watching television, and even from construction materials,” said Patricia Hansen, an FDA senior scientist.

EPA’s recommendation to state and local governments is to continue to coordinate closely with EPA,

L/357

FDA and CDC. EPA will continue to communicate our nationwide sampling results as they come in.

EPA: <http://www.epa.gov/japan2011>

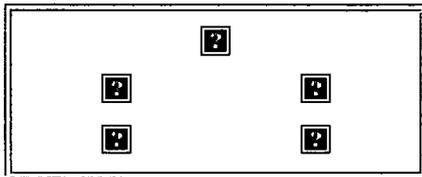
FDA: <http://www.fda.gov/NewsEvents/PublicHealthFocus/ucm247403.htm>

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From: [Bonaccorso, Amy](#)
To: [Harrington, Holly](#)
Subject: FW: Water Absorbing Polymer keeps the water from soaking into concrete floors, even sucks it out, can be homemade, shovelled, handled, cardboard boxed and shipped
Date: Thursday, March 31, 2011 10:02:00 AM

This person sends me email every day now. Any tips on how we handle pen pals? Do you all know him?

From: phil [mailto:phillipmarx@sbcglobal.net]
Sent: Tuesday, March 29, 2011 7:40 PM
To: Bonaccorso, Amy
Subject: Water Absorbing Polymer keeps the water from soaking into concrete floors, even sucks it out, can be homemade, shovelled, handled, cardboard boxed and shipped

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

From: phil
To: r4allegation@nrc.gov
Sent: Tuesday, March 29, 2011 4:33 PM
Subject: Water Absorbing Polymer keeps the water from soaking into concrete floors, even sucks it out, can be homemade, shovelled, handled, cardboard boxed and shipped

Nick Taylor
Senior Allegations Coordinator
USNRC Region IV
Toll Free: (800) 695-7403
Office: (817) 276-6520
Fax: (817) 276-6525
Email: r4allegation@nrc.gov

You might have the so-called best people in the world on your staffs, but it is highly evident that best is not equivalent to sufficient.

So, here's some more high suspicions that I and the general public deserve calming clarifications on.

These same simple emergency handling tricks can overnight be setup on all America's reactors, Just in case, allows some claims of reduced forward-thinking disaster risks.

Someone should analyze that soil plutonium better.

Why isn't there any uranium in it ?

Is there an highly personally profitable under the table production of dirty bomb materials going on ?

You can tell by the isotope decay proportions how long ago it got there.

In other words,

Maybe someone should analyze the water to see where else it came from, as in maybe someone was making dirty bomb materials under the table ?

Or someone was making medical radioactive materials ?

Or smoke alarm radioactive materials ? Or thorium camp light elements ?

Or radioactive samples for various international university research wholesale or retail ?

Or any too-secret nuclear bomb materials for the Japanese military, under the undersight of the Internationals ?

If such can be estimated, it might help to know how much raw materials and how much finished materials would have been there in inventory stock, for emergency assessment purposes.

Where I did nuclear radioactive total dose testing of integrated circuits for rad hardness,

2/352

we used a Cesium source parked on a table right next to the primary reactor (see video if attached).

My local university research reactor also had "stores" of materials irradiated for research purposes, and probably materials for off-site radiation research.

If Japan was making radioactive materials for secondary markets, they might not have been stored safely enough for these disaster scales.

A spill of those materials would show a lot of contamination, but it would level off, as it seems to have.

They admit to making the plutonium, but they need to advise if they are/were "extracting" any of the other byproducts,

that otherwise would be self-recycled in the reactions or stored in the spent fuel pools.

HOW are they storing, packaging those extracted radioactive byproducts for shipment, and storage, and were those means safe enough to survive known explosions ?

Or were they on shelves or tables that have toppled ?

I would lean over the reactor while it was pulsing, but the water wasn't radioactive. See video if it comes through in spite of size.

Typically, such production would be nearly invisible in a small "business unit" that only forwarded their bottom lines to top management, not details.

Search the local marketing channels for such medical and research nuclear materials to get a better picture than the company would give you.

Or, local management might remember that stuff, if pointedly reminded. The manager of my local research reactor was also a campaign manager for Congressman Sonny Bono, of Sonny and Cher Fame. At a local Republican convention, he introduced me to Sonny, and my hand was the first hand that Sonny shook when he came into his convention headquarters that day. That manager is the type you had better hope that Japan had.

Mine was the last handshake for the day at another event just a few years ago from Arnold Schwarzenegger. I've talked to Chris Cox, former SEC Chairman several times in the last couple of months, I'm the one that sent in the triggers that got Paulson running to Congress just in time to save all the banks in the world.

So, having gotten addicted to long shot suggestions that have saved millions of lives, I keep going at it.

Water Absorbing Polymer and on the sidebar, suggestions for making it out of almost anything handy.

<http://www.youtube.com/watch?v=U9rXaGaDweM&feature=related>

This can solve the cleanup issues, no pumps needed, can be left in place until next spill, can be put in plastic lined cardboard boxes, not tanks.

Allows for easy analysis, and being unspillable, can't be tread on, and CAN be dumped in plastic lined trenches, without leaching into soil or ocean.

It can be long term containment, OR, it can be electrolyzed, then burned back into heavy water and returned to the reactors, with the deposits thus removed, cleaning the water. Also, there are several ways to get the salt out of the pools. Just hanging wicks in there will wick up the water, which will then evaporate, leaving the contaminations on the wick, which can then be changed, dried, and re-processed to recover the valuables with far less difficulty than otherwise.

That can be done in the pools. If you need a more closed loop system, leak the water into barrels or drums, insert wick materials, and then apply a vacuum to it, and burn the output of the vacuum pump to convert the heavy hydrogen back into non-flammable water vapor, cool it condense it and return it safely to the pool.

I missed the company name, but there is a company in Germany that specializes in converting radioactive hydrogen back into water on a program shown on a local PBS station, KCET, on a German produced program clip about converting nuclear problem hydrogen back into water, on DW tv 3-26-2011 Ch 28-4 KCET

Concrete, such as the likely materials used to make the turbine basement floors, is highly hygroscopic. Which means that just draining the radioactive materials contaminated water won't be enough. Evaporating the water out of that concrete will leave the radioactive elements in it. Using a vacuum or osmotic wick like that water absorbing polymer, will not only take out the water, but also a lot of everything dissolved or colloid in it.

All the concrete has to be removed, and isolated.
Maybe used to create a toxic waste dump superstructure admix for the concrete in a future radioactivity containment.

There are aquarium water pumps on eBay that run on flashlight batteries, slow, but that would allow the barrel to be isolated from the power supplies and from arcing to any convenient ground. Wicks can be made from newspapers, ropes, contaminated uniforms, anything which can be later incinerated to recover the valuable residues.

As things get hot, thermionic emission will reduce their HiPot safety margin. Sharp points will tend to "emit" electrons, usually with sparks, sometimes with slower hopping conduction, seriously reducing the insulation value of insulators. A re-analysis of conductivities when so hot might be in order, and not on the safe side of this safety issue.

Hot gasses seem to be frequently ionized. Clean room air *deionizers* might be warranted, if there is now, or expected to be, any further hydrogen generation.

Some gasses are especially easy to ionize at temperature, such as mercury and "sodium" vapor as used in lighting because of that.

Maybe some spectrometry can determine the ionization levels there, and how much salt water sodium is getting ionized.

Once those chemicals have vapor deposited on surfaces, the conductivity changes, even if deposited on high voltage insulators.

So, what seems like spontaneous electrical discharges might have predictability factors, in the lose-lose category.

Analyze the floor water for salinity, and evaluate whether it is a leak, or overflow of the applied water, washing out explosion products.

Wicks can start extracting salts and "hard" water components without electricity or power.

Problem is what happens to soluble uranium salts and fluorides when the ionic compatible media (water) evaporates ?

Do those become a part of a hard salt "air" as in ocean front salty air ? Or radioactive gasses, as in the centrifuges ?

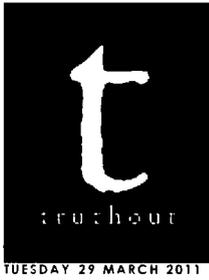
http://www.washingtonpost.com/national/robots-designed-to-deal-with-nuclear-accidents-await-duty-in-europe-while-japan-asks-where-are-ours/2011/03/25/AF2A3CIB_story.html?hpid=z2

<http://www.csmonitor.com/USA/2011/0326/Radioactive-seawater-in-Japan-raises-new-fears-of-reactor-crack>

<http://www.csmonitor.com/USA/2011/0325/Do-US-nuclear-plants-have-defective-parts-NRC-finds-reporting-flaws>

Subject: YouTube - How to make a nuclear reactor at home <http://www.youtube.com/watch?v=dwRt74nzRmY&feature=related>

Maybe also: <http://www.google.com/search?hl=en&q=%22smart+sponge%22&btnG=Search>



Japanese Crews Scramble to Contain Radioactive Water at Nuclear Plant

Tuesday 29 March 2011

by: *Julie Makinen and Ralph Vartabedian, The Los Angeles Times | Report*

Tokyo - Japanese emergency crews are scrambling to contain rising levels of extremely radioactive water that has leaked into tunnels and basement equipment rooms at the Fukushima Daiichi nuclear power plant, putting up dangerous new obstacles to workers trying to bring the reactors under control.

Workers were using sandbags and concrete panels Tuesday in a desperate attempt to prevent the contaminated water from further spreading through the plant or into the nearby soil and ocean.

Their challenge is compounded by the fact that they must continue to douse water on the nuclear reactors and the spent

fuel pools that would otherwise overheat and release additional radiation. Japanese officials warned Tuesday morning that temperatures in one of the reactors was again rising.

Chief Cabinet Secretary Yukio Edano said that cooling the reactors would remain the top priority, though workers would try to reduce the amount of water being used in order to reduce the potential for wider contamination. "We have to prioritize cooling," Edano said.

In addition, deposits of plutonium — a long-lived radioactive element — were found in the soil around the plant. The government said some of the plutonium may have seeped from damaged fuel rods inside the plant, with Edano calling the situation "very grave."

The problems represent further setbacks for Japanese authorities, demonstrating that more than two weeks after the earthquake, they still do not know the extent of damage and continue to improvise as they learn more about the state of the damage and the radiation leaks.

"Everything is being done by the seat of their pants," said Edwin Lyman, a nuclear physicist with the Union of Concerned Scientists, a U.S. watchdog group. "They are solving each problem, until the next one comes along."

Japanese and American nuclear industry experts have offered several conflicting explanations of where the water came from: runoff from water cannons fired into the damaged plant, leakage from pools holding spent fuel rods or even coolant from the damaged reactor vessels that overheated in the early days of the disaster.

The presence of highly radioactive water was complicating work at the site already hindered by mechanical problems and damage from the quake and tsunami. Engineers have run a crucial new power line to the plant from the electrical grid, but radioactivity was keeping workers from getting close enough to hook it up throughout the complex.

The radiation level of the water in the tunnel at the No. 2 reactor was reported at 1,000 millisieverts per hour; four times a worker's limit for a full year, meaning even brief exposure could be harmful.

Plant authorities were exploring ways to capture and store the contaminated water. But experts say it could take days to weeks to work out a way to remove all the water safely, further slowing efforts to bring the stricken facility under control. The engineers must also figure out where the contaminated water originated and how it got into the tunnels that house pipes connecting the reactor to the turbines.

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If not, the tunnels could simply flood again even as water is pumped out.

A U.S. nuclear design engineer said he believes the water accumulating in the tunnels and turbine rooms comes from water cannons and helicopters that attempted to spray water into the spent fuel pools but missed their mark. The water then accumulated radioactivity washed off the plant structure, and coursed downhill through the plant until reaching the tunnels.

"All that seawater they have been spraying on the reactors, tons of seawater, it basically had to go somewhere," said University of Southern California nuclear safety expert Najmedin Meshkati.

Even if the water is pumped out, radioactivity may remain behind, leaving the site still dangerous to work in. Lyman said porous concrete walls and floors could absorb the radioactive material and leave the structure still contaminated.

The Japanese also face the problem of what to do with the contaminated water.

Much of the tank space at the site is already full. And simply pumping massive quantities of contaminated water into the ocean may have unknown consequences and violate international law.

"There is a duty to protect the marine environment and that extends to their own borders," said David Caron, a University of California-Berkeley law professor and president of the American Society of International Law. "The question is whether they adequately prepared and that is in question."

Caron and many other experts said they doubted the contamination would be severe, because the sea would dilute the radioactivity before it could harm another nation's coast or marine environment.

High levels of radiation were found over the weekend in the ocean near the plant, though Japanese authorities said there was no risk to human health.

But the evidence coming out of the plant is contradictory and statements by senior Japanese officials have only added to the confusion. Japanese officials said over the weekend that they measured high levels of iodine-134, an isotope created during fission with a half-life of about 53 minutes. They later backtracked on their measurement.

Iodine-134 should have virtually disappeared after the first day of the accident.

Apart from ocean contamination, plant officials said that tests last week found trace levels of plutonium in soil outside the plant.

The origin of that material could be from a spent fuel pool or from reactor No. 3, which is loaded with plutonium fuel.

Plutonium is highly carcinogenic if particles become embedded in the lungs. Officials of the company that operates the plant said the element was found in two of five samples taken from the grounds of the facility, suggesting that contaminated water from reactor No. 3 had seeped into the soil. That reactor is fueled with a mixture of plutonium and uranium.

Concern about other radioactive substances had already led the government to order people living within 12 miles of the facility to evacuate. Those living between 12 and 18 miles from the plant have been urged to leave voluntarily, or remain indoors if they do not evacuate.

But Edano said evacuees were increasingly breaching the 12-mile perimeter without authorization to retrieve personal items from their homes. He urged them to stop, saying there is a "big risk" to human health.

On a positive note, operators are injecting fresh water into three reactors at the plant, instead of the corrosive seawater that has been used over the last two weeks.

The head of the U.S. Nuclear Regulatory Commission, Gregory Jaczko, arrived in Tokyo on Monday to meet with Japanese authorities and to get a firsthand look at the situation, according to a statement from the U.S. Embassy.

And Yukiya Amano, head of the International Atomic Energy Agency, warned that the crisis could go on for months. "The difficult situation has not been overcome and it will take time to stabilize the reactors," he said. "Radioactivity in the environment, foodstuffs and water is a matter of concern in the vicinity of the Fukushima plant and beyond."

In another sign of trouble, a pumper truck that had been spraying water into the plant broke down.

Japanese officials said it should be back in service by the end of the month.

This article "Japanese Crews Scramble to Contain Radioactive Water at Nuclear Plant" originally appeared at The New

York Times.

(Makinen reported from Tokyo and Vartabedian from Los Angeles. Staff writer Thomas Maugh contributed to this report.)

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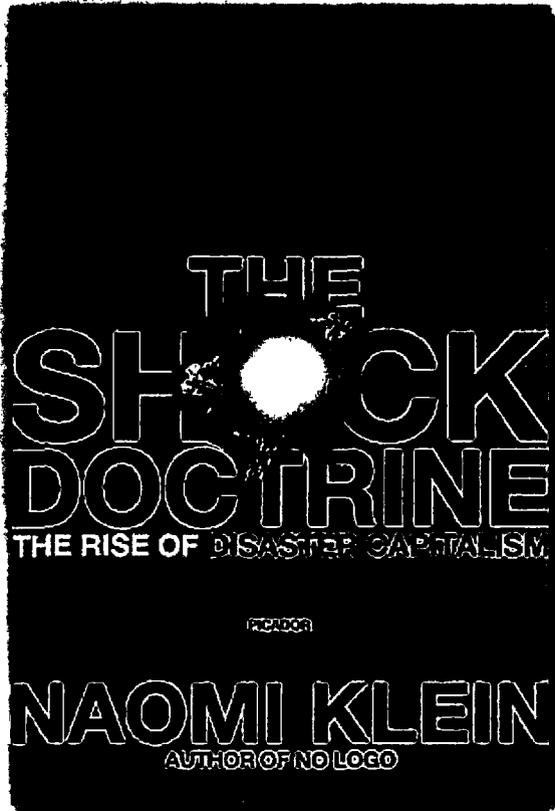
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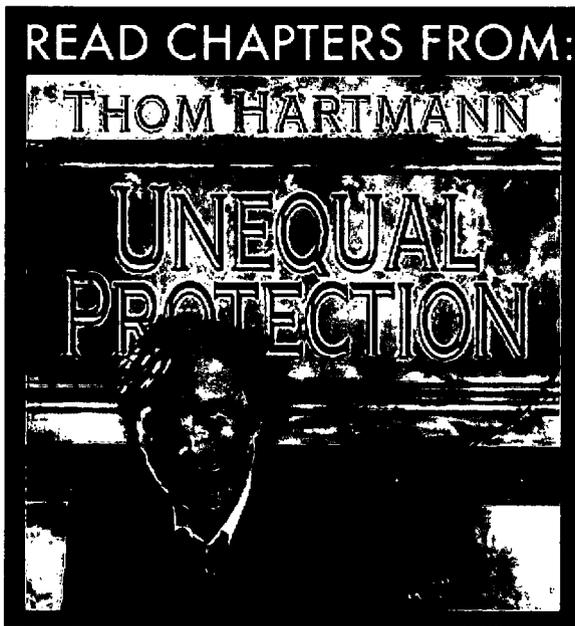
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WILLIAM BENNETT TURNER
FOREWORD BY ANTHONY LEWIS

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From: [Harrington, Holly](#)
To: [Bonaccorso, Amy](#)
Subject: RE: Water Absorbing Polymer keeps the water from soaking into concrete floors, even sucks it out, can be homemade, shovelled, handled, cardboard boxed and shipped
Date: Thursday, March 31, 2011 11:07:25 AM

I don't think he needs any more responses at this point.

From: Bonaccorso, Amy
Sent: Thursday, March 31, 2011 10:02 AM
To: Harrington, Holly
Subject: FW: Water Absorbing Polymer keeps the water from soaking into concrete floors, even sucks it out, can be homemade, shovelled, handled, cardboard boxed and shipped

This person sends me email every day now. Any tips on how we handle pen pals? Do you all know him?

From: phil [mailto:phillipmarx@sbcglobal.net]
Sent: Tuesday, March 29, 2011 7:40 PM
To: Bonaccorso, Amy
Subject: Water Absorbing Polymer keeps the water from soaking into concrete floors, even sucks it out, can be homemade, shovelled, handled, cardboard boxed and shipped

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

From: phil
To: r4allegation@nrc.gov
Sent: Tuesday, March 29, 2011 4:33 PM
Subject: Water Absorbing Polymer keeps the water from soaking into concrete floors, even sucks it out, can be homemade, shovelled, handled, cardboard boxed and shipped

Nick Taylor
Senior Allegations Coordinator
USNRC Region IV
Toll Free: (800) 695-7403
Office: (817) 276-6520
Fax: (817) 276-6525
Email: r4allegation@nrc.gov

You might have the so-called best people in the world on your staffs, but it is highly evident that best is not equivalent to sufficient.

So, here's some more high suspicions that I and the general public deserve calming clarifications on.

These same simple emergency handling tricks can overnight be setup on all America's reactors, Just in case, allows some claims of reduced forward-thinking disaster risks.

Someone should analyze that soil plutonium better.

Why isn't there any uranium in it ?

Is there an highly personally profitable under the table production of dirty bomb materials going on ?

You can tell by the isotope decay proportions how long ago it got there.

In other words,

Maybe someone should analyze the water to see where else it came from, as in maybe someone was making dirty bomb materials under the table ?

Or someone was making medical radioactive materials ?

Or smoke alarm radioactive materials ? Or thorium camp light elements ?
Or radioactive samples for various international university research wholesale or retail ?
Or any too-secret nuclear bomb materials for the Japanese military, under the oversight of the
Internationals ?

If such can be estimated, it might help to know how much raw materials and how much finished
materials would have been there in inventory stock,
for emergency assessment purposes.

Where I did nuclear radioactive total dose testing of integrated circuits for rad hardness,
we used a Cesium source parked on a table right next to the primary reactor (see video if attached).
My local university research reactor also had "stores" of materials irradiated for research purposes, and
probably materials for off-site radiation research.

If Japan was making radioactive materials for secondary markets, they might not have been stored
safely enough for these disaster scales.
A spill of those materials would show a lot of contamination, but it would level off, as it seems to have.

They admit to making the plutonium, but they need to advise if they are/were "extracting" any of the
other byproducts,
that otherwise would be self-recycled in the reactions or stored in the spent fuel pools.
HOW are they storing, packaging those extracted radioactive byproducts for shipment, and storage,
and were those means safe enough to survive known explosions ?
Or were they on shelves or tables that have toppled ?

I would lean over the reactor while it was pulsing, but the water wasn't radioactive. See video if it
comes through in spite of size.

Typically, such production would be nearly invisible in a small "business unit" that only forwarded their
bottom lines to top management, not details.

Search the local marketing channels for such medical and research nuclear materials to get a better
picture than the company would give you.

Or, local management might remember that stuff, if pointedly reminded. The manager of my local
research reactor was also a campaign manager for
Congressman Sonny Bono, of Sonny and Cher Fame. At a local Republican convention, he introduced
me to Sonny, and my hand was the
first hand that Sonny shook when he came into his convention headquarters that day. That manager is
the type you had better hope that Japan had.

Mine was the last handshake for the day at another event just a few years ago from Arnold
Schwarzenegger. I've talked to Chris Cox, former SEC Chairman
several times in the last couple of months, I'm the one that sent in the triggers that got Paulson
running to Congress just in time to save all the banks in the world.

So, having gotten addicted to long shot suggestions that have saved millions of lives, I keep going at it.

Water Absorbing Polymer and on the sidebar, suggestions for making it
out of almost anything handy.

[http://www.youtube.com/watch?
v=U9rXaGaDweM&feature=related](http://www.youtube.com/watch?v=U9rXaGaDweM&feature=related)

This can solve the cleanup issues, no pumps needed, can be left in place until next spill, can be put in
plastic lined cardboard boxes, not tanks.

Allows for easy analysis, and being unspillable, can't be tread on, and CAN be dumped in plastic lined
trenches, without leaching into soil or ocean.

It can be long term containment, OR, it can be electrolyzed, then burned back into heavy water and

returned to the reactors, with the deposits thus removed,
cleaning the water. Also, there are several ways to get the salt out of the pools. Just hanging wicks in
there will wick up the water, which will then evaporate,
leaving the contaminations on the wick, which can then be changed, dried, and re-processed to
recover the valuables with far less difficulty than otherwise.

That can be done in the pools. If you need a more closed loop system, leak the water into barrels or
drums, insert wick materials, and then apply a vacuum to it, and burn the output of the vacuum pump
to convert the heavy hydrogen back into non-flammable water vapor, cool it condense it and return it
safely to the pool.

I missed the company name, but there is a company in Germany that specializes in converting
radioactive hydrogen back into water on a program shown
on a local PBS station, KCET, on a German produced program clip about converting nuclear problem
hydrogen back into water, on DW tv 3-26-2011 Ch 28-4 KCET

Concrete, such as the likely materials used to make the turbine basement floors, is highly hygroscopic.
Which means that just draining the radioactive materials contaminated water won't be enough.
Evaporating the water out of that concrete will leave the radioactive elements in it.
Using a vacuum or osmotic wick like that water absorbing polymer, will not only take out the water, but
also a lot of everything dissolved or colloid in it.

All the concrete has to be removed, and isolated.
Maybe used to create a toxic waste dump superstructure admix for the concrete in a future
radioactivity containment.

There are aquarium water pumps on eBay that run on flashlight batteries, slow, but that would allow
the barrel to be isolated from the power supplies and from arcing to
any convenient ground. Wicks can be made from newspapers, ropes, contaminated uniforms, anything
which can be later incinerated to recover the valuable residues.

As things get hot, thermionic emission will reduce their HiPot safety margin.
Sharp points will tend to "emit" electrons, usually with sparks, sometimes with slower hopping
conduction, seriously reducing the insulation value of insulators.
A re-analysis of conductivities when so hot might be in order, and not on the safe side of this safety
issue.

Hot gasses seem to be frequently ionized. Clean room air **deionizers** might be warranted, if there is
now, or expected to be, any further hydrogen generation.

Some gasses are especially easy to ionize at temperature, such as mercury and "sodium" vapor as
used in lighting because of that.
Maybe some spectrometry can determine the ionization levels there, and how much salt water sodium
is getting ionized.

Once those chemicals have vapor deposited on surfaces, the conductivity changes, even if deposited
on high voltage insulators.

So, what seems like spontaneous electrical discharges might have predictability factors, in the lose-
lose category.

Analyze the floor water for salinity, and evaluate whether it is a leak,
or overflow of the applied water, washing out explosion products.

Wicks can start extracting salts and "hard" water components without electricity or power.
Problem is what happens to soluble uranium salts and fluorides when the ionic compatible media
(water) evaporates ?
Do those become a part of a hard salt "air" as in ocean front salty air ? Or radioactive gasses, as in
the centrifuges ?

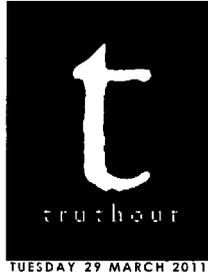
http://www.washingtonpost.com/national/robots-designed-to-deal-with-nuclear-accidents-await-duty-in-europe-while-japan-asks-where-are-ours/2011/03/25/AF2A3CIB_story.html?hpid=z2

<http://www.csmonitor.com/USA/2011/0326/Radioactive-seawater-in-Japan-raises-new-fears-of-reactor-crack>

<http://www.csmonitor.com/USA/2011/0325/Do-US-nuclear-plants-have-defective-parts-NRC-finds-reporting-flaws>

Subject: YouTube - How to make a nuclear reactor at home <http://www.youtube.com/watch?v=dwRt74nzRmY&feature=related>

Maybe also: <http://www.google.com/search?hl=en&q=%22smart+sponge%22&btnG=Search>



Japanese Crews Scramble to Contain Radioactive Water at Nuclear Plant

Tuesday 29 March 2011

by: Julie Makinen and Ralph Vartabedian, The Los Angeles Times | Report

Tokyo - Japanese emergency crews are scrambling to contain rising levels of extremely radioactive water that has leaked into tunnels and basement equipment rooms at the Fukushima Daiichi nuclear power plant, putting up dangerous new

obstacles to workers trying to bring the reactors under control.

Workers were using sandbags and concrete panels Tuesday in a desperate attempt to prevent the contaminated water from further spreading through the plant or into the nearby soil and ocean.

Their challenge is compounded by the fact that they must continue to douse water on the nuclear reactors and the spent fuel pools that would otherwise overheat and release additional radiation. Japanese officials warned Tuesday morning that temperatures in one of the reactors was again rising.

Chief Cabinet Secretary Yukio Edano said that cooling the reactors would remain the top priority, though workers would try to reduce the amount of water being used in order to reduce the potential for wider contamination. "We have to prioritize cooling," Edano said.

In addition, deposits of plutonium — a long-lived radioactive element — were found in the soil around the plant. The government said some of the plutonium may have seeped from damaged fuel rods inside the plant, with Edano calling the situation "very grave."

The problems represent further setbacks for Japanese authorities, demonstrating that more than two weeks after the earthquake, they still do not know the extent of damage and continue to improvise as they learn more about the state of the damage and the radiation leaks.

"Everything is being done by the seat of their pants," said Edwin Lyman, a nuclear physicist with the Union of Concerned Scientists, a U.S. watchdog group. "They are solving each problem, until the next one comes along."

Japanese and American nuclear industry experts have offered several conflicting explanations of where the water came from: runoff from water cannons fired into the damaged plant, leakage from pools holding spent fuel rods or even coolant from the damaged reactor vessels that overheated in the early days of the disaster.

The presence of highly radioactive water was complicating work at the site already hindered by mechanical problems and damage from the quake and tsunami. Engineers have run a crucial new power line to the plant from the electrical grid, but radioactivity was keeping workers from getting close enough to hook it up throughout the complex.

The radiation level of the water in the tunnel at the No. 2 reactor was reported at 1,000 millisieverts per hour; four times a worker's limit for a full year, meaning even brief exposure could be harmful.

Plant authorities were exploring ways to capture and store the contaminated water. But experts say it could take days to weeks to work out a way to remove all the water safely, further slowing efforts to bring the stricken facility under control. The engineers must also figure out where the contaminated water originated and how it got into the tunnels that house pipes connecting the reactor to the turbines.

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If not, the tunnels could simply flood again even as water is pumped out.

A U.S. nuclear design engineer said he believes the water accumulating in the tunnels and turbine rooms comes from water cannons and helicopters that attempted to spray water into the spent fuel pools but missed their mark. The water then accumulated radioactivity washed off the plant structure, and coursed downhill through the plant until reaching the tunnels.

"All that seawater they have been spraying on the reactors, tons of seawater, it basically had to go somewhere," said University of Southern California nuclear safety expert Najmedin Meshkati.

Even if the water is pumped out, radioactivity may remain behind, leaving the site still dangerous to work in. Lyman said porous concrete walls and floors could absorb the radioactive material and leave the structure still contaminated.

The Japanese also face the problem of what to do with the contaminated water.

Much of the tank space at the site is already full. And simply pumping massive quantities of contaminated water into the ocean may have unknown consequences and violate international law.

"There is a duty to protect the marine environment and that extends to their own borders," said David Caron, a University of California-Berkeley law professor and president of the American Society of International Law. "The question is whether they adequately prepared and that is in question."

Caron and many other experts said they doubted the contamination would be severe, because the sea would dilute the radioactivity before it could harm another nation's coast or marine environment.

High levels of radiation were found over the weekend in the ocean near the plant, though Japanese authorities said there

was no risk to human health.

But the evidence coming out of the plant is contradictory and statements by senior Japanese officials have only added to the confusion. Japanese officials said over the weekend that they measured high levels of iodine-134, an isotope created during fission with a half-life of about 53 minutes. They later backtracked on their measurement.

Iodine-134 should have virtually disappeared after the first day of the accident.

Apart from ocean contamination, plant officials said that tests last week found trace levels of plutonium in soil outside the plant.

The origin of that material could be from a spent fuel pool or from reactor No. 3, which is loaded with plutonium fuel.

Plutonium is highly carcinogenic if particles become embedded in the lungs. Officials of the company that operates the plant said the element was found in two of five samples taken from the grounds of the facility, suggesting that contaminated water from reactor No. 3 had seeped into the soil. That reactor is fueled with a mixture of plutonium and uranium.

Concern about other radioactive substances had already led the government to order people living within 12 miles of the facility to evacuate. Those living between 12 and 18 miles from the plant have been urged to leave voluntarily, or remain indoors if they do not evacuate.

But Edano said evacuees were increasingly breaching the 12-mile perimeter without authorization to retrieve personal items from their homes. He urged them to stop, saying there is a "big risk" to human health.

On a positive note, operators are injecting fresh water into three reactors at the plant, instead of the corrosive seawater that has been used over the last two weeks.

The head of the U.S. Nuclear Regulatory Commission, Gregory Jaczko, arrived in Tokyo on Monday to meet with Japanese authorities and to get a firsthand look at the situation, according to a statement from the U.S. Embassy.

And Yukiya Amano, head of the International Atomic Energy Agency, warned that the crisis could go on for months. "The difficult situation has not been overcome and it will take time to stabilize the reactors," he said. "Radioactivity in the environment, foodstuffs and water is a matter of concern in the vicinity of the Fukushima plant and beyond."

In another sign of trouble, a pumper truck that had been spraying water into the plant broke down.

Japanese officials said it should be back in service by the end of the month.

This article "Japanese Crews Scramble to Contain Radioactive Water at Nuclear Plant" originally appeared at The New York Times.

(Makinen reported from Tokyo and Vartabedian from Los Angeles. Staff writer Thomas Maugh contributed to this report.)

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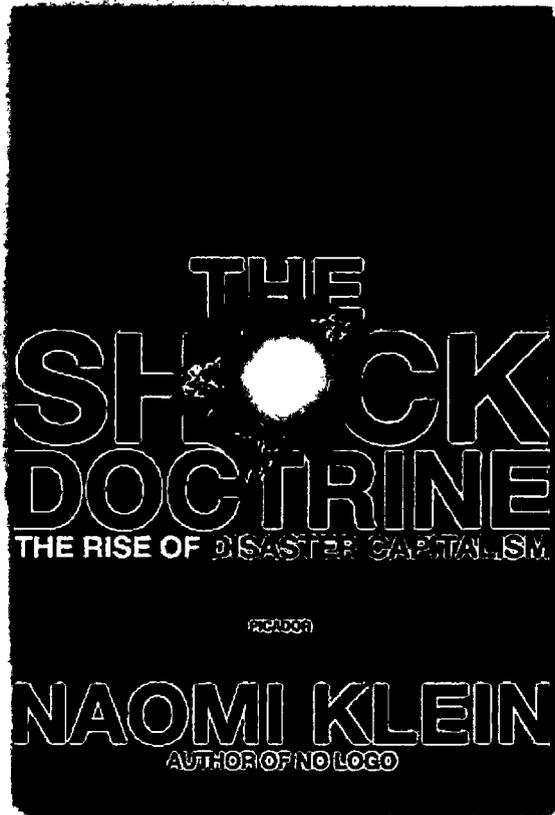
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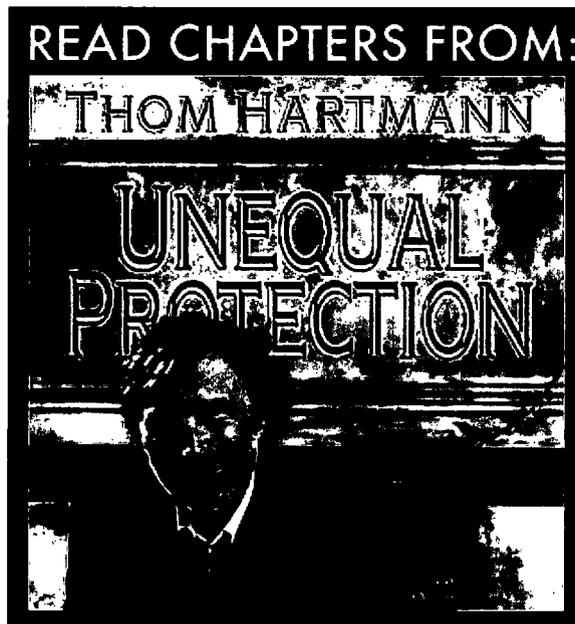
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by: Anne Elizabeth Moore, t r u t h o u t | News Analysis

From: Abrams, Charlotte
To: OIP Distribution
Subject: ops center night coverage
Date: Thursday, March 31, 2011 9:35:43 AM

We are pulling the OIP overnight coverage for the Ops Center. Beginning this Saturday night, OIP will not have staff coverage for the 11:00 p.m. to 7:00 a.m. shift. We do plan to have someone on call in case of an emergency, so if you were scheduled for a night, you will be asked to be on call for that time.

In order to have coverage to ensure our OIP folks in Japan do not feel isolated, the morning shift will begin at 6:30 a.m. and end at 3:30 p.m. The afternoon/evening shift will begin at 3:00 p.m. and end at midnight. Kirk informs me that the times that the team critically needs information are at 5:00 a.m. and 8:00 p.m. EDT. Therefore, the person on duty until midnight will be responsible for providing any updated information to the Japan folks before leaving for the night and the persons covering the day and afternoon shifts will be responsible for seeing that the JapanTeam gets the latest information as soon as it becomes available.

Thank you to everyone who has been providing coverage for the International Liaison desk in the ops center. And thank you to everyone who has supported those in the ops center and by ensuring that OIP's regular work continues.

L/353

From: [Bonaccorso, Amy](#)
To: [Tobin, Jennifer](#)
Subject: RE: Why are there no emergency diesels in U.S. nuclear power plants?
Date: Thursday, March 31, 2011 9:21:49 AM

Jenny:

After I sent this email – I think I read something about someone in Congress proposing lengthening the time that backup equipment can function...after I read that, it was like “Oh, okay, I get it!” Don’t know if I should mention that. I don’t know what the requirements are in other countries, but if they are more robust than ours, that is going to become a concern.

Thanks,

Amy

From: Tobin, Jennifer
Sent: Wednesday, March 30, 2011 5:11 PM
To: Bonaccorso, Amy
Subject: RE: Why are there no emergency diesels in U.S. nuclear power plants?

Amy,

Our plants are currently required to have at least 8 hours of battery power for essential reactor functions. Our regulations assume that power to the plant can be restored within that 8 hour timeframe. Power is needed for the cooling systems associated with the core to run. My guess would be that as a result of the events at Fukushima that the NRC may be looking into extending the time period for operating un-attached to the electrical grid.

-Jenny

Jenny (Tobin) Wollenweber
Export Licensing Officer
Office of International Programs
office: 301-415-2328

From: Bonaccorso, Amy
Sent: Wednesday, March 30, 2011 1:56 PM
To: Tobin, Jennifer
Subject: FW: Why are there no emergency diesels in U.S. nuclear power plants?

Jenny:

Do you know anything about this topic of power plants cooling their cores within eight hours of disconnecting from the grid and why that would be so upsetting to someone?

Thanks,

Amy

2/354

From: EDO Update
To: Taylor, Renee
Subject: EDO Update
Date: Thursday, March 31, 2011 4:31:07 PM

EDO Banner

EDO Banner

EDO Update

Thursday, Mar 31, 2011

Once again I would like to keep you informed about a number of significant new developments.

Continuing Resolution

The current Continuing Resolution passed by Congress will expire next Friday, April 8th. As I have mentioned before, we continue to plan for all possible scenarios. Even if there is a lapse in appropriations, we intend to stay open an additional week by using available funds. If it appears that we will face a possible furlough, we will provide you with appropriate information. Please consult the FAQ if you have questions in the meantime:

<http://portal.nrc.gov/edo/staff/Lists/Announcements/DispForm.aspx?ID=16&Source=http%3A%2F%2Fportal%2Fenrc%2Fgov%2Fedo%2Fstaff%2Fdefault%2F.aspx>

I should mention that even during a furlough, we expect to have sufficient staff to support our activities in response to the events in Japan.

Congressional Hearings

As you may be aware, the Chairman and other senior NRC leaders have testified before Congress on events in Japan several times in recent weeks. This week alone the House and Senate scheduled four different hearings—some of which you may have watched on C-Span. More hearings are scheduled for next week and beyond. In addition, the Regions have been coordinating briefings, hearings, and plant site visits for Senators, Governors, and other officials. As with the staff in Japan and the Operations (Ops) Centers, these hearings have required people to take on extra duties to get the work done; while others have had to backfill to ensure that our “regular” responsibilities still get met. I appreciate the effort all of you have put in, and I thank you once again for demonstrating our commitment to the NRC Values and an Open, Collaborative Work Environment.

Monitoring the Situation in Japan

We continue to monitor the developments at the Fukushima-Daiichi site. It is too soon to say when the situation will be sufficiently stable that we can wind down our extra staffing in Japan and the Ops Center. We just sent the 3rd wave to Tokyo as others have returned back home to the U.S. Some of the team members have had to endure hundreds of significant aftershocks, food shortages, long work hours, and other difficult working and living conditions. Please make them feel welcome as they return. The Office of Nuclear Reactor Regulation has compiled a collection of Questions and Answers about the events at Fukushima and how they relate to U.S. commercial reactors, which I encourage you to visit here:

<http://portal.nrc.gov/edo/nrr/dori/japan/Shared%20Documents/Questions%20and%20Answers.aspx>
I will, of course, keep you informed of any significant new developments.

Review Teams

In response to the Fukushima events, the Commission directed the staff to convene an agency task force of senior leaders and experts to conduct a methodical and systematic review of relevant NRC regulatory requirements, programs, and processes, and their implementation, to recommend whether the agency should make near-term improvements to our regulatory system. The task force, which will report to Deputy Executive Director for Reactor and Preparedness Programs Marty Virgilio, will consist of:

Lead: Charles Miller, FSME

Senior Managers: Daniel Dorman, NMSS; Jack Grobe, NRR; Gary Holahan, NRO

Senior Staff: Amy Cabbage, NRO; Nathan Sanfilippo, OEDO

Administrative Assistant: Cynthia Davidson, OGC

The task force will update the Commission on the near-term review at approximately 30 and 60 days, and provide its observations, findings, and recommendations in the form of a written report and briefing at the completion of the near-term effort occurring at approximately 90 days. Of course, if the task force—or any part of the agency—discovers some urgent action that needs to be taken we will not wait for these deadlines but will act promptly. In addition to this “quick look,” we are also planning a longer, more in-depth examination of what the NRC can learn from the incidents in Japan.

Review Meeting in Vienna

The Chairman and I will join the NRC team in Vienna, Austria, next week for the triennial review meeting of the Convention on Nuclear Safety. The ongoing events in Japan cast a bright light on the importance of what we do here at the NRC and the role of international cooperation and assistance to ensure global nuclear safety and security. The meeting will include a special session requested by International Atomic Energy Agency (IAEA) Director General Amano with all member states to discuss the current situation and actions that IAEA has planned in response. Thanks again to all who contributed to helping prepare our team for the review meeting. I look forward to sharing insights from the meeting with you upon our return.

4/355

From: [Bonaccorso, Amy](#)
To: [Tobin, Jennifer](#)
Subject: RE: Nuclear energy? PBR (pebble bed reactor) me ASAP!
Date: Thursday, March 31, 2011 9:54:18 AM

Okay - I didn't know that - that's why I ask you these things! I will edit the response.

Thanks,

Amy

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

From: Tobin, Jennifer
Sent: Thursday, March 31, 2011 9:52 AM
To: Bonaccorso, Amy
Subject: RE: Nuclear energy? PBR (pebble bed reactor) me ASAP!

Amy,

There is potential to review this design in the future but there have been no applications submitted for the PBR reactor. RES may be looking at some aspects of the design but the unit is not being evaluated wholly at this time since a U.S. company has not expressed interest in building one.

Thanks!

-Jenny

Jenny (Tobin) Wollenweber
Export Licensing Officer
Office of International Programs
office: 301-415-2328

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

From: Bonaccorso, Amy
Sent: Thursday, March 31, 2011 9:13 AM
To: Tobin, Jennifer
Subject: FW: Nuclear energy? PBR (pebble bed reactor) me ASAP!

Hey Jenny:

Wanted to bounce this off of you. According to our website, PBRs are just one design that NRC is considering licensing. So, do you think this response is okay or should I add something else?

"Thank you for your email. Yes, the U.S. Nuclear Regulatory Commission (NRC) is evaluating PBRs for licensing. The design is referenced at the bottom of this webpage on advanced reactors:
<http://www.nrc.gov/reactors/advanced.html>

The NRC, however, does not promote any one design, but rather, evaluates the designs for safe operation and licensing.

Thank you,

Amy

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

From: Janbergs, Holly On Behalf Of OPA Resource
Sent: Thursday, March 31, 2011 7:50 AM
To: Bonaccorso, Amy; Deavers, Ron
Subject: FW: Nuclear energy? PBR (pebble bed reactor) me ASAP!

L/354

From: [Tobin, Jennifer](#)
To: [Bonaccorso, Amy](#)
Subject: RE: Nuclear energy? PBR (pebble bed reactor) me ASAP!
Date: Thursday, March 31, 2011 9:51:00 AM

Amy,
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Hey Jenny:

Wanted to bounce this off of you. According to our website, PBRs are just one design that NRC is considering licensing. So, do you think this response is okay or should I add something else?

"Thank you for your email. Yes, the U.S. Nuclear Regulatory Commission (NRC) is evaluating PBRs for licensing. The design is referenced at the bottom of this webpage on advanced reactors:
<http://www.nrc.gov/reactors/advanced.html>

The NRC, however, does not promote any one design, but rather, evaluates the designs for safe operation and licensing.

Thank you,

Amy

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

From: Janbergs, Holly On Behalf Of OPA Resource
Sent: Thursday, March 31, 2011 7:50 AM
To: Bonaccorso, Amy; Deavers, Ron
Subject: FW: Nuclear energy? PBR (pebble bed reactor) me ASAP!

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

From: Marcetich, Adam [<mailto:marcetia@msoe.edu>]
Sent: Wednesday, March 30, 2011 8:45 PM
To: OPA Resource
Subject: Nuclear energy? PBR (pebble bed reactor) me ASAP!

Confusion and division over fission

Dear Chairman Jaczko,

The recent disasters in Japan highlight the disadvantages of nuclear power. fission power offers many advantages over fossil fuels and renewable energy. zero emissions, low prices and steady generation can electrify cities with a small physical plant footprint.

On the other hand, disposal and safety have not been addressed adequately. Compared to fossil fuels and renewables, nuclear power can be tricky at all stages. Nuclear fuel can be diverted for weapons, operating plants risk meltdown if attacked or damaged, and waste can contaminate huge areas if released en route to a burial site.

One critical difference has not been addressed between nuclear and other technology. Current coal, gas and oil plants do not burn fuels in the same way as fifty years ago. instead of lumps of coal shoveled into a furnace, pulverizers first grind coal dust, and entrain it in an airstream before it burns at maximum efficiency.

Likewise, new turbine designs optimize windmills. These are not the same windmills that milled grains into flour hundreds of years ago, but computer designed airfoils with optimized shapes.

Fears, suspicion and misinformation have limited funding into nuclear power research. Accidents and fears have prevented new plants from being built in the US for over 30 years. The result is a power industry that splits uranium atoms much in the same way as three or even more decades ago. Would we expect coal to provide the same efficiency or safety if were shoveled into open furnaces by hand, as it was decades ago? Fossil fuel and renewable energy are competitive today in a large part from ongoing research. Considering new technologies at least for research would allow testing for safer, more efficient designs. It's time to focus on the advantages of nuclear power, and explore its possibilities with research.

pebble bed reactors (PBR's) use a different technology to provide a homogenous, standardized fuel shape. they resist diverting material since each pebble can be counted rather than weighed and analyzed. this passive safety avoids meltdown, since the pebbles cannot form a critical mass even in the tightest packed configuration.

Is the US NRC actively evaluating next-generation nuclear power technology? In light of both the gulf coast oil spill and Japanese energy disasters, the realities of nuclear power are a ripe field to explore.

Thanks,

Adam in Alexandria, VA

http://en.wikipedia.org/wiki/Pebble_bed_reactor
http://en.wikipedia.org/wiki/Coal_power

From: [Bush-Goddard, Stephanie](#)
To: [Bonaccorso, Amy](#)
Subject: RE: Info from UCLA - Andrew Norris
Date: Friday, April 01, 2011 10:10:04 AM

Yes please and thanks for thinking of us.

-Stephanie

From: Bonaccorso, Amy
Sent: Thursday, March 31, 2011 1:37 PM
To: Bush-Goddard, Stephanie
Subject: Info from UCLA - Andrew Norris

Hi Stephanie:

I am sifting through public inquiries and see one from Andrew Norris at the Department of Radiation Oncology in LA. Enclosed is a document entitled, "Radioprotective Properties of Tetracycline." I thought you may be interested and wanted to see if I should drop it off with you.

Thanks,

Amy

4357

Deavers, Ron

From: Harrington, Holly
Sent: Friday, April 01, 2011 11:40 AM
To: Deavers, Ron; Janbergs, Holly; Bonaccorso, Amy
Cc: Akstulewicz, Brenda
Subject: RE: Updates

Yes, thanks for this Ron.
Amy and Bethany for now

From: Deavers, Ron
Sent: Friday, April 01, 2011 11:35 AM
To: Janbergs, Holly; Bonaccorso, Amy
Cc: Akstulewicz, Brenda; Harrington, Holly
Subject: RE: Updates

I should probably be removed from the distribution for the time being. Amy has been answering the calls this week.

Thanks,

Ron Deavers
Project Manager, OIS/BPIAD/PMT1
Owfn - 6C5
301-415-7301
Ron.Deavers@nrc.gov

From: Janbergs, Holly
Sent: Friday, April 01, 2011 11:18 AM
To: Bonaccorso, Amy; Deavers, Ron
Cc: Akstulewicz, Brenda
Subject: Updates
Importance: High

Hi gang,

Please let me and Brenda know when you are available and in the "office." It will help us keep from sending things on when you're not able to answer!

Thanks,
Bethany

Beth Janbergs
Public Affairs Assistant
301-415-8211

Deavers, Ron

From: Deavers, Ron
Sent: Friday, April 01, 2011 10:45 AM
To: Johnson, Susan
Subject: RE: Your input needed

Sue,

The dates for the Japanese emergency-related work I performed are:

March 16, 17, 18, 22, 23, 24, 25, 29, 30

Thanks

Ron

From: Johnson, Susan
Sent: Friday, April 01, 2011 10:32 AM
To: Deavers, Ron
Subject: Your input needed
Importance: High

Ron,
I need the dates of any Japanese emergency-related work that you performed. Can you send the info to me, please? Thanks!
Sue

Tracking:

Deavers, Ron

From: HRMSBulletin Resource
Sent: Friday, April 01, 2011 1:59 PM
To: HRMSBulletin Resource
Cc: HRMSBulletin Resource
Subject: NEW TAC'S ASSOCIATED WITH SUPPORTING THE EVENTS IN JAPAN

NRC will need to provide information relating to the costs associated with supporting the events in Japan that directly relates to the Earthquake and Tsunami. For pay periods 6 and 7 we created TAC ZG0061, this was used by all staff that directly performed duties that supported the Japan event. Going forward starting with pay period 8(March 27 – April 9), we will need to track any costs associated with support of the Japan event relating to the earthquake and tsunami in greater detail. Please do not use TAC ZG0061 after pay period 7 (PP 7 ended March 26, 2011). The separation into multiple TAC's for different activities is necessary for appropriate fee billing.

The new TAC's are listed below with a brief description.

ZG0064 – Japan Support Team (In Japan). This TAC is to be used to record hours worked while employees are in Japan, for those employees who traveled to Japan to support the earthquake and tsunami.

ZG0063 – Japan Event HQ Operations Watchstanders. This TAC is to be used to record hours worked when employees are working in the Operations Center. This is for employees who are working directly on activities that are supporting the Japan events relating to the earthquake and tsunami and who did not travel to Japan.

ZG0062 – Work Performed, Lessons Learned relating to the Japan Event. This TAC is to be used for work that will be performed by staff in the agency as a lessons learned approach to improve the NRC's ability relating to operating reactors. This TAC is not to be used for any work that is described in the TAC's above.

It will not be necessary to do corrected cards for pay periods prior to pay period 8, the Division of the Controller will make all necessary corrections.

If you have any questions on these new TAC's please send an e-mail to mary.matheson@nrc.gov.

Medina, Veronika

From: Couret, Ivonne
Sent: Friday, April 01, 2011 11:39 AM
To: Medina, Veronika
Subject: addRE: please log

Want to interview NRC staff that went to Japan whenever they are made available.

From: Couret, Ivonne
Sent: Friday, April 01, 2011 11:38 AM
To: Medina, Veronika
Subject: please log

Steven Wright
BBC Radio 4
Email steven.wright@bbc.co.uk
[44] 208-624-9730 ~~208-624-9730~~
Show times 1 and 5p.m. UK (8a.m./Noon DC time)

Ivonne L. Couret
Public Affairs Officer
Office of Public Affairs
Media Desk
opa.resource@nrc.gov
301-415-8200

Visit our online photo gallery. Incorporate graphics and photographs to tell your story!
<http://www.nrc.gov/reading-rm/photo-gallery/>

2010-2011 Information Digest - Where you can find NRC Facts at a Glance
<http://www.nrc.gov/reading-rm/doc-collections/nureqs/staff/sr1350/>

4/361

Medina, Veronika

From: Royer, Deanna
Sent: Friday, April 01, 2011 1:54 PM
To: Medina, Veronika
Subject: Media - Yale Environment 360-Question

Elizabeth Grossman
Yale Environment 360
503-704-5637

lizziegrossman@mac.com

Re: Science on how radiation behaves in the water from Japan

Deanna Royer
Contract Secretary
Division of New Reactor Licensing
(301) 415-7158
Deanna.Royer@nrc.gov

Medina, Veronika

From: Burnell, Scott
Sent: Friday, April 01, 2011 1:49 PM
To: Medina, Veronika
Subject: RE: Info request - NHK TV

Done.

From: Medina, Veronika
Sent: Friday, April 01, 2011 1:47 PM
To: Burnell, Scott
Subject: FW: Info request - NHK TV

Scott,

Can you please call this reporter?

Thanks,
Veronika

From: Akstulewicz, Brenda
Sent: Friday, April 01, 2011 12:05 PM
To: Medina, Veronika
Subject: FW: Info request - NHK TV

From: Couret, Ivonne
Sent: Friday, April 01, 2011 10:23 AM
To: Akstulewicz, Brenda
Subject: RE: Info request - NHK TV

Send items to VERONIKA

From: Akstulewicz, Brenda
Sent: Friday, April 01, 2011 10:23 AM
To: Couret, Ivonne
Subject: Info request - NHK TV

Alex Kirst
NHK Japanese TV
718-839-3859 *JKTV*
are all new plants licensed for 40 years

Brenda Akstulewicz
Administrative Assistant
Office of Public Affairs
301-415-8209
brenda.akstulewicz@nrc.gov



Medina, Veronika

From: Janbergs, Holly
Sent: Friday, April 01, 2011 2:15 PM
To: Royer, Deanna
Cc: Medina, Veronika; Couret, Ivonne
Subject: RE: Public question

If she's affiliated with the Guardian, she's not public. Forwarding to Veronika and Ivonne.

From: Royer, Deanna
Sent: Friday, April 01, 2011 2:14 PM
To: Janbergs, Holly
Subject: Public question

Sarah Phelan
San Francisco Guardian
415-487-2577 ~~JEK~~
Re: Trash in the Pacific. Could debris be contaminated.

Deanna Royer
Contract Secretary
Division of New Reactor Licensing
(301) 415-7158
Deanna.Royer@nrc.gov

Kock, Andrea

From: Kock, Andrea
Sent: Friday, April 01, 2011 2:47 PM
To: Ostendorff, William; Nieh, Ho; Franovich, Mike
Cc: Zorn, Jason
Subject: FYI: CRS draft document on Japanese event - for your awareness
Attachments: CRS Report 110331 Japan reactor v2.pdf

FYI: A report issued by the Congressional research Center on the events in Japan is attached. The report provides basic health physics information in the context of the events in Japan. The report does a good job of relating the risks of the radiation detected to health effects. I think it is a good report for the public and Congress. It does, however, imply that the plutonium in MOX fuel was a concern (but recognizes uranium fuel also produces plutonium), which, as we discussed earlier, is not a concern. The NRC apparently provided substantial comments which improved the quality of the document.

Andrea Kock
Technical Assistant for Materials
Office of Commissioner Ostendorff
301-415-2896

From: Jones, Cynthia
Sent: Friday, April 01, 2011 1:10 PM
To: Merzke, Daniel
Subject: FW: CRS draft document on Japanese event - for your awareness

Dan- I realize you are out today, but suggest you send this to the Commission TAs for their awareness.

Thanks
Cyndi

From: Jones, Cynthia
Sent: Friday, April 01, 2011 1:00 PM
To: Wiggins, Jim; Evans, Michele; Rothschild, Trip; Brenner, Eliot; Hayden, Elizabeth; Leeds, Eric; Boger, Bruce; Uhle, Jennifer; Sheron, Brian; Droggitis, Spiros; Merzke, Daniel; Virgilio, Martin; Weber, Michael; Burnell, Scott; McDermott, Brian; Morris, Scott
Subject: CRS draft document on Japanese event - for your awareness

FYI-

Last weekend amongst all the other requests, we (PMT and myself) were requested to review and assist the Congressional Research Service (CRS) on their draft document on the Japanese event. I just rec'd a copy from them, for your awareness.

The RST (Rx Safety Team) had no comments, but we had a lot, and I think it showed an improved production in this version. Please share with your staff (I already passed along to RST & PMT).

I expect that CRS will share with Congress shortly. .

Cyndi

From: Jonathan Medalia [<mailto:JMEDALIA@crs.loc.gov>]
Sent: Friday, April 01, 2011 12:01 PM
To: Jones, Cynthia
Subject: RE: your phone message on CRS draft document

I'm updating the report to add an appendix with useful links, and of course have included a couple from NRC. Thanks again for your good work.

Jon

>>> "Jones, Cynthia" <Cynthia.Jones@nrc.gov> 4/1/2011 11:59 AM >>>

Thanks Jon

From: Jonathan Medalia [<mailto:JMEDALIA@crs.loc.gov>]
Sent: Thursday, March 31, 2011 6:31 PM
To: Jones, Cynthia
Cc: Sun, Casper; LIA06 Hoc; Hoc, PMT12
Subject: Re: your phone message on CRS draft document

Hi Cyndi, Casper, et al.,

Thanks for your comments on my report, Cyndi. I have worked through them and now have the report in good shape. I'll be in touch if I have further questions, but for now I think I'm ok. I've attached the report. You will notice that I acknowledge assistance from NRC, which I greatly appreciate. I will update the report from time to time, so let me know if you have any thoughts, esp. things to add.

Best,

Jon

Jonathan Medalia, Ph.D.
Specialist in Nuclear Weapons Policy
Congressional Research Service
202-707-7632
jmedalia@crs.loc.gov

Kock, Andrea

From: Jones, Cynthia
Sent: Friday, April 01, 2011 4:11 PM
To: Kock, Andrea
Subject: RE: CRS draft document on Japanese event - for your awareness

☺ we try...

From: Kock, Andrea
Sent: Friday, April 01, 2011 2:48 PM
To: Jones, Cynthia
Subject: RE: CRS draft document on Japanese event - for your awareness

Thanks, Cyndi! Pretty good report- I assume because the good HPs at the NRC helped!

Andrea Kock
Technical Assistant for Materials
Office of Commissioner Ostendorff
301-415-2896

From: Jones, Cynthia
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To: Merzke, Daniel
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Best,

Jon

Jonathan Medalia, Ph.D.
Specialist in Nuclear Weapons Policy
Congressional Research Service
202-707-7632
jmedalia@crs.loc.gov



**Congressional
Research
Service**

The Japanese Nuclear Incident: Technical Aspects

Jonathan Medalia
Specialist in Nuclear Weapons Policy

March 31, 2011

Congressional Research Service

7-5700

www.crs.gov

R41728

CRS Report for Congress
Prepared for Members and Committees of Congress

Summary

Japan's nuclear incident has engendered much public and congressional concern about the possible impact of radiation on the Japanese public, as well as possible fallout on U.S. citizens. This report provides information on technical aspects of the nuclear incident, with reference to human health.

While some radioactive material from the Japanese incident may reach the United States, it appears most unlikely that this material will result in harmful levels of radiation. In traveling thousands of miles between the two countries, some radioactive material will decay, rain will wash some out of the air, and its concentration will diminish as it disperses.

Many atoms are stable; they remain in their current form indefinitely. Other atoms are unstable, or radioactive. They "decay" or "disintegrate," emitting energy through various forms of radiation. Each form has its own characteristics and potential for human health effects.

Nuclear reactors use uranium or mixed oxides (uranium oxide and plutonium oxide, or MOX) for fuel. Uranium and plutonium atoms fission, or split, releasing neutrons that cause additional fissions in a chain reaction, and also releasing energy. A nuclear reactor's core consists of fuel rods made of uranium or MOX encased in zirconium, and neutron-absorbing control rods that are removed or inserted to start or stop the chain reaction. This assembly is placed underwater to carry off excess heat. The incident at the Fukushima Daiichi Nuclear Power Plant prevented water from circulating in the core of several reactors, causing water to evaporate and temperature to rise. High heat could melt the fuel rods and lead to a release of radioactive material into the air.

When uranium and plutonium fission, they split into smaller atoms that are highly radioactive and generate much heat; indeed, fuel rods that have just been removed from a reactor are much more radioactive, and hotter, than fuel rods before they have been inserted into a reactor. After fuel rods can no longer efficiently produce energy, they are considered "spent" and are placed in cooling pools of water for several years to keep them from overheating while the most radioactive materials decay. A concern about the spent fuel pool at reactor 4 is that it may have lost most or all of its water, yet it has more fuel rods than pools at the other five reactors, as it contains all the active fuel rods that were temporarily removed from the reactor core in November 2010 to permit plant maintenance in addition to spent fuel rods.

A nuclear reactor cannot explode like an atomic bomb because the concentration of the type of uranium or plutonium that fissions easily is too low to support a runaway chain reaction, and a nuclear weapon requires one of two configurations, neither of which is present in a reactor.

Some types of radiation have enough energy to knock electrons off atoms, creating "ions" that are electrically charged and highly reactive. Ionizing radiation is thus harmful to living cells. It strikes people constantly, but in doses low enough to have negligible effect. A concern about the reactor incident is that it will release radioactive materials that pose a danger to human health. For example, cesium-137 emits gamma rays powerful enough to penetrate the body and damage cells. Ingesting iodine-131 increases the risk of thyroid cancer. Potassium iodide tablets protect the thyroid, but there is no need to take them absent an expectation of ingesting iodine-131.

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Introduction

The Japanese earthquake and tsunami of March 2011 caused extensive damage to the Fukushima Daiichi Nuclear Power Plant (NPP). This damage has released some radioactive materials, and there are widespread fears about the health effects of current and possible future releases. These fears, and public concern about radiation in general, have attracted the world's attention. This report presents scientific and technical aspects of these issues in order to provide a basis for understanding the risks associated with this event.

Could Harmful Levels of Fallout Reach the United States?¹

To monitor radiation in the United States, the Environmental Protection Agency (EPA) operates RadNet, which “is a national network of monitoring stations that regularly collect air, precipitation, drinking water, and milk samples for analysis of radioactivity. The RadNet network, which has stations in each state, has been used to track environmental releases of radioactivity from nuclear weapons tests and nuclear accidents.”² EPA has an online map of these stations,³ and provides updates on the results of its air monitoring as relates to the Japanese nuclear incident.⁴

Whether harmful levels of radioactive material from the incident reach the United States depends on many factors:

- Particle size: Tiny particles are more readily carried by the wind and can travel farther than large particles, which fall to Earth more rapidly.
- Wind patterns.
- Amount of material released: The more material released, the more likely some of it is to travel long distances.
- Melt vs. burn: If nuclear fuel rods (fresh or spent) melt and form a pool of very hot, highly radioactive liquid, that liquid might be contained by a containment structure. If it melts through that structure, it might contaminate groundwater. If the fuel rods burn, the fire would loft radioactive material into the air. The larger and hotter the fire, and the longer it burns, the more material would be injected into the air.
- Travel time: The longer radioactive material is in the air, the more of it will decay.
- Distance: The farther radioactive material travels, the greater the volume of air in which the material disperses, diluting it.

¹ This section was written by Jonathan Medalia, Specialist in Nuclear Weapons Policy, Foreign Affairs, Defense, and Trade Division.

² U.S. Environmental Protection Agency. “RadNet—Tracking Environmental Radiation Nationwide,” <http://www.epa.gov/narel/radnet/>.

³ U.S. Environmental Protection Agency. “RadNet Map View,” <https://cdxnode64.epa.gov/radnet-public/showMap.do>.

⁴ U.S. Environmental Protection Agency. “Japanese Nuclear Emergency: EPA’s Radiation Air Monitoring,” <http://www.epa.gov/japan2011/>.

- Rain and snow: Precipitation washes some particles out of the air.

The first four of these factors depend on circumstances; the other three would reduce the amount of material reaching the United States under any circumstances.

According to U.S. nuclear authorities, the reactor incident does not appear to pose an immediate threat to the United States. On March 13, the Nuclear Regulatory Commission (NRC) stated, "Given the thousands of miles between the two countries [United States and Japan], Hawaii, Alaska, the U.S. Territories and the U.S. West Coast are not expected to experience any harmful levels of radioactivity."⁵ On March 18, EPA and the Department of Energy stated that a monitoring station in Sacramento "today ... detected minuscule quantities of iodine isotopes and other radioactive particles that pose no health concern at the detected levels," and that between March 16 and 17, a detector in Washington state detected "trace amounts of Xenon-133, which is a radioactive noble gas produced during nuclear fission that poses no concern at the detected level."⁶ In a briefing to the Nuclear Regulatory Commission on March 21, Bill Borchardt, NRC Executive Director for Operations, said, "natural background from things like ... rocks, sun, buildings, is 100,000 times more than any level that has been detected to date. We feel confident in our conclusion that there is no reason for concern in the United States regarding radioactive releases from Japan."⁷ A press report of March 22 stated that equipment in Charlottesville, VA, detected radiation from the reactor incident, but that "health experts said that the plume's radiation had been diluted enormously in its journey of thousands of miles and that—at least for now, with concentrations so low—its presence will have no health consequences in the United States."⁸

It is useful to put these doses in perspective. Using the figure that natural sources provide 100,000 times the dose recorded in California and Washington state, it is possible to calculate a rough approximation of the dose from the Japanese incident, using the improbable assumption that the dose persists at the detected rate for an entire year. As discussed later, a report estimates that the average American receives a dose of 310 millirem (mrem) per year from natural sources. (Units of radiation dose are discussed under "Health Effects of Ionizing Radiation.") NRC requires its licensees to "limit maximum radiation exposure to individual members of the public" to 100 mrem per year. One one hundred thousandth of 310 mrem per year is a dose of 0.00310 mrem per year. At that rate, it would take 32,258 years to accumulate a dose of 100 mrem; over a 70-year lifespan, the cumulative dose at this rate would amount to 0.22 mrem.

⁵ U.S. Nuclear Regulatory Commission. "NRC Sees No Radiation at Harmful Levels Reaching U.S. from Damaged Japanese Nuclear Power Plants," press release no. 11-046, March 13, 2011, <http://pbadupws.nrc.gov/docs/ML1107/ML110720002.pdf>.

⁶ U.S. Department of Energy and Environmental Protection Agency. "Joint EPA/DOE Statement: Radiation Monitors Confirm That No Radiation Levels of Concern Have Reached the United States," press release, March 18, 2011, <http://www.energy.gov/news/10190.htm>.

⁷ U.S. Nuclear Regulatory Commission. "Briefing on NRC Response to Recent Nuclear Events in Japan," public meeting, March 21, 2011, p. 13, <http://www.nrc.gov/reading-rm/doc-collections/commission/tr/2011/20110321.pdf>.

⁸ William Broad, "Radiation over U.S. Is Harmless, Officials Say," *New York Times*, March 22, 2011, p. 6.

What Is Radiation?⁹

Many atoms are stable: they will remain in their current form indefinitely. Some atoms are unstable, or radioactive. They “decay” or “disintegrate,” often transforming into atoms of a different element, such as through emission of radiation, which permits the atom to reach a more stable state.¹⁰ The most common types of radiation emitted in decay, and their characteristics, are:

- Alpha particles are two protons plus two neutrons. They are electrically charged and massive by subatomic standards, and travel relatively slowly, so they lose energy quickly in matter. They travel only an inch in air, and are stopped by a sheet of paper or the dead outer layers of skin.
- Beta particles (an electron or positron¹¹) are electrically charged, so are readily absorbed by matter, but are much less massive than alpha particles or neutrons. Depending on their energy, some are stopped by outer layers of skin, while others can penetrate several millimeters. They can travel up to several feet in air.
- Neutrons are typically emitted by heavy atoms like uranium and plutonium. They have no electrical charge and may be highly penetrating, depending on their speed. They can travel tens of meters in air; energetic neutrons can penetrate the body. They can be slowed down by hydrogen-containing material like water.
- Gamma rays are photons released during radioactive decay. Photons may be thought of as packets of electromagnetic energy; radio waves, light, and x-rays are less-energetic photons. Gamma ray energies vary widely. Those of medium to high energies are highly penetrating and can travel hundreds of meters in air. Stopping them requires a thick layer of a dense material like lead.

Several measurements are useful in discussing radioactivity. Radioactivity is measured in units of curies (Ci), where $1 \text{ Ci} = 3.7 \times 10^{10}$ disintegrations per second, or becquerels (Bq), where $1 \text{ Bq} = 1$ disintegration per second. (The curie is widely used in the United States; the Becquerel is more widely used internationally.) Specific activity—curies per gram—measures how radioactive a material is. Half-life is the time for half the atoms in a mass of particular type of radioactive material to decay. Specific activity is inversely related to half-life. For example, radioactive iodine-131 is intensely radioactive. It has a specific activity of 124,000 curies per gram and a half-life of 8 days; in 10 half-lives (80 days), 99.9 percent of the iodine-131 created at a given time will have decayed. In contrast, uranium-235 has a specific activity of 0.000002 curies per gram and a half-life of 700 million years; it would take 7 billion years (10 half-lives) for 99.9 percent of it to decay.¹² According to Richard Firestone, staff scientist, Lawrence Berkeley

⁹ This section was written by Jonathan Medalia, Specialist in Nuclear Weapons Policy, Foreign Affairs, Defense, and Trade Division.

¹⁰ For descriptions of radiation, see Roger Eckhardt, “Ionizing Radiation—It’s Everywhere,” *Los Alamos Science*, no. 23, 1995, <http://www.fas.org/sgp/othergov/doe/lanl/00326627.pdf>, and U.S. Environmental Protection Agency, “Radiation: Ionizing and Non-Ionizing,” <http://www.epa.gov/radiation/understand/index.html>.

¹¹ A positron is a positively-charged electron.

¹² For data on half-lives and other characteristics of radionuclides, see Lawrence Berkeley National Laboratory, “Exploring the Table of Isotopes,” <http://ie.lbl.gov/education/isotopes.htm>, and U.S. Department of Energy, Office of Environmental Management, “Table B.1. Characteristics of important radionuclides,” http://www.ora.gov/ptp/PTP%20Library/library/DOE/Misc/Table%20B_1_%20Characteristics%20of%20Important%20Radionuclides.htm.

National Laboratory, uranium-235 emits so little radiation that “holding a piece in the hand would cause negligible radiation exposure.”¹³

Energy released per decay is measured differently. A standard measure is the electron volt or, more commonly, thousands of electron volts (keV).¹⁴ The penetrating power of gamma rays, and thus their threat to human health, increases as their energy increases.

Each radioactive atom, or “radionuclide,” decays in a specific way. For example, when uranium-235 decays,¹⁵ it emits gamma rays, most of which are of 186 keV (a low energy) or less, and alpha particles; cesium-137 emits gamma rays, virtually all of which are of 662 keV, a medium energy, and beta particles. Each radionuclide that emits gamma rays does so in a unique pattern, or “spectrum,” of energies that is the primary characteristic used to identify many radionuclides.

Radioactivity and Nuclear Reactors^{16,17}

Some heavy atoms, such as uranium-235 and plutonium-239, “fission” when struck by a neutron. In fission, an atom typically (1) splits into two lighter atoms, called “fission products”; (2) releases two or three neutrons; and (3) emits vast quantities of radiation. Fission products are often highly radioactive, such as cesium-137, iodine-131, and strontium-90.

Uranium-235 and plutonium-239 can support a nuclear chain reaction: to oversimplify, one neutron fissions one atom, which releases two neutrons that fission two atoms, releasing four neutrons that fission four atoms, and so on. Neutrons thus drive chain reactions; this is a key concept for understanding nuclear reactors. A supercritical mass supports an increasing rate of fission; fission diminishes in a subcritical mass; and fission proceeds at a constant rate in a critical mass. In an atomic bomb, a supercritical mass of uranium or plutonium supports a chain reaction that proceeds in a tiny fraction of a second, releasing vast quantities of energy. A nuclear reactor is designed to maintain a constant rate of fission. If fission proceeds too quickly, it gets out of control, in which case the fuel rods generate so much heat that they melt. When control rods are inserted into the reactor core, individual atoms continue to fission but the chain reaction stops. Control rods typically contain boron or cadmium because they are efficient neutron absorbers. (Because boron absorbs neutrons, it was added to cooling water in the Fukushima Daiichi NPP incident to prevent inadvertent criticality.) Fission that proceeds at the desired rate releases energy over several years from one load of fuel. The energy heats water to generate steam that spins turbines to generate electricity.

¹³ Personal communication, March 30, 2011.

¹⁴ “An electron volt is a measure of energy. An electron volt is the kinetic energy gained by an electron passing through a potential difference of one volt.” Fermi National Accelerator Laboratory, “How Big Is an Electron Volt?,” <http://www-bd.fnal.gov/public/electronvolt.html>.

¹⁵ The number following the name of an element is the number of protons plus neutrons in the nucleus.

¹⁶ This section was written by Jonathan Medalia, Specialist in Nuclear Weapons Policy, Foreign Affairs, Defense, and Trade Division, and Mark Holt, Specialist in Energy Policy, Resources, Science, and Industry Division. See also CRS Report R41694, *Fukushima Nuclear Crisis*, by Richard J. Campbell and Mark Holt.

¹⁷ For the status of each reactor, see “Status of the Nuclear Reactors at the Fukushima Daiichi Power Plant,” *New York Times*, <http://www.nytimes.com/interactive/2011/03/16/world/asia/reactors-status.html>., and Japan, Nuclear and Industrial Safety Agency, <http://www.nisa.meti.go.jp/english/>.

A nuclear reactor cannot explode like an atomic bomb because the fuels and configurations differ. In nature, uranium is 99.3 percent uranium-238 and 0.7 percent uranium-235. Only the latter is “fissile,” that is, it will fission when struck by neutrons moving at relatively slow speeds. To make fuel for a bomb or a reactor, the fraction of uranium-235 must be increased through “enrichment.”¹⁸ An atomic bomb uses uranium enriched to about 90 percent uranium-235 (“highly enriched uranium,” HEU), while nuclear reactor fuel is typically enriched to less than 5 percent (“low enriched uranium,” LEU). LEU does not have enough uranium-235 to support a chain reaction of the sort found in an atomic bomb. In addition, a bomb must be configured in one of two ways to create a large enough mass to support a runaway chain reaction; reactors are arranged in an entirely different configuration.

A nuclear reactor uses pellets of LEU or mixed oxides (MOX, i.e., uranium oxide and plutonium oxide) for fuel. Fuel rods—thin zirconium tubes typically between 12 and 15 feet long—hold the fuel. According to one report,

Zirconium is the metal of choice in this application because it absorbs relatively few of the neutrons produced in a fission reaction and because the metal is highly resistant to both heat and chemical corrosion.

Low neutron absorption is vital to any structural material used in a nuclear reactor because large numbers of neutrons produced by the reaction must be free to interact simultaneously with all the nuclear fuel confined inside hundreds of fuel rods. This interaction sustains the necessary chain reaction throughout the reactor’s core.¹⁹

Even with control rods fully inserted to halt the nuclear chain reaction, the radioactive decay of the fuel rods (primarily from fission products) generates heat, which must be dissipated. At the Fukushima Daiichi NPP, cooling was done by pumping cool water into the reactor. If the heat is not dissipated, the rods become so hot that they melt or burn. A fire would loft particles of radioactive material into the air. If fuel rods become too hot, their zirconium cladding may also react with water and produce hydrogen. The Fukushima Daiichi NPP primary containments used inert nitrogen gas to preclude hydrogen ignition. However, the operators had to vent the primary containment to relieve pressure, introducing hydrogen into the secondary containment, which is believed to have caused the explosions at reactor units 1-3.²⁰ This explains the urgency of the efforts to keep the fuel rods cool, and why the reactors suffered major damage when backup cooling systems failed.

In order to cool the fuel rods, personnel have been spraying huge amounts of seawater into the reactors and spent fuel pools. However, when seawater boils away from the heat of the fuel rods, it leaves behind large quantities of salt.

The big question is how much of that salt is still mixed with water, and how much now forms a crust on the reactors’ uranium fuel rods. Chemical crusts on uranium fuel rods have been a problem for years at nuclear plants.

¹⁸ For information on the enrichment process, see U.S. Nuclear Regulatory Commission. “Fact Sheet on Uranium Enrichment,” May 15, 2009, <http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/enrichment.html>.

¹⁹ “Zirconium: Covering for Fuel Rods,” *New York Times*, June 9, 1995, <http://www.nytimes.com/1995/06/09/nyregion/zirconium-covering-for-fuel-rods.html>.

²⁰ Information provided by Nuclear Regulatory Commission, personal communication, March 25, 2011.

Crusts insulate the rods from the water and allow them to heat up. If the crusts are thick enough, they can block water from circulating between the fuel rods. As the rods heat up, their zirconium cladding can ignite, which may cause the uranium inside to melt and release radioactive material.²¹

To alleviate this problem, workers have begun using fresh water instead of seawater.²²

As the fuel fissions in a reactor, the fraction of fission products in fuel rods increases. When the ratio of fission products to fissile material rises to the point at which a fuel rod can no longer efficiently maintain a chain reaction, it is referred to as spent fuel. “Spent” seems to imply that the fuel has been used up, and is therefore less dangerous, than fresh uranium fuel, but this is not necessarily the case. When fuel rods are first removed from a nuclear reactor, they have a high level of short-lived radionuclides, unlike new fuel rods, so they are intensely radioactive. This radioactivity generates intense heat, so spent fuel rods are placed in pools of water to cool them, typically for several years, until most of the short-lived radionuclides decay. The water also provides shielding against any radioactive release into the air, and the spent fuel pools have no hardened containment structure that would protect against radiation release. If a pool is drained, the fuel rods would heat up, melt, and perhaps burn. This possibility led to concern about the spent fuel rods at Fukushima Daiichi NPP reactor 4:

The spent fuel pools can be even more dangerous than the active fuel rods, as they are not contained in thick steel containers like the reactor core. As they are exposed to air, the zirconium metal cladding on the rods can catch fire, and a deadly mix of radioactive elements can spew into the atmosphere. ...

According to Tokyo Electric [Power Company]’s data, the spent fuel pool at the No. 4 reactor contains 548 fuel assemblies that were in use at the reactor until last November, when they were moved to the storage pool on the site. That means that the fuel rods were only recently taken out of active use and that their potential to burn and release radioactivity is higher than spent fuel in storage for a longer period.²³

Another danger comes from the potential release of plutonium from the MOX fuel used at reactor 3. Even very small amounts of plutonium, if inhaled, can potentially cause lung cancer. This explains the concern about that reactor, as it is the only one that uses MOX fuel, although irradiation of uranium fuel also creates plutonium. Water is being pumped into the spent fuel pools at the Fukushima Daiichi NPP reactors as well to cool the fuel rods and prevent additional radiation release.

²¹ Keith Bradsher, “New Problems at Japanese Plant Subdue Optimism and Present a Risky Agenda,” *New York Times*, March 24, 2011, p. 11.

²² David Nakamura and Steven Mufson, “Japan Urges More to Evacuate,” *Washington Post*, March 26, 2011, p. 1, and “Nuclear Energy—Crisis in Japan,” *New York Times*, update of March 30, 2011.

²³ David Sanger, Matthew Wald, and Hiroko Tabuchi, “U.S. Sees ‘Extremely High’ Radiation Level at Plant, Focusing on Spent Fuel’s Impact,” *New York Times*, March 17, 2011, p. 13.

Health Effects of Ionizing Radiation²⁴

Humans are continuously exposed to significant amounts of ionizing radiation from various naturally occurring and manmade sources. Because of its relatively high energy level, ionizing radiation is capable of producing significant biological change. Ionizing radiation gets its name from the fact that it causes ionization—ejection of electrons—when it interacts with atoms in the molecules that constitute cells and tissue. This process creates charged, often unstable, and highly reactive entities. The ensuing reactions may result in permanent molecular damage. Radiation disrupts cell division, which is why the most sensitive tissues are those in which cells frequently divide, such as skin, hair, bone marrow (where precursor cells give rise to new blood cells), and the cells that line the stomach and small intestine. Ionizing radiation may also damage DNA in chromosomes, resulting in mutations that are responsible for long-term effects such as the development of cancer.

Sources of Radiation Exposure

Naturally occurring sources of ionizing radiation to which all humans are exposed include cosmic radiation from outer space and terrestrial radiation from radioactive materials in rock deposits and soil. The Earth's atmosphere acts as a shield against cosmic radiation, so exposure levels increase with altitude (especially when flying). The most important source of terrestrial exposure is the inhalation of radon, which is produced by the radioactive decay of naturally occurring uranium.

In the United States, radiation exposure as a result of medical practice has increased significantly over the past 25 years as a result of the growing use of CT scans and nuclear medicine procedures to diagnose and treatment disease. Other manmade sources of radiation account for a relatively small fraction of the U.S. population's total exposure. Those sources include consumer products (e.g., cigarettes, building materials, appliances); industrial, security, educational, and research activities, including nuclear power generation; and various types of occupational exposure.

Measuring Exposure: Absorbed Dose v. Equivalent Dose

Human exposure is measured by the amount of energy that ionizing radiation deposits in a unit mass of tissue. This is called the *absorbed dose*. The international unit for the absorbed dose is the gray (Gy), which replaced an earlier unit of dose, the rad (short for “radiation absorbed dose”). One gray equals 100 rad. The biological impact of ionizing radiation, however, depends not just on the absorbed dose (i.e., the amount of energy absorbed) but on the type of radiation. For example, an alpha particle is more damaging to biological tissue than a beta particle or gamma radiation because of its mass, electrical charge, and slow speed. Alpha particles lose their energy much more densely along the relatively short path they travel through biological tissue. Thus, 1 Gy of alpha radiation is more harmful than 1 Gy of beta or gamma radiation.

Radiation scientists use another quantity, called *equivalent dose*, which allows them to measure all types of exposure on an equal basis. Equivalent dose is equal to the absorbed dose multiplied by a factor that takes into account the relative effectiveness of each type of radiation to cause harm. For beta particles and gamma radiation, the factor is set at 1; that is, the absorbed dose

²⁴ This section was written by Jonathan Medalia, Specialist in Nuclear Weapons Policy, Foreign Affairs, Defense, and Trade Division, and C. Stephen Redhead, Specialist in Health Policy, Domestic Social Policy Division.

equals the equivalent dose. For alpha particles the factor is set at 20, which means that the equivalent dose is 20 times the absorbed dose. This reflects the fact that alpha radiation is more harmful than beta and gamma radiation. The international unit for the equivalent dose is the sievert (Sv). So, 1 Sv of alpha radiation to the lung would create the same risk of lung cancer as 1 Sv of beta radiation. The sievert is a large unit relative to common exposures, so the more common unit is the millisievert (mSv), which is one-thousandth of a sievert. The sievert replaced an earlier unit of equivalent dose, the rem, which is still widely used in the United States. One sievert = 100 rem; 1 mSv = 100 millirem (mrem).

The National Council on Radiation Protection and Measurement (NCRP) estimates that the *average annual equivalent dose* to an individual in the United States is 6.2 mSv (620 mrem).²⁵ Of that amount, 3.1 mSv (310 mrem) is from natural background sources, primarily inhalation of radon and its decay products, and 3.0 mSv (300 mrem) is from diagnostic and therapeutic medical procedures. The remaining 0.1 mSv (10 mrem) is from consumer products, industrial activities, and occupational exposure, among other sources. For comparison, the radiation dose from a jet airplane flight is 0.5 millirems (mrem) per hour in the air; from a chest x-ray, 6 mrem; and from living at an altitude of one mile, about 50 mrem/year.²⁶ **Table 1** shows various doses and their health consequences or regulatory limits.

²⁵ National Council on Radiation Protection and Measurement, "Ionizing Radiation Exposure of the Population of the United States," report no. 160, 2009.

²⁶ American Nuclear Society, "Radiation Dose Chart," <http://www.ans.org/pi/resources/dosechart/>. This interactive chart permits the user to adjust values to find an approximation of his or her total annual dose.

Table I. Radiation Dose Levels

Dose, mSv	Dose, rem	Source	Comments
1/yr	0.1/yr	(2)	NRC requires its licensees to "limit maximum radiation exposure to individual members of the public" to this level.
6.2/yr	0.62/yr	(1)	Average U.S. individual's total effective radiation dose in 2006; half is from natural background and half is from medical uses and other human activities.
20	2	(7)	Federal Emergency Management Agency and Environmental Protection Agency recommend relocating the public from an area if the expected dose in the first year after a radiological incident is above this level.
50/yr	5/yr	(2)	NRC requires its licensees to "limit occupational radiation exposure to adults working with radioactive materials" to this level.
100	10	(6)	A National Research Council committee defines "low dose" of certain types of ionizing radiation, such as gamma rays, as this level or below.
0-250	0-25	(3)	For an "acute" (i.e., received over a short time) whole-body external dose of ionizing radiation, "No detectable clinical effects; small increase in risk of delayed cancer and genetic effects."
250	25	(4)	Japan raised the permitted dose for emergency workers at the Fukushima Daiichi NPP from 100 mSv/10 rem to this level.
500	50	(5)	For an acute whole-body external dose of ionizing radiation, "blood count changes."
1,000-2,000	100-200	(3)	For an acute whole-body external dose of ionizing radiation, "Minimal symptoms; nausea and fatigue with possible vomiting; reduction in [certain white blood cells], with delayed recovery."
2,000-3,000	200-300	(3)	For an acute whole-body external dose of ionizing radiation, "Nausea and vomiting on first day; following latent period of up to 2 weeks, symptoms (loss of appetite and general malaise) appear but are not severe; recovery likely in about 3 months unless complicated by previous poor health."
3,200-3,600	320-360	(5)	Half the population exposed to an acute whole-body external dose of ionizing radiation will die within 60 days despite receiving minimal supportive care.
3,500-5,000	350-500	(2)	NRC believes that half the population receiving this dose in a few hours or less would die within 30 days.
8,000	800	(5)	100% mortality, despite best available treatment, for people receiving this external dose of whole-body ionizing radiation.

Sources: (1) National Council on Radiation Protection and Measurement, "Ionizing Radiation Exposure of the Population of the United States," report no. 160, 2009, p. 11. (2) U.S. Nuclear Regulatory Commission. "Fact Sheet on Biological Effects of Radiation," January 2011, <http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/bio-effects-radiation.html>, and 10 CFR 20. (3) Dade Moeller, *Environmental Health*, revised edition, Cambridge, Harvard University Press, 1997, p. 250. (4) Keith Bradsher and Hiroko Tabuchi, "50 Workers Bravely Stay at Troubled Japan Reactors," *New York Times*, March 16, 2011. (5) Princeton University, Environmental Health and Safety. "Open Source Radiation Safety Training, Module 3: Biological Effects," <http://web.princeton.edu/sites/ehs/osradtraining/biological-effects/page.htm>, adapted from National Council on Radiation Protection and Measurements, Report No. 98, "Guidance on Radiation Received in Space Activities," Bethesda, MD, 1989. (6) National Research Council, Committee to Assess Health Risks from Exposure to Low Levels of Ionizing Radiation, "Health Risks from Exposure to Low Levels of Ionizing Radiation," BEIR [Biological Effects of Ionizing Radiation] VII Phase 2, p. 2, http://www.nap.edu/openbook.php?record_id=11340&page=1 and click on PDF Summary. (7) U.S. Environmental Protection Agency. Office of Radiation Programs. *Manual of Protective Action Guides and Protective Actions for Nuclear Incidents*, revised 1991 (second printing, May 1992), p. 4-4, <http://www.epa.gov/radiation/docs/er/400-r-92-001.pdf>, and Federal Emergency Management Agency, "Planning Guidance for Protection and Recovery Following Radiological Dispersal Device (RDD) and Improvised Nuclear Device (IND) Incidents," 73 *Federal Register* 45034, August 1, 2008.

External v. Internal Exposure: Effective Dose

The health risks of ionizing radiation can occur as a result of both external and internal exposure. External exposure is almost exclusively from radioactive material that emits gamma radiation, which is very penetrating and, at higher energies, can only be stopped by a thick layer of lead or concrete. External sources of gamma radiation produce a whole-body exposure. Importantly, the level of exposure to gamma radiation falls off sharply with distance from the source. Cesium-137 (^{137}Cs), which has a half-life of 30 years, is the most common source of gamma radiation from nuclear weapons tests and reactor accidents.

Alpha and beta particles outside the body are typically not a source of external exposure. Alpha particles travel only a few centimeters through the air and cannot penetrate clothing or the outermost dead layer of skin. Beta particles, composed of electrons or positrons, can travel at most several feet through the air and penetrate to the live layer of skin causing burns (as happened to workers at Chernobyl). But they too are blocked by radiation suits.

Internal radiation exposure occurs through the inhalation of airborne radioactive material or the ingestion of contaminated food and drink. The potential for harm depends on the type and quantities of radioactive material taken in and the length of time they remain in the body. As already noted, isotopes that emit alpha particles present a greater hazard than those that emit beta particles and gamma radiation. In addition, the fate of the radioactive material depends on its chemical identity. For example, Strontium-90 (^{90}Sr), which is chemically similar to calcium and emits beta particles, accumulates in bone and can cause leukemia and bone cancer.

Iodine-131 (^{131}I), another beta emitter, tends to accumulate in the thyroid gland, where it is used in the synthesis of thyroid hormones. Beta radiation from iodine-131 damages the surrounding cells and increase the risk of non-malignant thyroid disease and thyroid cancer. Iodine-131 from radioactive fallout accumulates on grass and leafy crops and becomes concentrated in the milk of cows and goats that feed on the contaminated vegetation. Children who drink the contaminated milk are especially at risk because they are still growing and their thyroid glands are very active. However, iodine-131 has a half-life of only 8 days, so it decays relatively quickly on the ground, in the food chain, and in the body.

Iodine-131 posed the most important health risk following the incident at the Chernobyl nuclear power plant in 1986. According to the International Atomic Energy Agency:

The main consequence of the Chernobyl accident is thyroid cancer in children, some of whom were not yet born at the time of the accident. Following the vapour [sic] explosion and fire at the Chernobyl reactor, radioactive iodine was released and spread in the surrounding area. Despite measures taken, children in southern Belarus and northern Ukraine, were exposed to radiation in the weeks following the accident, particularly by consuming milk from pastured cows and leafy vegetables that had been contaminated with radioactive iodine.²⁷

Unlike whole-body external exposures, the exposure from ingested or inhaled radioactive material is often limited to certain parts of the body or even specific organs. Radiation scientists

²⁷ International Atomic Energy Agency, "Thyroid Cancer Effects in Children," staff report, August 2005, <http://www.iaea.org/newscenter/features/chernobyl-15/thyroid.shtml>.

are able to calculate a whole-body equivalent dose, or *effective dose*, for partial-body exposures. These amounts can be summed with external exposure to calculate a total dose.

Acute Health Effects v. Long-Term Cancer Risk

The health effects of ionizing radiation exposure depend on the total dose and dose rate. Radiation health experts distinguish between (1) acute, or short-term, effects such as radiation sickness that are associated with relatively high doses over a short period; and (2) long-term effects such as increased lifetime cancer risk that result from chronic exposure to low-levels of radiation. Short-term health effects are typically seen in workers and others in close proximity to nuclear weapons tests and accidents, while the long-term cancer risks apply to the general population. Scientists calculate the cancer risk from radiation exposure using data from epidemiological and other studies, such as those following the health outcomes of the Japanese atomic bomb survivors. According to the International Commission on Radiological Protection (ICRP), the lifetime risk of contracting a fatal cancer from chronic exposure to low-level radiation exposure is 0.05 per sievert, or 1 in 20 per sievert (i.e., 1 in 2,000 per rem). The ICRP and NCRP both recommend an annual exposure limit of 1 mSv (100 mrem) for members of the general population. An individual that received that much annual exposure over a 70-year lifetime (a total of 70 mSv, or 7 rem) would, as a result, have an increased risk of cancer death of approximately 1 in 300.

Table 1 summarizes the health effects of exposure to various acute doses of ionizing radiation. For comparison, the table also includes the current exposure standards for the general public and workers, and the average background radiation exposure in the United States.

Potassium Iodide

There is considerable interest in potassium iodide (also referred to by its chemical formula, KI) tablets to protect against thyroid cancer. These tablets contain non-radioactive iodine-127, the same type used in iodized table salt, to saturate the thyroid with iodine. Once the thyroid is saturated, it cannot absorb more of any isotope of iodine, including iodine-131. As a result, potassium iodide tablets, taken shortly *before* exposure to iodine-131, offer protection from thyroid cancer. The protection is of limited duration, however, and potassium iodide protects only the thyroid only against radioactive iodine. It does not protect against any other radioactive material or against radiation in general. Nor is there value in taking potassium iodide as a precautionary measure unless iodine-131 is expected to be present. As the next section of this report discusses, the amount of radioactive material that has reached the United States from the Japanese nuclear reactor incident is minuscule. Accordingly, the website of the Centers for Disease Control and Prevention, accessed on March 22, said, “At this time, CDC does not recommend that people in the United States take KI or iodine supplements in response to the nuclear power plant explosions in Japan. You should only take KI on the advice of emergency management officials, public health officials, or your doctor. There are health risks associated with taking KI.”²⁸ Further, “Some general side effects caused by KI may include intestinal upset, allergic reactions (possibly severe), rashes, and inflammation of the salivary glands.”²⁹

²⁸ U.S. Department of Health and Human Services. Centers for Disease Control and Prevention. “Emergency Preparedness and Response: Radiation and Potassium Iodide (KI),” <http://www.bt.cdc.gov/radiation/japan/ki.asp>.

²⁹ U.S. Department of Health and Human Services. Centers for Disease Control and Prevention. “Emergency (continued...)”

The Japanese Situation

Understanding dose and its health effects casts light on the Japanese situation. The (U.S.) Committee to Assess Health Risks from Exposure to Low Levels of Ionizing Radiation of the National Research Council reported on the health risks from a certain type of radiation that includes gamma rays and x-rays. It considered doses below about 100 mSv (10 rem) to be low doses. The committee found that many factors “make it difficult to characterize the effects of ionizing radiation at low levels,” and that “at doses less than 40 times the average yearly background exposure (100 mSv), statistical limitations make it difficult to evaluate cancer risk in humans.” To develop an estimate of risk, the committee constructed a “lifetime risk model [that] predicts that approximately 1 person in 100 would be expected to develop cancer (solid cancer or leukemia) from a dose of 0.1 Sv [10 rem] above background.” For comparison, about 42 percent of the population will be diagnosed with cancer in their lifetimes.³⁰ At Fukushima Daiichi NPP,

The workers are being asked to make escalating—and perhaps existential—sacrifices that so far are being only implicitly acknowledged: Japan’s Health Ministry said Tuesday that it was raising the legal limit on the amount of radiation exposure to which each worker could be exposed, to 250 millisieverts from 100 millisieverts, five times the maximum exposure permitted for nuclear plant workers in the United States.

The change means that workers can now remain on site longer, the ministry said. “It would be unthinkable to raise it further than that, considering the health of the workers,” the health minister, Yoko Komiyama, said at a news conference.³¹

An acute dose of 250 mSv (25 rem) is the upper threshold at which dose is unlikely to cause noticeable health effects, but it increases the risk of cancer. Based on the National Research Council report, 25 of 1,000 people would be expected to develop solid cancers or leukemia as a result of receiving this dose. Workers exposed to this dose will probably not be allowed to be exposed to additional radiation above background for at least a year to give their bodies time to repair cell damage.

Beyond the Fukushima Daiichi NPP, the external doses reported fall far below the low-dose threshold of the U.S. Nuclear Regulatory Commission (NRC). Japan’s Ministry of Education, Culture, Sports, Science and Technology reported dose readings from 80 monitoring stations between 25 and 60 km from the Fukushima Daiichi NPP.³² On March 20, almost all the readings were less than 15 microsieverts per hour. (One millisievert = 1,000 microsieverts; 1 microsievert = 0.1 millirem.) At a rate of 15 microsieverts per hour, it would take 278 days to accumulate a dose of 10 rem. At the highest rate reported, 110 microsieverts per hour, it would take 38 days to accumulate that dose. Staying inside an uncontaminated building would reduce exposure

(...continued)

Preparedness and Response: Potassium Iodide (KI),” <http://emergency.cdc.gov/radiation/ki.asp#med>.

³⁰ National Research Council. Committee to Assess Health Risks from Exposure to Low Levels of Ionizing Radiation. *Health Risks from Exposure to Low Levels of Ionizing Radiation*, Washington, National Academies Press, 2006, pp. 1, 2, 7, 8, http://www.nap.edu/openbook.php?record_id=11340&page=1, and click on “pdf summary.”

³¹ Keith Bradsher and Hiroko Tabuchi, “50 Workers Bravely Stay at Troubled Japan Reactors,” *New York Times*, March 16, 2011.

³² Japan. Ministry of Education, Sports, Culture, Science and Technology (MEXT), “Readings at Monitoring Post out of 20 Km Zone of Fukushima Dai-ichi NPP [Nuclear Power Plant],” news release, as of 19:00 March 20, 2011, http://www.mext.go.jp/component/english/_icsFiles/afiedfile/2011/03/20/1303972_2019.pdf.

considerably, and short-lived radionuclides like iodine-131 (half-life, 8 days) would decay significantly during a month or more, sharply reducing the dose they produce. On the other hand, a larger release of radionuclides would be expected to increase dose, and cesium-137 (half-life, 30 years) decays much more slowly than iodine-131, so it would contribute to dose for many decades.

Given the increase in thyroid cancer as a result of the Chernobyl disaster, a major concern in Japan is minimizing the risk of thyroid cancer. This is especially important for children. At Chernobyl, as noted earlier, ingestion of radioactive iodine-131 resulted mainly from drinking milk from cows that ate contaminated feed, and from eating leafy greens. Accordingly, Japanese authorities have tested spinach, other vegetables, and milk for iodine-131, and found elevated levels. In response, on March 23 Prime Minister Naoto Kan restricted the distribution and consumption of spinach, cabbage, broccoli, and other vegetables in Fukushima Prefecture, and restricted the distribution of fresh raw milk and parsley produced in Ibaraki Prefecture.³³ In addition, authorities have reportedly found traces of radioactive iodine in drinking water in Tokyo. On March 23,

Ei Yoshida, head of water purification for the Tokyo water department, said ... that infants in Tokyo and surrounding areas should not drink tap water. He said iodine-131 had been detected in water samples at a level of 210 becquerels per liter, about a quart. The recommended limit for infants is 100 becquerels per liter. For adults, the recommended limit is 300 becquerels. ... The Health Ministry said in a statement that it was unlikely that there would be negative consequences to infants who did drink the water, but that it should be avoided if possible and not be used to make infant formula.³⁴

However, by March 24 the level was reported to be 79 becquerels per liter, and by March 27 had diminished to the point where two readings showed no radiation and one showed 27 becquerels per liter.³⁵

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³³ Japan. Policy Planning and Communication Division. Inspection and Safety Division. Department of Food Safety. "Restriction of Distribution and/or Consumption of Foods Concerned in Fukushima and Ibaraki Prefectures (in Relation to the Accident at Fukushima Nuclear Power Plant)," March 23, 2011, <http://www.mhlw.go.jp/stf/houdou/2r98520000015wun-att/2r98520000015xym.pdf>.

³⁴ David Jolly and Denise Grady, "Tokyo Says Radiation in Water Puts Infants at Risk," *New York Times*, March 23, 2010.

³⁵ David Jolly, "Radiation in Tokyo's Water Has Dropped, Japan Says," *New York Times*, March 24, 2011, and David Jolly, Hiroko Tabuchi, and Keith Bradsher, "High Radiation Found in Water at Japan Plant," *New York Times*, March 28, 2011, p. 11.

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Weaver, Tonna

From: Purciarello, Gerard *MR*
Sent: Friday, April 01, 2011 9:22 AM
To: Smith, Edward; Jones, Steve; Gardocki, Stanley
Subject: FW: INFORMATION REGARDING TAC NUMBER, WORK SCHEDULES, AND PREMIUM PAY FOR EMPLOYEE ACTIVITIES RELATED TO THE RESPONSE TO THE EVENTS IN JAPAN

For action when recording time.---Jerry

From: Bahadur, Sher
Sent: Friday, April 01, 2011 8:06 AM
To: Purciarello, Gerard; Bailey, Stewart; Dennig, Robert; Casto, Greg; Mendiola, Anthony; Ulses, Anthony
Cc: Titus, Brett; Balarabe, Sarah; Clifford, Paul; Collins, Timothy
Subject: FW: INFORMATION REGARDING TAC NUMBER, WORK SCHEDULES, AND PREMIUM PAY FOR EMPLOYEE ACTIVITIES RELATED TO THE RESPONSE TO THE EVENTS IN JAPAN

Please instruct your staff to charge time to ZG0061 related to Japan Earthquake and Tsunami.
Continue charging managerial functions to ZM0000.
Thanks.

SHER BAHADUR; DIRECTOR (ACTING)
NRR/DIVISION OF SAFETY SYSTEMS
301-415-3283
sher.bahadur@nrc.gov

From: PMDAInfoNotice Resource
Sent: Thursday, March 31, 2011 10:26 PM
To: NRR Distribution
Subject: INFORMATION REGARDING TAC NUMBER, WORK SCHEDULES, AND PREMIUM PAY FOR EMPLOYEE ACTIVITIES RELATED TO THE RESPONSE TO THE EVENTS IN JAPAN

- PMDA INFORMATION NOTICE -
Thursday, March 31, 2011

IN NUMBER: 11-036

CONTACT: Doris Twigg (Doris.Twigg@nrc.gov), 415-1947

TAC Number

A new agency wide "Z" code has been established for the Japan earthquake and tsunami. It is: ZG0061 – Japan Earthquake and Tsunami. The Planned Accomplishment number will be: 111180 - Response Program – Event/Response - Operating RX.

For those employees that charged hours to D92374 in pay period 6 please do a corrected card and charge your hours to ZG0061 under PA 111180 – Response Program – Event/Response-Operating RX.

Clarification for use of the TAC (ZG0061) for the events in JAPAN

2/366

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- Administrative support staff required to perform duties relating to the events in Japan that would be considered different than routine administrative support responsibilities should record their time under the new TAC (ZG0061).
- All other staff required to perform duties relating to the events in Japan that would be considered different than their normal responsibilities should record their time under the new TAC (ZG0061).

Work Schedule and Premium Pay Guidance for Response to Events in Japan

NRC has implemented various work schedule and premium pay flexibilities as it strives to accommodate the challenging and often unpredictable work schedules and premium pay needs of employees responding to the events in Japan. The Office of Human Resources (HR) has distributed information to managers, supervisors, responders, and timekeepers to summarize the options and guidelines for determining work schedules and premium pay for employees serving in and supporting the Operations Center, or working in Japan. The guidance applies to employees whose offices/regions determine that the employees directly support response efforts in the Operations Center and Japan even if the employees do not physically work in the Operations Center.

HR has posted the Work Schedule and Premium Pay Guidance on its intranet page and expects to add frequently asked questions. Based on questions received so far, HR notes that:

- For employees on a NEWFlex schedule, HRMS will not accept more than 11.25 hours of regular work per day. Any amount worked beyond that on a single workday must be entered as overtime or compensatory time worked rather than regular time. (Employees on Expanded Compressed schedules may work more than 11.25 regular hours per day.)
- The maximum number of credit hours that an employee may carry over from one pay period to the next remains 24 credit hours. This is restricted by a government wide rule.
- Although the guidance applies to Senior Executive Service members (executives), executives remain ineligible for premium pay or credit hours as a matter of government wide law.

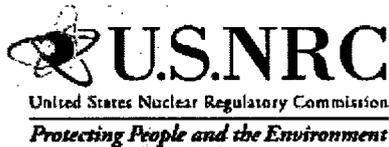
OCFO requests that the names of employees who perform emergency-related premium work related to the events in Japan as well as the dates of such work be submitted to them. The T&L Clerks should provide the names to Doris Twigg, NRR T&L Coordinator. Doris will ensure that the names are submitted to OCFO in a timely manner. It is important that this information is provided as soon as possible after the work begins to avoid difficulties processing time and labor at the end of the pay period.

If you have any questions please contact Doris Twigg, NRR T&L Coordinator.

TaJuan C. Gorham, Chief
Infrastructure Services Branch
Program Management, Policy Development
and Analysis Staff
Office of Nuclear Reactor Regulation

Weaver, Tonna

From: EDO Update [nrc.announcement@nrc.gov]
Sent: Thursday, March 31, 2011 4:29 PM
To: Taylor, Renee
Subject: EDO Update



EDO

Thursday, March 31, 2011



Once again I would like to keep you informed about a number of significant new

Continuing Resolution

The current Continuing Resolution passed by Congress will expire next Friday, April 1, 2011. Even if there is a lapse in appropriations, we intend to stay open an additional week. I will provide you with appropriate information. Please consult the FAQ if you have any questions. <http://portal.nrc.gov/edo/staff/Lists/Announcements/DispForm.aspx?ID=16&Source=1> should mention that even during a furlough, we expect to have sufficient staff to

Congressional Hearings

As you may be aware, the Chairman and other senior NRC leaders have testified before the House and Senate scheduled four different hearings—some of which you may attend beyond. In addition, the Regions have been coordinating briefings, hearings, and site visits to Japan and the Operations (Ops) Centers, these hearings have required people to ensure that our “regular” responsibilities still get met. I appreciate the effort all of you are making to uphold the NRC Values and an Open, Collaborative Work Environment.

Monitoring the Situation in Japan

We continue to monitor the developments at the Fukushima-Daiichi site. It is too early to see the impact of the extra staffing in Japan and the Ops Center. We just sent the 3rd wave to Tokyo and they will have to endure hundreds of significant aftershocks, food shortages, long work hours, and other challenges as they return. The Office of Nuclear Reactor Regulation has compiled a list of questions that relate to U.S. commercial reactors, which I encourage you to visit here: <http://portal.nrc.gov/edo/nrr/dorl/japan/Shared%20Documents/Questions%20and%20Answers> for more information on these developments.

Review Teams

In response to the Fukushima events, the Commission directed the staff to conduct a systematic review of relevant NRC regulatory requirements, programs, and procedures to identify near-term improvements to our regulatory system. The task force, which will report

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Virgilio, will consist of:

Lead: Charles Miller, FSME

Senior Managers: Daniel Dorman, NMSS; Jack Grobe, NRR; Gary Holahan, NRO

Senior Staff: Amy Cabbage, NRO; Nathan Sanfilippo, OEDO

Administrative Assistant: Cynthia Davidson, OGC

The task force will update the Commission on the near-term review at approximately the completion of the near-term review in the form of a written report and briefing at the completion of the near-term review of the agency—discovers some urgent action that needs to be taken we will not wait until the end of the year. We are also planning a longer, more in-depth examination of what the NRC can learn from the Fukushima Daiichi nuclear power plant.

Review Meeting in Vienna

The Chairman and I will join the NRC team in Vienna, Austria, next week for the Japan cast a bright light on the importance of what we do here at the NRC and the world's nuclear safety and security. The meeting will include a special session requested by International Atomic Energy Agency (IAEA) to discuss the current situation and actions that IAEA has planned in response. This meeting. I look forward to sharing insights from the meeting with you upon our return.

Bill

Bill Borchardt, EDO

Bozin, Sunny

From: Franovich, Mike
Sent: Thursday, March 31, 2011 2:02 PM
To: Ostendorff, William
Cc: Nieh, Ho; Kock, Andrea; Zorn, Jason
Subject: More surprises...did not hear about this on the 10:00 call

US to send emergency response unit to Japan

The US military is sending Marines specialized in responding to nuclear emergencies to Japan to help deal with the trouble at the Fukushima Daiichi nuclear plant.

Japan's Self-Defense Force Joint Chief of Staff Ryoichi Oriki announced the measure on Thursday.

Oriki said US Defense Secretary Robert Gates has approved the sending of the 140-member Chemical Biological Incident Response Force.

The unit is trained in search-and-rescue operations and clearing highly radioactive nuclear materials.

Oriki said the unit will not necessarily take immediate action, and that the Self-Defense Forces hope to share information with them and study how it can be put into use when needed.

The US military has provided a barge capable of carrying large volumes of fresh water to keep reactors at the plant cool. It has also sent nuclear experts to Japan as part of efforts to resolve the crisis.

Thursday, March 31, 2011 19:36 +0900 (JST)

*Mike Franovich
Technical Assistant for Reactors
Office of Commissioner Ostendorff
301-415-1784*

Weaver, Tonna

From: PMDAInfoNotice Resource
Sent: Thursday, March 31, 2011 10:26 PM
To: NRR Distribution
Subject: INFORMATION REGARDING TAC NUMBER, WORK SCHEDULES, AND PREMIUM PAY FOR EMPLOYEE ACTIVITIES RELATED TO THE RESPONSE TO THE EVENTS IN JAPAN

- PMDA INFORMATION NOTICE -

Thursday, March 31, 2011

IN NUMBER: 11-036

CONTACT: Doris Twigg (Doris.Twigg@nrc.gov), 415-1947

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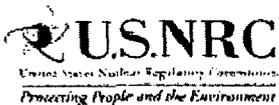
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TaJuan C. Gorham, Chief
Infrastructure Services Branch
Program Management, Policy Development
and Analysis Staff
Office of Nuclear Reactor Regulation

Weaver, Tonna

From: Foster, Jack *FSME*
Sent: Friday, April 01, 2011 6:31 AM
To: LIA03 Hoc; Ali, Syed; Bernhard, Rudolph; Blamey, Alan; Call, Michel; Casto, Chuck; Collins, Elmo; Cook, William; Devercelly, Richard; Dorman, Dan; Emche, Danielle; Foggie, Kirk; Foster, Jack; Giessner, John; Hay, Michael; Holahan, Vincent; Jackson, Todd; Kolb, Timothy; Miller, Marie; Monninger, John; Nakanishi, Tony; Ramsey, Jack; Salay, Michael; Scott, Michael; Sheikh, Abdul; Smith, Brooke; Stahl, Eric; Taylor, Robert; Trapp, James; Ulses, Anthony; Way, Ralph
Cc: LIA02 Hoc
Subject: RE: Notification of your arrival in the U.S.

I'm back ... 3/27/11



Jack Foster, Chief
Licensing Branch
FSME/DMSSA/LISD/LB - MS T-8-F18
U.S Nuclear Regulatory Commission
Washington, DC 20555
(301) 415-6250

From: LIA03 Hoc
Sent: Thursday, March 31, 2011 7:10 PM
To: Liaison Japan
Cc: LIA02 Hoc
Subject: Notification of your arrival in the U.S.

Dear NRC Japan Team - Upon your return, please "reply All" to this email and let the International Liaison Team know that you're back in the U.S.

Thank you in advance.
Mugeh
On behalf of the International Liaison Team

Valentine, Nicholee

From: McGinty, Tim *inrc*
Sent: Friday, April 01, 2011 9:30 AM
To: Jones(NRR), Latoya; Voth, Marcus; Astwood, Heather; Adams, John; Blount, Tom; Eads, Johnny; Fredrichs, Thomas; Helton, Shana; Jolicoeur, John; Quay, Theodore; Regan, Christopher; Rosenberg, Stacey; Valentine, Nicholee
Cc: Ross, Robin
Subject: Near-term Division Activities and Farewell Theodore R. Quay
Importance: High

I am in the Ops Center next week, Sunday through Thursday on day-shift. I plan on stopping by the Office on those days between 3:30 and 4, if folks in the Division need to see me or meet with me about anything. There are a few rulemaking and Decommissioning funding briefings on the calendar that I will not make next week, as a result.

Tom Blount will be the primary SES manager for the Division next week. I am accessible in the Operations Center, and I should be able to keep up with my emails. I am going to try and take a CWS day next Friday (4/8), if possible, so please try not to schedule me for anything.

DPR Management Team – Thanks for your patience and forbearance as we (NRC) works through the current circumstances. I received numerous comments from both Managers and staff this week, ranging from “nice to see you, finally” to “frustration” regarding my accessibility. Completely understandable.

All I can ask is that the Division continue to perform, and you continue to Lead, as you have been. At this weeks ET meetings, I had to almost apologize because of the length of my report out on routine accomplishments of you and your staff just in the last week alone. Meanwhile, you perform even though the entire background has so many challenges and relative unknowns: The events in Japan in terms of incident response; the near-term and longer-term reviews and NRC actions as a result of the events in Japan, and the impacts those events will have on the industry we regulate; the continuing resolution (near term); the FY 2013 budget (longer term); the retirement of Ted and the pending transfer of Tom (you can bet that I will be staying right where I am at for continuity for the foreseeable future); I could go on and on.

So thank you. Keep it up. Don't wait for my availability, or if Tom is in LT meetings. Make the best informed decision and choice that you can, and keep the projects moving forward.

As Ted said earlier today ... out of such times are opportunities, for improvement and growth.

Oh, one final note:

Ted - Congratulations on your Public Service, and on what will apparently be an action packed transition into your Golden Years. You are in good hands with your family, that is abundantly evident to me. Ted, I have to both agree and disagree with you, one final time. Yesterday at your Retirement Reception, you said that we (NRC, NRR, DPR) will continue on, and that you will not be missed.

We will continue on.

You will be missed.

Tim

Bozin, Sunny

From: Franovich, Mike
Sent: Friday, April 01, 2011 7:01 PM
To: Ostendorff, William
Cc: Nieh, Ho; Kock, Andrea; Zorn, Jason
Subject: FYI on Unit 4 SFP (i'm looking for this video footage)

TEPCO releases new footage of Number 4 reactor

Tokyo Electric Power Company has released new video footage of the Number 4 reactor building at its damaged Fukushima complex.

The utility firm shot the video using a camera installed on the tip of the long arm of a special construction vehicle.

Osaka University Professor Akira Yamaguchi, an expert on nuclear reactors, analyzed the video. He says that a green device [refueling bridge/crane] used to replace nuclear fuel rods stayed in place without falling into a spent-fuel storage pool, in spite of an apparent hydrogen explosion inside the reactor building.

He also says that vapor from the storage pool reduces as the special vehicle pours water onto it, which contributes to cooling the water in the pool.

Yamaguchi says the top of the reactor building suffered substantial damage, but the structure below the storage pool was hardly affected, as it was more strongly constructed.

He stresses the need to restore the power supply as early as possible to restore the pool's cooling function.

He says at least 90 tons [roughly 25k gallon] of water a day need to be pumped in to cool the stored fuel rods. The pool in Number 4 reactor building holds over 1,300 spent rods, more than those kept in other units.

He warns that the fuel held there generates just as much heat as is produced by Numbers 2 and 3 reactors.

Yamaguchi says it is essential to keep the temperature low at the storage pool to prevent the fuel rods from being exposed and destroyed.

Friday, April 01, 2011 22:04 +0900 (JST)

Zorn, Jason

From: Zorn, Jason
Sent: Friday, April 01, 2011 2:11 PM
To: Champ, Billie
Cc: Reddick, Darani; Bupp, Margaret; Davis, Roger; Clark, Lisa
Subject: FOIA 11-147

Billie – Quick question on the latest FOIA from Greenpeace on "any and all documentation regarding the on going nuclear crisis in Japan." Should we treat this the same way as other similar FOIAs, in that the staff is expected to provide copies of documents and other emails that were sent to the Commission? Thanks. -- Jason

Weaver, Tonna

From: Miranda, Samuel *INR*
Sent: Friday, April 01, 2011 8:20 AM
To: Ulises, Anthony; Mendiola, Anthony
Subject: Nuclear Industry Pins Hopes on Longtime foe

THE WALL STREET JOURNAL.

WSJ.com

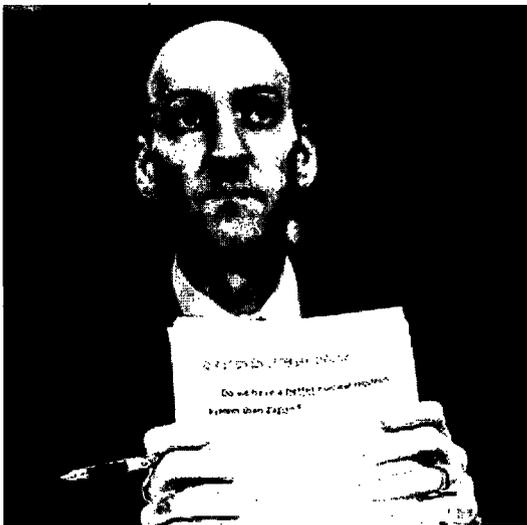
- BUSINESS
- APRIL 1, 2011

Nuclear Industry Pins Hopes on Longtime foe

By **STEPHEN POWER**

U.S. nuclear-power industry officials have long regarded Gregory Jaczko as an adversary, but following the earthquake and nuclear crisis in Japan they need him as an ally.

Mr. Jaczko, chairman of the Nuclear Regulatory Commission, and his colleagues on the panel must communicate clearly to "provide confidence to the public and policy makers" about the safety of U.S. nuclear power, said Marvin Fertel, president of the Nuclear Energy Institute, the industry's main trade group.



Getty Images

Gregory Jaczko testifies about nuclear-plant safety Wednesday.

Other industry officials are also quietly expressing hopes that the man they once publicly criticized will now defend the industry's reputation for safety.

Mr. Jaczko will oversee an NRC review of safety at the 104 U.S. nuclear reactors that will influence how much utilities spend on new measures to reassure the public following the March 11 earthquake in Japan that

4/374

damaged the Fukushima Daiichi nuclear complex. The review will also affect efforts to revive the U.S. nuclear industry after decades of stagnation.

Mr. Jaczko, who spent much of his professional career in Washington working for opponents of the industry, expresses confidence that U.S. nuclear plants operate safely. But he avoids taking sides in public debates about the future of U.S. nuclear power following the Japanese disaster.

Appearing before a Senate panel Wednesday, he declined to answer when Sen. Lindsey Graham (R., S.C.), an industry ally, asked whether nuclear power qualifies as a "clean" energy source.

"I tend to not like to get into discussions about those kinds of things," Mr. Jaczko answered.

Mr. Jaczko notes that his agency doesn't make energy policy, it regulates nuclear safety. "I can't say I have views on nuclear power or the nuclear industry. I have views on nuclear safety," he said in an interview. "Nuclear safety is an issue that most people agree on."

Mr. Jaczko has issued blunt warnings about the severity of the Japanese accident, starting with a declaration on March 16 that American citizens living within 50 miles of the plant should evacuate. His statement contradicted Japanese authorities' recommendation at the time that only people living within 12 miles of the plant needed to leave.

In response to questions about how the NRC came to such a different assessment, the agency later said the data underlying Mr. Jaczko's directive were "inconclusive." The agency has stood by the recommendation, however, calling it "prudent."

Earlier this week, Mr. Jaczko traveled to Japan to reinforce U.S. offers of assistance, his spokesman said.

Mr. Jaczko's main challenge prior to the earthquake was fending off industry and congressional critics who suspected he wanted to kill a proposed long-term nuclear-waste facility below Nevada's Yucca Mountain. The site is backed by the industry but opposed by Senate Majority Leader Sen. Harry Reid (D., Nev.), Mr. Jaczko's onetime boss.

Mr. Jaczko holds a Ph.D. in physics from the University of Wisconsin-Madison and worked as an aide to Massachusetts Democratic Rep. Edward J. Markey, an outspoken critic of the nuclear industry, before signing on as appropriations director and science policy adviser for Mr. Reid.

President George W. Bush appointed Mr. Jaczko to a seat on the NRC in 2005 amid criticism from industry officials who questioned whether he could be impartial about nuclear issues, particularly Yucca Mountain. The Bush White House initially resisted appointing him but relented after Mr. Reid blocked Bush nominees for dozens of senior positions across the executive branch. President Barack Obama elevated Mr. Jaczko to the chairman's job shortly after taking office.

Mr. Jaczko has declined to say publicly how the NRC will rule on an Obama administration proposal to pull the plug on the Yucca site. But last fall he issued a directive to NRC staff to wind down work on the project.

As industry officials nurse hopes that Mr. Jaczko will defend their safety record, the NRC faces pressure from anti-nuclear groups and elected officials questioning whether the agency is rigorously evaluating the safety of aging reactors with large amounts of spent fuel stored on site.

"We need to rethink how we manage spent fuel," Sen. Dianne Feinstein (D., Calif.) told Mr. Jaczko Wednesday, noting that fuel removed from California reactors in 1984 was still cooling in pools of water at the plants. Mr.

Jaczko said his agency would re-examine the issue in light of the Japanese accident, but that he remained confident such waste could be stored safely at plants for decades.

The NRC has also shown no sign it will call a halt to the nuclear industry's efforts to revive construction of new facilities. The agency last week cleared away a key obstacle for two proposed nuclear reactors, which would be the first licensed and built in the U.S. since the partial meltdown at Pennsylvania's Three Mile Island nuclear facility in 1979.

Write to Stephen Power at stephen.power@wsj.com

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Weaver, Tonna

From: Nakanishi, Tony *INRRC*
Sent: Friday, April 01, 2011 6:04 PM
To: LIA03 Hoc; Liaison Japan
Cc: LIA02 Hoc
Subject: Re: Notification of your arrival in the U.S.

I'm back in the US.

From: LIA03 Hoc
To: Liaison Japan
Cc: LIA02 Hoc
Sent: Thu Mar 31 19:10:09 2011
Subject: Notification of your arrival in the U.S.

Dear NRC Japan Team - Upon your return, please "reply All" to this email and let the International Liaison Team know that you're back in the U.S.

Thank you in advance.

Mugeh

On behalf of the International Liaison Team

King, Mark

From: King, Mark *mark*
Sent: Friday, April 01, 2011 6:55 AM
To: Telson, Ross
Subject: RE: your comments on the Japan event report

Ross

Seems like they cover it pretty well to me - fuel / core status and core cooling, then primary containment, secondary containment and SFP status and finally rad levels... and status of power restoration (SBO response) for each the six units.

Core Status:
Core Cooling:
Primary Containment:
Secondary Containment:
Spent Fuel Pool:
Rad Levels:
Power:

...bet the Japanese wished they had used more of these...

Dry Cask Storage: Visual inspection revealed **no problems**. All casks are vertical casks manufactured by Hitachi Shipbuilding (Source: RST).

King, Mark

From: King, Mark *MR*
Sent: Friday, April 01, 2011 7:49 AM
To: Telson, Ross
Subject: FYI

NRC Says US Plants Are Safe. China's Xinhua (4/1, Regencia) reports that NRC spokeswoman Viktoria Mitlyng said "that the plants in Illinois, in other states, and the rest of the country are safe," and have "stringent design requirements to begin with." She added, "Each nuclear power plant has to be able to withstand natural disasters such as earthquakes, tornadoes, floods to the highest level that is historically known in that area, plus a certain margin."

So do the Japanese plants... but since 2007 they have been shown to not have the necessary "certain margin"... in one case (2007 earthquake event) it resulted in a 7- unit multi-year unit shutdown (with some plants experiencing g forces 5 times greater than predicted; 3 of the 7 units are still shutdown but luckily few direct safety issues came out of that event). And in this most recent case the "certain margin" was also vastly exceeded – plants were designed apparently for a 5.6 meter tsunami... but apparently had a 14.5 meter tsunami at the site. Only off by a factor of....~ 2.6 !

Hopefully our "certain margins" for flooding / earthquakes, etc. ... are better figured in the US. What do you think? It always concerned me that Japan and China were building nuclear units in some of the most earthquake (and resulting tsunami induced) prone areas of the world.

L/377

King, Mark

From: King, Mark *MRK*
Sent: Friday, April 01, 2011 9:07 AM
To: Thorp, John; Thomas, Eric; Thompson, John; Garmon, David
Subject: More on hardened vents, etc. - as discussed in this week's Inside NRC - FYI

FYI.... Industry highlights safety upgrades at US Mark I BWRs
story starting on page 1 <http://www.internal.nrc.gov/IRM/LIBRARY/ejournal/pdf/in/in110328.pdf>
more on ...

....Hardened Vent

NRC staff undertook a study in the 1980s "to determine if any actions should be taken ...to reduce the vulnerability of BWR Mark I containments to severe accident challenges," according to an NRC generic letter, GL 1989-16, issued to Mark I licensees in 1989.

"The staff identified a number of plant modifications that substantially enhance the plants' capability to both prevent and mitigate the consequences of severe accidents," the letter said.

The commission, the NRC staff said in the letter, concluded that each licensee should evaluate most of the staff's recommended safety improvements based on plant specific information. But with regard to "the hardened wetwell vent capability," the letter said the commission directed the staff to "initiate plant-specific backfit analyses for each of the Mark I plants ... Where the backfit analysis supports imposition of that requirement, the staff is directed to issue orders for modifications to install a reliable hardened vent."

The original Mark I design came with a so-called standby gas treatment system, or SGTS, to channel steam from the torus, also known as the wetwell, to the atmosphere if pressure in the containment becomes too high. The SGTS uses duct work to channel steam, which is susceptible to leakage because the duct work is neither airtight nor designed to withstand significant pressures, to channel steam, said Helwig.

The NRC said in GL 1989-16 that agency staff "believes that the available information provides strong incentive for installation of a hardened vent," which uses hard pipes to channel steam from the torus.

Bill Borchardt, NRC executive director for operations, said at a March 21 commission briefing that all US Mark I reactors had installed the hardened vents.

Alexander Marion, vice president of nuclear operations for NEI, said in an interview March 22 that the hardened vent — "an explosion-proof pipe or high-pressure" system — is a "key area of improvement."

Marion said it was not clear if Japan's Fukushima I units had installed hardened vents. "We're assuming that they did not, because somehow they were releasing hydrogen into the secondary containment, but we just don't know," he said.

Hydrogen accumulation is suspected to be the cause of explosions at Fukushima I a few days after the accident began that tore open three secondary containment buildings.

An official from the Tokyo Electric Power Co., which operates Fukushima I, said the duct work SGTS was not used at Fukushima I for venting, "because the pressure of the containment vessel was high." Instead, he said, the company used a different type of vent, called the direct release line, which can withstand high pressure, to blow off steam and reduce pressure inside the containments.

The direct vent line used after loss of cooling at the Fukushima I units to vent steam "is hardened pipe designed for severe accident case," the Tepco official said. The official answered questions by email and requested anonymity as he is not authorized to speak to the press.

In an email response to questions, GEH spokesman Mike Tetuan said that "it is our understanding that Fukushima units 1-6 have hardened wet well vent arrangements."

Hydrogen control

In 2003, NRC noted in a revision to regulations in 10 CFR 50.54 governing "combustible gas control for nuclear power reactors" that BWRs have smaller containment volumes, and in some cases lower design pressures, than do PWRs. As a result, said NRC, BWRs are more vulnerable to fire caused by combustible gas "during degraded core accidents because of the pressure loads could cause structural failure of the containment."

"Also, because of the smaller volume of these containments," the agency said, "detonable mixtures could be formed."

As a result, NRC revised regulations to require all US BWRs with Mark I containments, or with the slightly modified Mark II containments, to inert the environment inside with nitrogen. "By maintaining an oxygen-deficient atmosphere, combustible gas combustion that could threaten containment integrity is prevented," said NRC. Such a measure to fill the containment vessel with nitrogen to create an inert environment was also adopted for reactors at Fukushima I, the Tepco official said.

Unresolved issues

According to David Lochbaum, director of the nuclear safety project at the Union of Concerned Scientists, a test of a Mark I containment performed in the 1970s discovered a pathway for containment leakage under high pressure.

In a March 18 report, Lochbaum said workers at Brunswick-2, which has a Mark I containment, performed "a structural integrity test on the reactor" by pumping air into the containment vessel to raise the pressure inside beyond the designed maximum of 62 pounds per square inch to 71 psi. But the pressure stayed constant at 70 psi, said Lochbaum. Workers subsequently discovered that the air had pushed up the metal containment head, which is bolted to the containment wall "with a rubber O-ring between the surfaces," and seeped out into the refueling cavity above the primary containment, he said.

Lochbaum said the Brunswick test could explain "how a significant amount of hydrogen escaped from the primary containment into the reactor building" and caused explosions at Fukushima I after containment pressures exceeded designed limits.

Japan's NISA reported that pressure in the containment of unit 1 at Fukushima I had exceeded 120 psi a day after the reactor had lost cooling. The Tepco said the containment vessel pressure at unit 2 had surpassed 102 psi at some point after the accident began but did not say when that occurred.

Ryan Mosier, a spokesman for Progress Energy, which owns Brunswick, said in a March 22 email that the company "cannot find any documentation on our end that the test suggested by Mr. Lochbaum ever occurred at Brunswick." In an email the next day, Mosier confirmed that the test did occur just before Brunswick-2 went into service. Brunswick-2 began commercial operation in November 1975, according to NRC data. The documentation Progress has on file about the test, however, "does not spell out in any detail the conclusions

arrived at in the Lochbaum analysis," Mosier said. Progress declined to release its information on the test.

Progress shared the test results with NRC but made no modifications to the containment "as a result of this test, as the containment performed as expected," Mosier said.

"Hydrogen explosion is only one failure mode for the Mark I containments. There is also another failure mode, which is called containment liner melt-through, which is specific to Mark I's," **Ed Lyman**, senior nuclear scientist at the UCS, said during a March 20 press briefing.

"That's because there's an area of the containment shell that could come in contact with the molten core if it escapes the reactor vessel, and that's also a significant [containment] failure mode," Lyman said.

The melt-through risk was documented in an NRC study in 1990 on five containment designs, including Mark Is at Peach Bottom. The study concluded that the probability of a core melt was relatively low for a Mark Is, but the probability of containment breach is higher for Mark Is than for some other designs if a large core-melt were to occur.

In supplement 1 to GL 88-20, a generic letter sent to power reactor licensees regarding individual plant examinations for severe accident vulnerabilities, NRC staff recommended in August 1989 that plants install additional water supply for emergency cooling, enhance venting capabilities and improve emergency procedures and training. According to NEI's report, most Mark I units in this country have also made various other hardware changes to strengthen the containment and vent.

"The GE Mark I containment systems in US BWRs have undergone extensive testing and analysis and have been modified to meet NRC regulations. The Mark I pressure suppression containment is a proven technology that has been enhanced with confirmatory testing, enhanced knowledge and advanced analysis over time," **NEI said**. It is unclear what modifications Tepco has adopted for its Mark I reactors at Fukushima I. GEH's Tetuan said in a March 24 email that information about the modifications made in the US "were communicated outside of the US," but he did not say to whom they were sent.

"We understand that all of the BWR Mark I containment units at Fukushima Daiichi also addressed these issues and implemented modifications in accordance with Japanese regulatory requirements," he said.

Lyman said it is too early to draw conclusions about Mark I from the Fukushima I crisis, "but with regard the future of Mark I's, we think that the safety assessment will have to be done, that all assumptions will have to be examined, and then the options will have to be laid out. One of those options could be shut-down," he said.

—Yanmei Xie and Steven Dolley, *Washington*

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<http://www.internal.nrc.gov/IRM/LIBRARY/ejournal/pdf/in/in110328.pdf>

See article: **Industry highlights safety upgrades at US Mark I BWRs. Starts on Page 1**

-a very interesting INSIDE NRC issue.

King, Mark

From: Thorp, John *J. Thorp*
Sent: Friday, April 01, 2011 2:36 PM
To: Thompson, John; King, Mark; Thomas, Eric; Garmon, David
Cc: Sigmon, Rebecca; NRR_DIRS_IOEB Distribution
Subject: RE: More on hardened vents, etc. - as discussed in this week's Inside NRC - FYI

Importance: High

All,

I deeply appreciate the passion and desire for action you all have as nuclear professionals on operating experience topics and issues including the significant events unfolding in Japan. What is happening in Japan is of great concern to us, our agency and our fellow citizens.

I caution everyone to consider the potential for mis-interpretation of any comments you make in e-mail that are not based in fact, and, with respect to any e-mail you write, including e-mail regarding this significant event, I urge you to keep the language professional and objective, and avoid the use of extreme opinion, speculation or careless hyperbole. Some informal words and phrases such as "mis-information" and "half-truths" in reference to other organizations, licensees, etc., may be seen later by various audiences as inflammatory and may lead to lots of mis-understanding and unnecessary staff effort to respond to concerns that arise from such words.

Please meet with me if my message to you is not clear, and we can discuss.

Thanks,

John

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

J. Thorp
From: Thompson, John
Sent: Friday, April 01, 2011 10:35 AM
To: King, Mark; Thorp, John; Thomas, Eric; Garmon, David
Cc: Sigmon, Rebecca
Subject: RE: More on hardened vents, etc. - as discussed in this week's Inside NRC - FYI

Mark,

Very interesting story. I am sure there will be more to this that plays out in the public down the road.

I read the statement from the news report given by GEH, and remain skeptical (that is my nature) regarding its accuracy. A Direct Torus Vent System (DTV) was the focus of GL 89-16. I am not sure what the TEPCO official (who didn't want to be identified) was referring to by stating that the Fukushima units used a "direct release line" to the atmosphere. What is even more intriguing is the statement by the GEH that Fukushima I plants all had hardened vents. If this was true, why didn't this information come out earlier from GE? The GE website doesn't discuss this important fact (GEReports.com). Or better yet, given that GEH has been part of the NRC RST information exchange, and they were in consultation with NRC during our effort to compile the RST data on the status of the Fukushima units, why was this information withheld from NRC regarding the status on hardened vents? Something seems amiss here.

Regardless, a DTV is more than just a hardened vent line to the plant stack. It bypasses the SBT system and is designed to withstand accident pressures and remain intact. The GL's description of an acceptable DTV design also contains isolation valves that are outfitted to use DC control power. So, just installing hard pipe doesn't necessarily meet the intent of the GL.

Given the "mis-information" and half truths coming out of Japan, we don't really know what system was used by the Japanese when they vented containment. It may have been a different system than what was the focus of the GL. Also, given that TEPCO waited so long to vent, with pressures building in excess of 100 psig in primary containment, maybe having and using a DTVS would not have prevented the explosion anyway. I just don't know.

But, given that a DTVS bypasses secondary containment, and the fact that secondary containment was apparently full of hydrogen, something doesn't add up, as Mr. Marion asserts. Given that the inerted atmosphere was lost, and our knowledge of gaseous parameters inside the reactor building and wetwell/drywell prior to the explosion was iffy, we may have a hard time figuring out what caused the detonation. It may be the seismic event damaged the vent piping and cause the leak directly into secondary containment, or some other crack allowed hydrogen to escape into secondary containment. But, if they did have a DTVS installed, and it remained intact, use of it should not have set off the explosions within the reactor building. So, for the time being, this remains a mystery.

John

From: King, Mark 
Sent: Friday, April 01, 2011 9:06 AM
To: Thorp, John; Thomas, Eric; Thompson, John; Garmon, David
Subject: More on hardened vents, etc. - as discussed in this week's Inside NRC - FYI

FYI... Industry highlights safety upgrades at US Mark I BWRs story starting on page 1
<http://www.internal.nrc.gov/IRM/LIBRARY/ejournal/pdf/in/in110328.pdf>
more on ...

....Hardened Vent

NRC staff undertook a study in the 1980s "to determine if any actions should be taken ...to reduce the vulnerability of BWR Mark I containments to severe accident challenges," according to an NRC generic letter, GL 1989-16, issued to Mark I licensees in 1989.

"The staff identified a number of plant modifications that substantially enhance the plants' capability to both prevent and mitigate the consequences of severe accidents," the letter said.

The commission, the NRC staff said in the letter, concluded that each licensee should evaluate most of the staff's recommended safety improvements based on plant specific information. But with regard to "the hardened wetwell vent capability," the letter said the commission directed the staff to "initiate plant-specific backfit analyses for each of the Mark I plants ...Where the backfit analysis supports imposition of that requirement, the staff is directed to issue orders for modifications to install a reliable hardened vent."

The original Mark I design came with a so-called standby gas treatment system, or SGTS, to channel steam from the torus, also known as the wetwell, to the atmosphere if pressure in the containment becomes too high. The SGTS uses duct work to channel steam, which is susceptible to leakage because the duct work is neither airtight nor designed to withstand significant pressures, to channel steam, said Helwig.

The NRC said in GL 1989-16 that agency staff "believes that the available information provides strong incentive for installation of a hardened vent," which uses hard pipes to channel steam from the torus.

Bill Borchardt, NRC executive director for operations, said at a March 21 commission briefing that all US Mark I reactors had installed the hardened vents.

Alexander Marion, vice president of nuclear operations for NEI, said in an interview March 22 that the hardened vent — "an explosion-proof pipe or high-pressure" system — is a "key area of improvement." Marion said it was not clear if Japan's Fukushima I units had installed hardened vents. "We're assuming that they did not, because somehow they were releasing hydrogen into the secondary containment, but we just don't know," he said.

Hydrogen accumulation is suspected to be the cause of explosions at Fukushima I a few days after the accident began that tore open three secondary containment buildings.

An official from the Tokyo Electric Power Co., which operates Fukushima I, said the duct work SGTS was not used at Fukushima I for venting, "because the pressure of the containment vessel was high." Instead, he said,

the company used a different type of vent, called the direct release line, which can withstand high pressure, to blow off steam and reduce pressure inside the containments.

The direct vent line used after loss of cooling at the Fukushima I units to vent steam "is hardened pipe designed for severe accident case," the Tepco official said. The official answered questions by email and requested anonymity as he is not authorized to speak to the press.

In an email response to questions, GEH spokesman Mike Tetuan said that "it is our understanding that Fukushima units 1-6 have hardened wet well vent arrangements."

Hydrogen control

In 2003, NRC noted in a revision to regulations in 10 CFR 50.54 governing "combustible gas control for nuclear power reactors" that BWRs have smaller containment volumes, and in some cases lower design pressures, than do PWRs. As a result, said NRC, BWRs are more vulnerable to fire caused by combustible gas "during degraded core accidents because of the pressure loads could cause structural failure of the containment." "Also, because of the smaller volume of these containments," the agency said, "detonable mixtures could be formed."

As a result, NRC revised regulations to require all US BWRs with Mark I containments, or with the slightly modified Mark II containments, to inert the environment inside with nitrogen. "By maintaining an oxygen-deficient atmosphere, combustible gas combustion that could threaten containment integrity is prevented," said NRC.

Such a measure to fill the containment vessel with nitrogen to create an inert environment was also adopted for reactors at Fukushima I, the Tepco official said.

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—Yanmei Xie and Steven Dolley, Washington Inside NRC Copyright © 2011 The McGraw-Hill Companies March 28, 2011 <http://www.internal.nrc.gov/IRM/LIBRARY/ejournal/pdf/in/in110328.pdf>

See article: Industry highlights safety upgrades at US Mark I BWRs. Starts on Page 1

-a very interesting INSIDE NRC issue.

Nelson, Robert

From: Nelson, Robert *NR*
Sent: Friday, April 01, 2011 8:30 AM
To: Roberts, Darrell
Cc: Tift, Doug; Burritt, Arthur; Jackson, Donald; Floyd, Niklas; Schmidt, Wayne; Powell, Raymond; Clifford, James; Screnci, Diane; Sheehan, Neil
Subject: RE: spent fuel pool safety questions

Working these on high priority.

NELSON

From: Roberts, Darrell *DR*
Sent: Thursday, March 31, 2011 6:38 PM
To: Nelson, Robert
Cc: Tift, Doug; Burritt, Arthur; Jackson, Donald; Floyd, Niklas; Schmidt, Wayne; Powell, Raymond; Clifford, James; Screnci, Diane; Sheehan, Neil
Subject: spent fuel pool safety questions

Nelson,

After my staff reviewed the existing Sharepoint Q&A files for information on the subject area, we thought we'd need to have some specific Q&As related to the subject of spent fuel pools. My staff and I have proposed some answers (some may be too specific and not geared toward the agency's overall messages), but I wanted to get these up to your team for your consumption/processing. We anticipate that some of these questions will be asked at our upcoming public meetings and at a briefing I'm providing to the NH State Legislature on Monday.

Thx,
DJR

Q1: How much fuel is in the spent fuel pools at Plant XXX?

A1. (Although NRC has access to this specific information, I do NOT propose that we provide this in a public forum as it represents security sensitive information.) ~~Plant XXX currently has xxx fuel assemblies (or xx metric tons of fuel) located in the spent fuel pool. They are licensed to carry xxxx in the pool. The amount of fuel in the pool varies at given times depending upon the operating status of the reactor (i.e., core offload during refueling, cask loading campaigns, etc.).~~

Q2: What is the corresponding radiological risk to that amount of fuel should there be a fuel pool event, and is that factored into licensee's emergency planning?

A2. The radiological consequences would depend on the severity of the event. However, NRC does not believe – for the reasons stated earlier regarding our confidence in the plants' ability to prevent or mitigate the results of a spent fuel cooling loss event – that there is a high risk of a significant event at US nuclear power plants and their spent fuel pools. In the unlikely event of an accident resulting in the loss of fuel pool cooling or damage to irradiated fuel rods, licensees have incorporated such events into their emergency planning and procedures.

Q3: How long are ISFSI's good for (or "designed for")? What kind of analysis does NRC do to support extending their licenses?

A3. NRC licenses them for 20 years with the potential for a license extension according to 10CFR72. (Need to check fact sheet or regulations to determine more specific answers)

Q4: If the SFPs are not in hardened structures (i.e., concrete containments) as has shown to be the case at Fukushima, why is this acceptable given the risks?

A4.

Q5: Are the spent fuel pools cooled by safety-related cooling systems at Plant XXX?

A5. Yes (particularly for Seabrook and VY). There are primary cooling systems, which are powered by normal and emergency backup power sources, and then there are backups to the backups (e.g., B.5.b mitigation strategies – which we would not go into any detail for considering security sensitive nature of the information post-9/11).

Q6: What amount of fuel was originally intended for spent fuel pool storage when the plants were initially licensed (and for how long)?

A6. (I propose that this answer should be provided in the context of expected long-term permanent high-level waste storage facility when plants were originally licensed.)

Q7: Is the NRC going to make changes to spent fuel storage/safety requirements in light of the Japanese events (including possibly requiring transfer to dry-cask storage after a certain period of time)? Or, better yet, why hasn't NRC already required that such changes be made?

A7. (message-related answer should be consistent with what Chairman and EDO have provided in recent testimonies to Congress, etc. as to why we believe SFPs or provide adequate level of safety)

Nelson, Robert

From: Nelson, Robert *NRK*
Sent: Friday, April 01, 2011 12:37 PM
To: Craver, Patti; Nguyen, Quynh; Meighan, Sean
Cc: Wertz, Trent; Virgilio, Rosetta; Markley, Michael; Oesterle, Eric
Subject: RE: Query: G20110237 (Washington State and Risk)

My mistake. Thanks!

NELSON

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

From: Craver, Patti *NRK*
Sent: Friday, April 01, 2011 12:36 PM
To: Nelson, Robert; Nguyen, Quynh; Meighan, Sean
Cc: Wertz, Trent; Virgilio, Rosetta; Markley, Michael; Oesterle, Eric
Subject: RE: Query: G20110237 (Washington State and Risk)

This is assigned to EDO. It is an FYI to NRR to coordinate if asked.

Patti

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

From: Nelson, Robert *NRK*
Sent: Friday, April 01, 2011 12:18 PM
To: Nguyen, Quynh; Meighan, Sean
Cc: Wertz, Trent; Craver, Patti; Virgilio, Rosetta; Markley, Michael; Oesterle, Eric
Subject: Query: G20110237 (Washington State and Risk)
Importance: High

Why isn't OEDO handling this along with all other Congressionals??

NELSON

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

From: Nguyen, Quynh *NRK*
Sent: Friday, April 01, 2011 11:39 AM
To: Meighan, Sean
Cc: Nelson, Robert; Wertz, Trent; Craver, Patti; Virgilio, Rosetta; Markley, Michael; Oesterle, Eric
Subject: FW: G20110237 (Washington State and Risk)
Importance: High

Sean,

I'm going to assign to DORL. I think it may already be covered in the Q&As? Perhaps, we should coordinate with Region IV and FSME. Regardless, they should be kept in the loop.

Thanks,
Quynh

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

From: RidsNrrMailCenter Resource
Sent: Friday, April 01, 2011 11:35 AM
To: Wertz, Trent; Nguyen, Quynh
Subject: G20110237

NRR

Green ticket assigned to EDO for NRR to provide input if required on Level of Risk from accident at Japan's Fukushima Daiichi Nuclear Poses on Washington State.

Please forward to whomever you think should have this.

Thanks,
Patti

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

From: Jaegers, Cathy
Sent: Friday, April 01, 2011 10:00 AM
To: Rihm, Roger
Cc: RidsResPmdaMail Resource; Johnson, Kevin; Dempsey, Heather; RidsNsrMailCenter Resource; Wimbush, Andrea; Raynor, Catherine; RidsNrrMailCenter Resource; RidsOgcMailCenter Resource; Remsburg, Kristy; RidsOcaMailCenter Resource; Belmore, Nancy
Subject: ACTION: G20110237

ED

Attached is the action green ticket for OEDO (Roger Rihm) to coordinate with RES, NSIR and NRR, if required. The ADAMS version will be sent after DPC processes.

Nelson, Robert

From: Nelson, Robert *ink*
Sent: Friday, April 01, 2011 2:35 PM
To: Giitter, Joseph
Cc: Howe, Allen
Subject: FYI: Friday Update

1. Quiet in DORL (I think) except for Comm Team work. Comm Team SitRep by separate e-mail.
2. LT reviewed accomplishments & challenges for the second quarter. Painful. Someday we'll learn how to do this easily. Update to be provided by Quynh on Monday for quick LT review and approval.
3. Nancy is on SL next week to attend to her mother who was hospitalized after Nancy's brother died last week.
4. I've update DORL Hot Topics.

NELSON

Nelson, Robert

From: Nelson, Robert *mark*
Sent: Friday, April 01, 2011 3:23 PM
To: Burnell, Scott
Subject: FYI: NGA Center in DC Requests NRC Expert Speaker for 3/22 or 3/23 and 4/4
Importance: High

See below for originating request.

NELSON

From: Dierkers, Gregory <gdierkers@NGA.ORG>
To: Virgilio, Rosetta
Cc: Gander, Sue <sgander@NGA.ORG>; MacLellan, Thomas <TMaclellan@NGA.ORG>; Ferro, Carmen <CFerro@NGA.ORG>
Sent: Thu Mar 17 16:36:04 2011
Subject: NGA Center NRC expert speaker requests

Hi Rosetta,

Thanks for your time today. We appreciate you identifying someone from the NRC to support the NGA Center's outreach to states during this busy time.

As we discussed we would like to invite the NRC to join us for **two upcoming events -- a webinar next week and a conference in early April -- to brief governors' advisors on the Japanese situation and the implications for US plants.** The events are:

1) **A webinar with governors' security and energy advisors.** NGA Center staff is planning to host a conference call next week (Tuesday 3/21 or Wednesday 3/22) to provide senior state officials with an update on the Japan situation and to answer questions as to the operations of US plants, including regulations, plant security/safety, and the emergency preparedness efforts at the US nuclear fleet. We would ask that an NRC expert join the webinar remotely; the webinar would last for 1 hour.

2) **An in-person speaker at a governors' energy advisors meeting.** NGA Center's *Governors' Energy Advisors Policy Institute* on April 4th in Arlington, Virginia. The focus of the April 4th Institute is to provide a 'Technology 101' briefing for governors senior energy advisors. We would invite the NRC to attend in-person on April 4th from 1:45pm to 4:15pm. We would ask for a 10-15 minute presentation on the situation in Japan, the state of nuclear technology and regulations in the US, and the implications for states from the Japanese crisis. Attached is a draft agenda.

Thanks for considering both of these requests.

Sincerely,

Greg Dierkers
Program Director – Energy and Transportation
NGA Center for Best Practices
Environment, Energy and Transportation Division
202-624-7789
gdierkers@nga.org

Nelson, Robert

From: Nelson, Robert *NR*
Sent: Friday, April 01, 2011 3:29 PM
To: Burnell, Scott
Subject: RE: NGA Center in DC Requests NRC Expert Speaker for 3/22 or 3/23 and 4/4

That's my understanding.

NELSON

From: Burnell, Scott *SB*
Sent: Friday, April 01, 2011 3:27 PM
To: Nelson, Robert
Cc: Hayden, Elizabeth
Subject: RE: NGA Center in DC Requests NRC Expert Speaker for 3/22 or 3/23 and 4/4

Doesn't look like something open to the public – am I correct?

From: Nelson, Robert *NR*
Sent: Friday, April 01, 2011 3:23 PM
To: Burnell, Scott
Subject: FYI: NGA Center in DC Requests NRC Expert Speaker for 3/22 or 3/23 and 4/4
Importance: High

See below for originating request.

NELSON

From: Dierkers, Gregory <gdierkers@NGA.ORG>
To: Virgilio, Rosetta
Cc: Gander, Sue <sgander@NGA.ORG>; MacLellan, Thomas <TMaclellan@NGA.ORG>; Ferro, Carmen <CFerro@NGA.ORG>
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Program Director – Energy and Transportation
NGA Center for Best Practices
Environment, Energy and Transportation Division
202-624-7789
gdierkers@nga.org

Nelson, Robert

From: Nelson, Robert *NR*
Sent: Friday, April 01, 2011 3:52 PM
To: NRR_DORL Distribution
Subject: CLARIFICATION: NEW TAC'S ASSOCIATED WITH SUPPORTING THE EVENTS IN JAPAN

I found the following e-mail to be not entirely clear. So:

If you work in the Ops Center, use ZG0063

If you are otherwise providing support to issues/actions involving the events in Japan, charge to ZG0062.

This direction includes all staff.

NELSON

From: HRMSBulletin Resource
Sent: Friday, April 01, 2011 1:59 PM
To: HRMSBulletin Resource
Cc: HRMSBulletin Resource
Subject: NEW TAC'S ASSOCIATED WITH SUPPORTING THE EVENTS IN JAPAN

NRC will need to provide information relating to the costs associated with supporting the events in Japan that directly relates to the Earthquake and Tsunami. For pay periods 6 and 7 we created TAC ZG0061, this was used by all staff that directly performed duties that supported the Japan event. Going forward starting with pay period 8(March 27 – April 9), we will need to track any costs associated with support of the Japan event relating to the earthquake and tsunami in greater detail. Please do not use TAC ZG0061 after pay period 7 (PP 7 ended March 26, 2011). The separation into multiple TAC's for different activities is necessary for appropriate fee billing.

The new TAC's are listed below with a brief description.

ZG0064 – Japan Support Team (In Japan). This TAC is to be used to record hours worked while employees are in Japan, for those employees who traveled to Japan to support the earthquake and tsunami.

ZG0063 – Japan Event HQ Operations Watchstanders. This TAC is to be used to record hours worked when employees are working in the Operations Center. This is for employees who are working directly on activities that are supporting the Japan events relating to the earthquake and tsunami and who did not travel to Japan.

ZG0062 – Work Performed, Lessons Learned relating to the Japan Event. This TAC is to be used for work that will be performed by staff in the agency as a lessons learned approach to improve the NRC's ability relating to operating reactors. This TAC is not to be used for any work that is described in the TAC's above.

It will not be necessary to do corrected cards for pay periods prior to pay period 8, the Division of the Controller will make all necessary corrections.

If you have any questions on these new TAC's please send an e-mail to mary.matheson@nrc.gov.

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Jimenez, Manuel

From: Boggi, Michael *MBR*
Sent: Friday, April 01, 2011 2:01 PM
To: Conatser, Richard; Franklin, Carmen; Garry, Steven; Jimenez, Manuel
Subject: FW: New OpE COMM: International - Tsunami Causes Complete Loss of Ultimate Heat Sink and Near Miss Incidents at Three Units at Fukushima DAINI Site

For our Quals group. This is a COMM, with two m's.

Mike

From: Sigmon, Rebecca *MBR*
Sent: Friday, April 01, 2011 11:59 AM
To: Sigmon, Rebecca
Subject: New OpE COMM: International - Tsunami Causes Complete Loss of Ultimate Heat Sink and Near Miss Incidents at Three Units at Fukushima DAINI Site

This email 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.

Summary

Following the magnitude 9.0 Tohoku-Taiheiyu-Oki Earthquake and ensuing tsunami on March 11, 2011 off the eastern coast of Japan, three of four units at the Fukushima Daini (or Fukushima II) reactor site experienced a complete loss of ultimate heat sink due to a loss of all seawater pumps. After suppression pool temperatures reached the saturation point at each of the three units, containment pressure started to increase. Unlike at the Fukushima Dai'ichi site though, offsite power was never lost. Operators were able to restore sufficient seawater cooling to RHR heat exchangers before core damage occurred. The Japanese regulator (NISA) assigned an International Nuclear and Radiological Event Scale (INES) rating of level 3 to the events at each of these three plants.

Information Security Reminder: OpE COMMs contain preliminary information in the interest of timely internal communication of operating experience. OpE COMMs may be pre-decisional and may contain sensitive/proprietary information. They are not intended for distribution outside the agency

The posting may be reviewed at: [International - Tsunami Causes Complete Loss of Ultimate Heat Sink and Near Miss Incidents at Three Units at Fukushima DAINI Site](#)

or at

<http://nrr10.nrc.gov/forum/forumtopic.cfm?selectedForum=03&forumId=AllComm&topicId=3299>

This COMM is being posted to the following groups: ***All Communications, Containment (leakage, degradation, cooling system performance), ECCS, Electrical Power Systems, Emergency Diesel Generators, Emergency Preparedness, Flood Protection & Missiles, Fuels, Natural Phenomena, New Reactors, Pump and Valve Performance, 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 [Reactor OpE Gateway](#).

Thank you for reviewing and using Operating Experience.

Rebecca Sigmon
Reactor Systems Engineer
NRR/DIRS/IOEB
Operating Experience Branch
(301) 415-4018
Rebecca.Sigmon@nrc.gov

Pedersen, Roger

From: Mizuno, Geary | *OGC*
Sent: Friday, April 01, 2011 9:10 AM
To: Conatser, Richard; Pedersen, Roger
Subject: RE: Japan and REMP Samples

Are we talking about a reactor licensee?

From: Conatser, Richard *inrc*
Sent: Friday, April 01, 2011 9:03 AM
To: Pedersen, Roger
Cc: Mizuno, Geary
Subject: Japan and REMP Samples

Roger,

If dose projections, based on REMP samples, indicate a dose to a member of the public may exceed 100 mrem in a year (NRC limit for member of the public), how should the NRC respond in the following 2 cases?

1. The source of the radioactive material is from a licensee (this is in the regulations)
2. The source of the radioactive material is not from a licensee

Although NRC statutory mandate is typically aligned with licensee's radioactive materials, I'd like to discuss this with you to get your perspective.

Thanks,

Richard L. Conatser
Health Physicist
Nuclear Regulatory Commission
301-415-4039
Richard.Conatser@NRC.gov

King, Mark

From: King, Mark *in reply*
Sent: Friday, April 01, 2011 12:48 PM
To: Garmon, David
Subject: FW: ARTICLE: INFO: Concrete pumps to Fukushima

From: Tabatabai, Omid *in reply*
Sent: Friday, April 01, 2011 12:46 PM
To: King, Mark; Thorp, John; Frye, Timothy; Copeland, Douglas; Craffey, Ryan; Harmon, David; Issa, Alfred; Patel, Jay
Subject: ARTICLE: INFO: Concrete pumps to Fukushima

Just fyi...

01 April 2011



Preparing to load at Echterdingen airport in Germany

Four more concrete pumping trucks are on their way to the Fukushima Daiichi nuclear power plant to help the effort to maintain fuel ponds.

Having overheated and suffered serious drops in water level, the used fuel ponds in the upper parts of damaged units 1, 3 and 4 were refilled by a number of ad-hoc means.

First came ineffective drops by helicopter, next was spraying from fire trucks. The situation was brought closer to control with the arrival of Hyper Rescue and Super Pump Truck from the Tokyo Fire Department, but it was an extra-large concrete pumping machine that has been most effective, particularly at unit 4 where steelwork obstructs spraying from the ground.

Water spraying

Tepco monitor the used fuel ponds of units 1, 3 and 4 and regularly spray seawater to refill them. At unit 2, where the top section of the reactor building is intact, it has used freshwater via a motor-driven pump. From time to time, steam is seen rising from the buildings.

In recent updates Tepco have said a malfunction with the pumps at unit 2 caused it to switch to fire pumps,

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The machine already on-site is a Putzmeister 58, named after the length of its boom in metres, supplied to Tepco on the initiative of Hiroshi Suzuki, director of Putzmeister Japan. It is able to pump up to 120 cubic metres of seawater per hour with fairly high precision thanks to a flexible boom. In earlier phases of the Fukushima accident, the ability to control the pumps remotely was a great help in reducing radiation doses to workers.

and then a tear in a hose put this too on hold. There were no consequences from these interruptions.

The site will soon receive delivery of two 62 metre units that were available from a Putzmeister factory in Germany and as well as two 70 metre units from the USA. The German machines were loaded and sent to Japan yesterday, while Putzmeister warned that arranging landing shipment for the huge Antonov cargo aircraft may take more time in the USA.

Thanks,
Omid

King, Mark

From: Sigmon, Rebecca *mark*
Sent: Friday, April 01, 2011 11:59 AM
To: Sigmon, Rebecca
Subject: New OpE COMM: International - Tsunami Causes Complete Loss of Ultimate Heat Sink and Near Miss Incidents at Three Units at Fukushima DAINI Site

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Following the magnitude 9.0 Tohoku-Taiheiyou-Oki Earthquake and ensuing tsunami on March 11, 2011 off the eastern coast of Japan, three of four units at the Fukushima Daini (or Fukushima II) reactor site experienced a complete loss of ultimate heat sink due to a loss of all seawater pumps. After suppression pool temperatures reached the saturation point at each of the three units, containment pressure started to increase. Unlike at the Fukushima Dai'ichi site though, offsite power was never lost. Operators were able to restore sufficient seawater cooling to RHR heat exchangers before core damage occurred. The Japanese regulator (NISA) assigned an International Nuclear and Radiological Event Scale (INES) rating of level 3 to the events at each of these three plants.

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<http://nrr10.nrc.gov/forum/forumtopic.cfm?selectedForum=03&forumId=AllComm&topicId=3299>

This COMM is being posted to the following groups: *All Communications, Containment (leakage, degradation, cooling system performance), ECCS, Electrical Power Systems, Emergency Diesel Generators, Emergency Preparedness, Flood Protection & Missiles, Fuels, Natural Phenomena, New Reactors, Pump and Valve Performance, Station Service Water Systems & Ultimate Heat Sink*

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Thank you for reviewing and using Operating Experience.

Rebecca Sigmon
Reactor Systems Engineer
NRR/DIRS/IOEB

Operating Experience Branch
(301) 415-4018
Rebecca.Sigmon@nrc.gov

Medina, Veronika

From: Akstulewicz, Brenda
Sent: Friday, April 01, 2011 2:07 PM
To: Medina, Veronika
Cc: Couret, Ivonne
Subject: Info NHK

Bob Evans

NHK Japanese TV

757-564-6331

called for Eliot - has questions DOE couldn't answer

Brenda Akstulewicz
Administrative Assistant
Office of Public Affairs
301-415-8209
brenda.akstulewicz@nrc.gov



Medina, Veronika

From: Royer, Deanna
Sent: Friday, April 01, 2011 3:29 PM
To: Medina, Veronika
Subject: Media - Bloomberg-Question

Jim Snyder

Bloomberg

202-624-1972

~~J. Snyder~~
JSnyder24@bloomberg.net

Re: What are the 11 people from NRC doing in Japan?

Deanna Royer

Contract Secretary

Division of New Reactor Licensing

(301) 415-7158

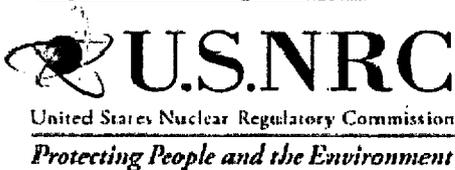
Deanna.Royer@nrc.gov

Medina, Veronika

From: Hannah, Roger
Sent: Friday, April 01, 2011 3:35 PM
To: Burnell, Scott
Cc: Medina, Veronika
Subject: RE: Media - NBC Station-Question

Just talked to him – I guess he called my direct number after calling there....

Roger Hannah, APR
Senior Public Affairs Officer
Region II -- Atlanta, Ga.
Office - 404-997-4417
Cell - 404-520-4394
roger.hannah@nrc.gov



From: Burnell, Scott
Sent: Friday, April 01, 2011 3:33 PM
To: Hannah, Roger
Cc: Medina, Veronika
Subject: FW: Media - NBC Station-Question

Roger;

Not sure if this is security-related or not.

Scott

From: Medina, Veronika
Sent: Friday, April 01, 2011 3:32 PM
To: Burnell, Scott
Subject: RE: Media - NBC Station-Question

Scott,

Can you follow up with this reporter?

Thanks,
Veronika

From: Royer, Deanna
Sent: Friday, April 01, 2011 3:30 PM
To: Medina, Veronika
Subject: Media - NBC Station-Question

Stuart Watson

Medina, Veronika

From: Burnell, Scott
Sent: Friday, April 01, 2011 3:55 PM
To: JSnyder24@bloomberg.net
Cc: Medina, Veronika
Subject: RE: Media - Bloomberg-Question

Hi Jim;

At this point, the only detail we have is that the NRC staff are assisting the U.S. Ambassador in providing the U.S. response to Japan's request for assistance. Thanks.

Scott

Jim Snyder
Bloomberg
202-624-1972 *JS*
JSnyder24@bloomberg.net
Re: What are the 11 people from NRC doing in Japan?

Medina, Veronika

From: Couret, Ivonne
Sent: Friday, April 01, 2011 2:48 PM
To: Medina, Veronika
Subject: FW: DOE measurements from Japan, if anyone gets asked

FYI

From: Harrington, Holly
Sent: Thursday, March 24, 2011 2:56 PM
To: Brenner, Eliot; Burnell, Scott; Couret, Ivonne; Hayden, Elizabeth; McIntyre, David; Chandrathil, Prema; Dricks, Victor; Hannah, Roger; Ledford, Joey; Mitlyng, Viktoria; Screnci, Diane; Sheehan, Neil; Uselding, Lara
Cc: Bonaccorso, Amy; Deavers, Ron
Subject: DOE measurements from Japan, if anyone gets asked

DOE has made public the AMS radiological measurement data from the overflights in Japan. The web link is at <http://energy.gov/news/10194.htm> .

Medina, Veronika

From: Couret, Ivonne
Sent: Friday, April 01, 2011 12:59 PM
To: Medina, Veronika; Janbergs, Holly; Akstulewicz, Brenda; Ghneim, Munira; Royer, Deanna; Shannon, Valerie
Cc: Harrington, Holly
Subject: PHONE CALLS FROM - Brian Till from Atlantic Monthly Calls
Importance: High

IF a Brian Till from Atlantic Monthly Calls----goes to ELIOT Only...take message send via email.

Ivonne L. Couret
Public Affairs Officer
Office of Public Affairs
Media Desk
opa.resource@nrc.gov
301-415-8200

Visit our online photo gallery. Incorporate graphics and photographs to tell your story!
<http://www.nrc.gov/reading-rm/photo-gallery/>

2010-2011 Information Digest - Where you can find NRC Facts at a Glance
<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1350/>

From: Janbergs, Holly
To: m102786@georgiasouthern.edu
Subject: Re: Radiation Question
Date: Friday, April 01, 2011 9:59:00 AM

Mr. Lamb,

Given the results of the monitoring and distance between Japan and Hawaii, Alaska, the U.S. Pacific territories, and the U.S. West Coast, the NRC expects the U.S. to avoid any harmful levels of radiation. The NRC is working closely with our federal partners to monitor radiation releases from Japanese nuclear power plants.

The Department of Energy has been designated the lead agency for communicating information to the U.S. regarding monitoring of radiation heading toward or over our nation. The DOE's Lawrence Livermore National Laboratory is monitoring weather patterns over the Pacific Ocean. The Environmental Protection Agency maintains air monitoring stations throughout the country and has reinforced its monitoring effort.

If you have any questions about the monitoring process, you can contact the DOE at 202-586-4940. The EPA also has a website set up with information from their monitoring process as well as places you can see the information they've gathered for yourself: <http://www.epa.gov/japan2011/>

I hope this answers your question.

Thank you,
Bethany

Beth Janbergs
Public Affairs Assistant
301-415-8211

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Medina, Veronika

From: Couret, Ivonne
Sent: Friday, April 01, 2011 11:33 AM
To: Janbergs, Holly; Medina, Veronika
Subject: In Eliot's absence -

Send the Chairman (and senior level) Interview request to Beth. Ivonne

From: Brenner, Eliot
Sent: Friday, April 01, 2011 11:27 AM
To: Akstulewicz, Brenda; Chandrathil, Prema; McIntyre, David; Screnci, Diane; Harrington, Holly; Couret, Ivonne; Janbergs, Holly; Ledford, Joey; Sheehan, Neil; Hannah, Roger; Burnell, Scott; Uselding, Lara; Shannon, Valerie; Dricks, Victor; Mitlyng, Viktoria
Subject: while i'm away

Beth is driving the bus. I will be out from early afternoon today until next Thursday morning serving the greater good by taking all the arrows intended for the chairman from the media at an IAEA thing in Vienna that I am told is turning into a real zoo. Y'all behave, y'hear.

Eliot Brenner
Director, Office of Public Affairs
Nuclear Regulatory Commission
Rockville, Md.
O: 301-415-8200
C: 240-888-2923

Anderson, Brian

From: Anderson, Brian
Sent: Friday, April 01, 2011 12:21 PM
To: Sanfilippo, Nathan
Cc: Burnell, Scott
Subject: I'm leaving now -- RE: Task force press release

Nathan – I'm leaving the office now. Scott will handle the press release from here.

Thanks for your help during all of the back-and-forth on this.

Brian

From: Anderson, Brian
Sent: Friday, April 01, 2011 12:15 PM
To: Sanfilippo, Nathan
Cc: Burnell, Scott
Subject: RE: Task force press release

Got it. Thank you!

From: Sanfilippo, Nathan
Sent: Friday, April 01, 2011 12:15 PM
To: Anderson, Brian
Cc: Burnell, Scott
Subject: RE: Task force press release

That's the charter, and the other document is the memo that transmits it.

From: Anderson, Brian
Sent: Friday, April 01, 2011 12:08 PM
To: Sanfilippo, Nathan
Cc: Burnell, Scott
Subject: RE: Task force press release

Nathan – As a back-up plan to ensure the press release can get issued today, we can add the charter to the end of the press release. Can you confirm that ML11089A045 is the final/approved charter?

Thanks,
Brian

From: Sanfilippo, Nathan
Sent: Friday, April 01, 2011 12:05 PM
To: Taylor, Renee; Anderson, Brian
Cc: Burnell, Scott
Subject: RE: Task force press release

Thanks so much!

From: Taylor, Renee
Sent: Friday, April 01, 2011 12:04 PM
To: Sanfilippo, Nathan; Anderson, Brian

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Cc: Burnell, Scott
Subject: RE: Task force press release

Resubmitted for immediate release.

From: Sanfilippo, Nathan
Sent: Friday, April 01, 2011 11:55 AM
To: Anderson, Brian; Taylor, Renee
Cc: Burnell, Scott
Subject: RE: Task force press release

Yes, immediately. Who do we need to work with to make that happen?

Renee, can you help?

Thanks!
Nathan

From: Anderson, Brian
Sent: Friday, April 01, 2011 11:50 AM
To: Sanfilippo, Nathan
Cc: Burnell, Scott
Subject: RE: Task force press release

Nathan - Are you pushing for the charter to be released immediately...or is it in the normal processing queue?

If it takes until the end of the day for the charter to be declared, it probably makes more sense to hold the press release until Monday.

Brian

From: Taylor, Renee
Sent: Friday, April 01, 2011 10:30 AM
To: Anderson, Brian
Subject: RE: Task force press release

They were placed in ADAMS Document Processing, I would think they will be declared sometime today.

From: Anderson, Brian
Sent: Friday, April 01, 2011 9:16 AM
To: Taylor, Renee
Cc: Sanfilippo, Nathan; Burnell, Scott
Subject: RE: Task force press release
Importance: High

Renee –

Can you tell me whether the task force charter and memo (Memo: ML11089A030 -- Charter: ML11089A045) are ready to be declared in ADAMS?

They are profiled for public release, but because the documents have not yet been declared, they do not appear in an external (public) ADAMS search.

Thank you,
Brian

From: Sanfilippo, Nathan
Sent: Friday, April 01, 2011 8:58 AM
To: Burnell, Scott; Anderson, Brian
Cc: Miller, Charles
Subject: RE: Task force press release

Memo: ML11089A030 Charter: ML11089A045

I'm over in the other building. Renee Taylor could probably tell you the status of its public availability.

Thanks!

From: Burnell, Scott
Sent: Friday, April 01, 2011 8:53 AM
To: Sanfilippo, Nathan; Anderson, Brian
Cc: Miller, Charles
Subject: Task force press release

Nathan, Brian;

I have the release back from the Chairman's office – just need the URL for the task force charter or the ML # if it's only going into ADAMS. I'll work in all the edits from the 17th floor. Thanks.

Scott

From: [Bonaccorso, Amy](#)
To: [Ridge, Christianne](#)
Cc: [Tobin, Jennifer](#); [Deavers, Ron](#); [Harrington, Holly](#)
Subject: RE: Weekend Update
Date: Friday, March 18, 2011 2:18:15 PM

Sounds good - thank you very much for the help!

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

From: Ridge, Christianne
Sent: Friday, March 18, 2011 2:14 PM
To: Bonaccorso, Amy
Cc: Tobin, Jennifer; Deavers, Ron; Harrington, Holly
Subject: RE: Weekend Update

Hi, Amy, I can do 11-3 on Saturday. I will try to arrive for 10 and can probably stay past 3 if it turns out it is necessary.

I do have a constraint that I will need to take about a 30 min break after about 4 hours.

From: Bonaccorso, Amy
Sent: Friday, March 18, 2011 9:39 AM
To: Ridge, Christianne
Cc: Tobin, Jennifer; Deavers, Ron; Harrington, Holly
Subject: Weekend Update

Hi Christianne:

Just talked to Holly and Beth Hayden.

Minimum, they would like one of us to do a 4 hour shift on Saturday or Sunday. We can feel things out from there. They want some coverage, but not to completely overwhelm us and drain us!

The shifts they were proposing were 10-2pm, or 11-3pm.

If you would come in on Saturday, they would be awesome.

I could take the shift on Sunday. 11:00 – 3:00 pm might be better for me since I am not a morning person, but I'll come in earlier if I can handle it.

I also said that Jenny would be in the Ops Center and could lend some support from there.

Right now, they are still sending things to me and Ron, but they will adjust that over the weekend since he is not available.

Thanks,

Amy

2/399

From: CryoRaininc@aol.com
To: the.secretary@hq.doe.gov; OPA Resource; NRCExecSec Resource
Subject: Fukushima - one more means to reduce local radiation....ship water out solid
Date: Friday, April 01, 2011 11:56:20 AM

Secretary Steven Chu,
US Department of Energy
and
Gregory Jaczko Ph.D.
Chairman
U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, MD 20852

April 1, 2011

Dear Secretary Chu and Dr. Jaczko,

Here is a simple addition to our cryogenic cooling of the fuel rod containing parts of the Fukushima Nuclear Facility. This should reduce the agricultural radiation level climb.

More Gentle Ways of Curtailing Radiation in Fukushima

CryoRain Inc. is operating in Arlington Massachusetts, a town which in the Colonial times was called Menotomy. History has it that between 1640 and 1800, Spy Pond, about half a mile from here, was the source of ice for the world. They shipped by outrigger even to India giving them a cool drink during the hot summer evenings.

Now we have Hot out of Japan that needs movement and CryoRain Inc. offers cryogenic solutions – first to cool the reactors and spent fuel rods – and, second, to clear ice freeze the fresh and sea water for transport. It can be shipped in large cubes separated to enable separation on delivery. And where might it be delivered? How about the poles so it becomes part of polar ice.

Yes the Artic pole is close by, comparatively, to Japan, but there is no land beneath the floating ice. Antarctica, on the other hand, has snow and ice at great depths over land, with, may I point out, huge coal reserves. With the earth's magnetic fields and flow in and out of space, perhaps some of it will be drawn outward from the poles and be flung into space. Either way, here on earth for the future leaves it as far from life as we know it as possible, and out in space, it could enhance features as the Aurora Borealis.

Thus, with the apparatus in place to cool down the Reactors #1, #2, #3, and #4, we also quick freeze without entrapping air the waters in the plant area and vicinity that have high radiation levels. Once frozen they could be flown by transport and dropped in low flight onto the polar region(s).

Please add this task to the efforts offered by CryoRain Inc. and do, please, use these services to quicken the return to normal radiation-wise the Fukushima Nuclear

2/400

Facility.

Sincerely,

Denyse DuBrucq Ed.D.
CEO - CryoRain Inc.
1 Webster Street
Arlington MA 02474-5203 USA
937 766-4660
CryoRaininc@aol.com

I know, this is a kick yourself around the block type "stupid" idea, but it will work and will cost so little adding it to our work to cool the fuel rod containments there. Clear ice blocks give most clearance for the space taken. Backing our military transports with the ice will benefit so many. Gene Hassenfus can handle these low drops - not landing. I'm sure others having the same capacity in the Federal Government can do this as well.

Sincerely,

Denyse DuBrucq

From: [Weaver, Judith](#)
To: [OPA Resource](#)
Subject: FW: Emailing: Top Priority.pdf
Date: Friday, April 01, 2011 12:16:34 PM
Attachments: [Top Priority.pdf](#)

An individual faxed this (see attachment) to Region IV allegations last week. This individual wanted to provide input to the Reactor situation in Japan.

Thanks,

Judith Weaver
Allegation Coordinator
U.S. NRC Region IV
817-860-8145

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

From: Taylor, Nick
Sent: Friday, April 01, 2011 11:11 AM
To: Weaver, Judith
Subject: Emailing: Top Priority.pdf

The message is ready to be sent with the following file or link attachments:

Top Priority.pdf

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.

4/401

TOP PRIORITY

3-22-2011

EMERGENCY BRIEFING:

FOR - UNITED STATES NUCLEAR REGULATORY COMMISSION. * (310) 831-9437 / CALL: 9 A.M. - NOON OR EVEN. P.S.T.

SUBJECT - NUCLEAR REACTOR MELTDOWN RADIATION CONTAINMENT EQUIPMENT DESIGN FOR ALL UNITED STATES NUCLEAR REACTORS AND STORED SPENT FUEL RODS / PLUTONIUM - URANIUM THERMONUCLEAR WEAPON CORES; AND FOREIGN REACTORS, SPENT FUEL AND NUCLEAR WEAPON CORES.

DESIGN: A CLOSED-LOOP VACUUM RADIATION PLUME CONTAINMENT SYSTEM TO TRAP LOW AND HIGH LEVEL RADIATION EMITTED IN THE EVENT OF A REACTOR CORE MELTDOWN OR CRITICAL MASS EMERGENCY EVENT. PORTABLE BACKUP UNITS MUST BE CONSTRUCTED IN ADDITION TO ON-SITE UNITS.

IT WOULD BE BEST TO INCORPORATE THESE UNITS INTO THE MAIN CONTAINMENT STRUCTURES WITH A REDUNDANT DESIGN TO WITHSTAND: EARTHQUAKES, VOLCANIC ERUPTIONS, HURRICANES, TORNADOES, FLOODING, TSUNAMIS AND/OR TERRORIST ~~ATTACKS~~ OR ANY COMBINATION OF THESE EVENTS.

INCORPORATE A FOUR-STAGE FILTER SYSTEM WITH A PORTABLE COVERING TO CONTAIN SMOKE/STEAM UTILIZING A FINE MESH STAINLESS STEEL SCREEN ① A STANDARD STYLE VACUUM FILTER, ② A HEPA FILTER, ③ AND THEN VENTED INTO A HERMETICALLY SEALED WATER POOL WITH A SECONDARY FINE MESH SCREEN (AT BASE OF WATER POOL) TO BREAK UP

FUMES INTO FINE BUBBLES IN ORDER TO REMOVE ULTRA-FINE PARTICULATES/ SOOT AND ATOMIZED RADIOACTIVE CONTAMINANTS. EXHAUSTS FROM THIS FINAL STAGE OF UNIT SHOULD BE VENTED BACK INTO OPENING OF THE SYSTEM.

UTILIZE 110 VOLT STANDARD GROUNDED THREE PRONG PLUGS, A BRUSHLESS ALTERNATING CURRENT Tesla MOTOR (TO PREVENT HYDROGEN EXPLOSIONS) BEHIND FIRST THREE FILTERS, A THERMAL CIRCUIT BREAKER FOR MOTOR, A BACKUP UNIT AND SEPERATE GENERATORS TO SUPPLY POWER IN A PROTECTED LOCATION. A SEISMIC SWITCH SHOULD ACTIVATE UNIT IF ONE UNIT OVER HEATS, AN AUTOMATIC SWITCH SHOULD TURN ON SECOND BACKUP GENERATORS MUST BE EASILY ATTACHED TO UNITS.

PREPARED BY: N. A. S. A. INC. SCIENTIFIC RESEARCH (310) 831-9437*

From: [Janbergs, Holly](#) on behalf of [OPA Resource](#)
To: [Janbergs, Holly](#)
Subject: FW: Question
Date: Friday, April 01, 2011 9:12:00 AM

From: Fleming, Kreslyon **On Behalf Of** OHRComments Resource
Sent: Friday, April 01, 2011 8:37 AM
To: OPA Resource
Subject: FW: Question

Good Morning,

See email below regarding radiation.

Kreslyon Fleming
Outreach & Recruitment Branch
Office of Human Resources
U.S. Nuclear Regulatory Commission
Mailstop: GW5-A06
Washington, DC 20555-0001
301-492-2209
301-492-2243 (fax)
www.nrc.gov



From: Michael Lamb [<mailto:ml02786@georgiasouthern.edu>]
Sent: Thursday, March 31, 2011 6:54 PM
To: OHRComments Resource
Subject: Question

I am concerned that America, particularly GA, will get dangerous levels of radiation from Japan. If the leak in Japan is not stopped will we? Will it get to a dangerous level in the states?

Thanks
Michael

2/402

From: phil
To: [Bonaccorso, Amy](#)
Subject: Fw: Water Absorbing Polymer keeps the water from soaking into concrete floors, even sucks it out, can be homemade, shovelled, handled, cardboard boxed and shipped
Date: Saturday, April 02, 2011 9:52:14 PM

I just saw on the news that they are going to start using water absorbing polymer, yay, even MULTILAYER diapers would help (plug up cracks, then turn into papercrete).
<http://www.google.com/search?hl=en&source=hp&q=papercrete>

I am next going to see if some old termite eaten nuclear reactor books here will tell me enough about the melt down elements,

I suspect that if they are going into solution, it isn't just as particles or colloids, but as soluble ions,

WHICH MEANS THAT THEY CAN BE REMOVED ELECTROLYTICALLY, GRANTED SLOWLY EVEN WHEN AT THIS MAXIMUM MICROCONCENTRATION, BUT STILL NOT AT AN ASYMPTOTE OF ZERO RETURNS FOR A WHILE, CAN BE A POST PUMP-OUT PROCESS TOO,

APPLYING A SUFFICIENT VOLTAGE BETWEEN THE CONTAINMENT METAL AS GROUND,

AND ELECTRODES NEAR THE SURFACE OF THE WATER,

DRAWING THE METALS, ALL OF THEM, TO THE SOON TO BE URANIUM/* PLATED ELECTRODE(S) (PROBABLY BEST A LOT OF THEM IN AN ARRAY TO KEEP FROM CREATING A HIGH ENOUGH CURRENT ON ANY OF THEM TO ELECTROLYZE THE WATER INTO FLAMMABLE GASSES).

Of course, this will also electro-remove the metals of the containment and piping, unless an appropriate buffer is added, don't know yet if I remember enough chemistry after way over 40 years to help much figuring that out, but, new chem grads might have trouble, since they had to learn from chem books that were 10 times thicker.

Otherwise, polarizing the current to plate the uranium ONTO the containment chamber will take them out of solution, which is still a help, but won't hurt the containment structure, at least not it's strength, but in a hurry, might be wise to regret it later. Hey, that would contain it, AND spread it out all over the containment structure safely,

OR, applying voltage between a hundred pair of ground isolated electrodes might not have enough leakage current to hurt anything and yet still harvest the metals as long as the water stays electrolytic enough. Might have to alternate additives between acidic and basic to average a neutral Ph.

4/403

Pedersen, Roger

From: Jimenez, Manuel *MJK*
Sent: Saturday, April 02, 2011 11:07 AM
To: Garry, Steven; Pedersen, Roger; Conatser, Richard
Subject: FW: Hi Res Photos of Fukushima

Don't know if you have seen these but these pictures are quite remarkable

<http://cryptome.org/eyeball/daiichi-npp/daiichi-photos.htm>

Pedersen, Roger

From: Jimenez, Manuel *inck*
Sent: Saturday, April 02, 2011 11:07 AM
To: Garry, Steven; Pedersen, Roger; Conatser, Richard
Subject: FW: Hi Res Photos of Fukushima

Don't know if you have seen these but these pictures are quite remarkable

<http://cryptome.org/eyeball/daiichi-npp/daiichi-photos.htm>

Medina, Veronika

From: Janbergs, Holly on behalf of OPA Resource
Sent: Monday, April 04, 2011 2:39 PM
To: Medina, Veronika
Subject: FW: Trade press question: NRC and government shutdown?

From: Wayne Barber (SNL: 703-373-0160) [<mailto:WBarber@snl.com>]
Sent: Monday, April 04, 2011 2:36 PM
To: Burnell, Scott; OPA Resource
Subject: Trade press question: NRC and government shutdown?

Is NRC's operation center still being staff around-the-clock due to Japan's Fukushima crisis?

Will that operational center continue to stay open in the event of a federal government shutdown?

**What about the just-announced NRC task force? Will it continue its work in the event of a government shutdown?
What about the support staff for the task force?**

Many thanks.

Wayne B.

Wayne Barber
Generation Markets Week Editor
SNL Energy
703-373-0160 p
703-373-0159 f
wbarber@snl.com

Handwritten signature/initials

Handwritten number: 2/406

Jimenez, Manuel

From: Conatser, Richard *nrk*
Sent: Monday, April 04, 2011 3:50 PM
To: Jimenez, Manuel
Subject: More info Fukushima

From: info@cnsccsn.gc.ca
Sent: Monday, March 28, 2011 12:17 PM
To: Conatser, Richard
Subject: March 28 – 12:15 EDT – CNSC information update regarding the Japanese nuclear facilities

At 07:24 JST on March 27, a magnitude-6.5 earthquake struck off the east coast of Honshu, closest to the Onagawa nuclear power station (NPS). The International Atomic Energy Agency (IAEA) notes that Onagawa units are in cold shutdown and there are no abnormal radiation readings on site. There are no reports of additional damage to Fukushima Daiichi, Fukushima Dai-2 or Tokai nuclear power stations.

Accident response continues at the Fukushima Daiichi NPS. Tokyo Electric Power Company (TEPCO) personnel and other responders are working to maintain continuous cooling to the reactors and spent fuel storage pools, in order to prevent radioactive material releases from worsening. On-site fresh water supply was decreasing, but two US Navy barges carrying some two million litres of water are on site and have been connected to water pumps.

Cooling operations continue for reactor pressure vessels in Units 1 to 3 and the spent fuel storage pools in Units 1 to 4. Reactor pressure and temperature in Unit 1 continues to slowly increase. The temperature in the spent fuel storage pool of Unit 2 has decreased significantly in the past 24 hours.

TEPCO is working on a way to remove contaminated water from the turbine buildings of Units 1 to 4, which house some components critical for cooling operations. For Unit 1, workers are pumping this water into the condenser. However, it is reported that this method will not work for Units 2, 3 and 4. The IAEA advises that the condenser at Unit 2 is "full" and there is no information on Units 3 and 4.

TEPCO has apologized for the "miscalculation" on the analysis of contaminated water in Unit 2 yesterday, saying a new test found radiation levels 100,000 times higher than normal. (TEPCO had originally reported this number at 10 million times higher.)

Chief Cabinet Secretary Yukio Edano said the contaminated water in Unit 2 was due to a partial meltdown of the reactor core. Calling it "very unfortunate", Edano said the spike in radiation appeared limited to Unit 2. Meanwhile, dose rate measurements around the Fukushima Daiichi site outside the reactor and turbine buildings continue to decrease.

After new readings detected iodine-131 above the normal level offshore at the North end of the site, the Nuclear and Industrial Safety Agency (NISA) said radioactive water from the NPS might be leaking directly into the ocean. Latest data from 30 kilometres offshore show that concentrations of iodine-131 and caesium-137 are decreasing.

There is no new information on iodine-131 in prefectures near Fukushima Daiichi NPS, nor is there any new information on drinking water sampling in past 24 hours. IAEA reports on soil sampling around Fukushima Daiichi show that the highest concentrations of iodine-131 and caesium-137 are northwest of the site.

Find out more:

<http://www.nuclearsafety.gc.ca/eng/mediacentre/updates/march-11-2011-japan-earthquake.cfm>

For all the latest CNSC news, visit the CNSC's homepage at

<http://www.nuclearsafety.gc.ca/eng/>

You have received this message as a result of your subscription to the CNSC Web site. To update your subscription preferences or to unsubscribe, please go to:

<http://www.nuclearsafety.gc.ca/eng/newsroom/subscription/>

If you experience any difficulties in accessing the CNSC Web site, please contact info@cnsccsn.gc.ca.

Richard L. Conatser

Health Physicist

Nuclear Regulatory Commission

301-415-4039

Richard.Conatser@NRC.gov

Cartwright, William

From: Jimenez, Manuel *INVR*
Sent: Monday, April 04, 2011 2:07 PM
To: Cartwright, William
Subject: FW: HPS Update on Japan

From: HPS Headquarters [mailto:HPS@BurkInc.com]
Sent: Friday, March 18, 2011 12:41 PM
To: Jimenez, Manuel
Subject: HPS Update on Japan



Health Physics Society

Specialists in Radiation Safety • Founded 1956 • <http://hps.org>

HPS Update on Japan

HPS Members:

Are you aware of the terrible situation in Japan. The HPS is working on multiple fronts to collect credible information on the nuclear incident, and distribute that information through mainstream and social media outlets and the HPS Web site.

Share your frustration with the misinformation and sensationalism presented by much of the mainstream media. We don't often publicize our efforts, but the HPS maintains an active media liaison and outreach effort all year around; not just during a crisis. Dr. Robert L. Classic and Howard Dickson are leading this charge. I would like to report to you a sampling of their efforts:

We have communicated with our professional counterparts at the Japan Health Physics Society to offer our assistance and express our support for their courageous efforts.

We have set up a special page on Facebook©

(<http://www.facebook.com/topic.php?topic=826&post=2780&uid=157387224301493#post2780>) to consolidate media reports and provide additional information, which we believe would be of interest to our audience (uncut and unedited for rapidity of availability).

We are also working to organize television appearances and other media communications for our members to present an alternative perspective on the situation, but with emphasis on radiation safety. We will never be able to respond with the speed of the mainstream media, nor have comparable resources to compete with them, but we will have the information right.

Encourage you to refer the public to our website for the most credible information and links. <http://hps.org/fukushima/>

Most importantly, I encourage you to donate to the Japan relief efforts through the American Red Cross at:
http://american.redcross.org/site/PageServer?pagename=ntld_main&src=RSG000000000&subsrc=RCO_ResponseStateSe

We don't know what other actions our Society should be taking during this nuclear incident.

We know that many of you have also been doing interviews with reporters and we very much appreciate your efforts to get good scientific facts in front of the public. Please take the time to tell Kelly (media@hps.org) who you interviewed with and the topics you collect all members efforts for historical purposes.

For all, please keep the people of Japan in your thoughts and prayers.

Respectfully,

Michael Maher

Cartwright, William

From: Jimenez, Manuel *MR*
Sent: Monday, April 04, 2011 2:05 PM
To: Cartwright, William
Subject: FW: NISA press releases

More stuff

manny

From: Garry, Steven *MR*
Sent: Monday, March 14, 2011 8:04 AM
To: Jimenez, Manuel; Conatser, Richard; Pedersen, Roger
Cc: Henderson, Pamela; Noggle, James; Bonser, Brian; Kuzo, George; Dickson, Billy; Phalen, Martin; Cassidy, John; Werner, Greg; Ricketson, Larry; Carson, Louis
Subject: NISA press releases

<http://www.nisa.meti.go.jp/english/files/en20110314-1.pdf>

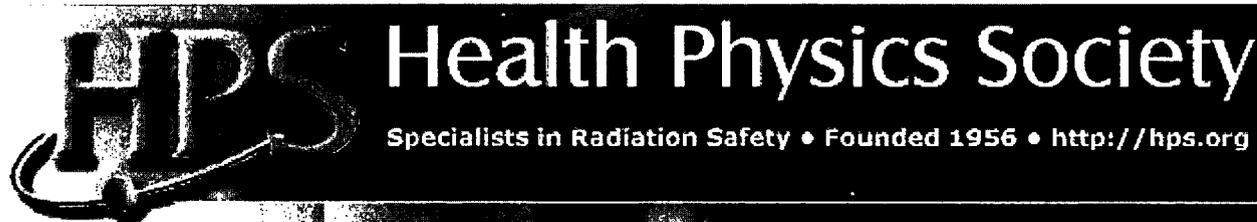
Cartwright, William

From: Jimenez, Manuel *in MR*
Sent: Monday, April 04, 2011 2:03 PM
To: Cartwright, William
Subject: FW: Japanese Nuclear Plant Problems Continue

Here is another

Manny

From: HPS Headquarters [<mailto:HPS@BurkInc.com>]
Sent: Sunday, March 13, 2011 7:42 PM
To: Jimenez, Manuel
Subject: Japanese Nuclear Plant Problems Continue



Japanese Nuclear Plant Problems Continue

Current News (<http://hps.org/newsandevents/societynews.html>)

13 March 2011

Japanese Nuclear Plant Problems Continue

As you are well aware the Japanese experienced the worst earthquake in their history, followed by a devastating tsunami. These natural disasters have had a serious impact on several Japanese nuclear reactors, principally those at the Fukushima Daiichi site. Although the Health Physics Society has little expertise in nuclear power plant safety, we are concerned about radiation exposures associated with these reactor problems and desire to keep our members and the concerned public advised on current events associated with the Japanese nuclear plants. Consequently, we are recommending that the following sources of useful information. Although we cannot verify the accuracy of all the information that you may find, we believe these sources are generally reliable and trustworthy. As events unfold and the potential radiation exposures become better known, we hope to be able to share additional information with you regarding radiation safety.

- Nuclear Regulatory Commission (<http://www.nrc.gov/>),
- International Atomic Energy Agency (<http://www.iaea.org/>),

- World Health Organization (<http://www.who.int/en/>),
- American Nuclear Society (<http://www.new.ans.org/>),
- International Radiation Protection Association (<http://www.irpa.net/>),
- National Academy of Sciences (<http://www.nationalacademies.org/>),
- Nuclear Energy Agency (<http://www.oecd-nea.org/>) and
- Environmental Protection Agency (<http://www.epa.gov/>)

Additionally, you will find a Facebook icon on our home page that will direct you to the Health Physics Society News Café where we try to post the latest breaking news items, including ones pertinent to the Japanese nuclear situation.

Cartwright, William

From: Jimenez, Manuel *in*
Sent: Monday, April 04, 2011 2:02 PM
To: Cartwright, William
Subject: FW: Japan's Fukushima plant

Bill:

I am new at this thing so I am going to send you what I have – don't know if this is applicable to your request Most if not all is publically available

manny

From: Boggi, Michael *in*
Sent: Friday, March 11, 2011 12:38 PM
To: Boggi, Michael; Clemons-Webb, Candace; Conatser, Richard; Franklin, Carmen; Garry, Steven; Jimenez, Manuel; Keefe, Molly; Lapinsky, George; Martin, Kamishan; Pedersen, Roger; Barnes, Valerie; Fleger, Stephen; Lois, Erasmia; Bongarra, James
Subject: Japan's Fukushima plant

See below, my guess is a station blackout and other malfunctions/failures from the earthquake, possibly even something close to a design basis accident?

Mike

NBC, msnbc.com and news services
updated 12 minutes ago

Key details

- **U.S. Air Force delivers coolant to stricken nuclear plant**
- **Cooling system failed at Fukushima No. 1 plant after quake**
- **Fire reported at Onagawa nuclear facility**

The United States has transported coolant to a Japanese nuclear plant hit by the massive Friday earthquake, Secretary of State Hillary Clinton said.

"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.

1. "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.

The move came after Japanese authorities evacuated thousands of residents from an area around the Fukushima reactor after damage caused by the powerful 8.9 quake that hit the Pacific Rim nation raised fears of a radiation leak. Officials, however, said there was no sign of leakage at present.

Japan's nuclear safety agency said the order applied to about 3,000 people and followed a government emergency declaration at the Fukushima No. 1 power plant northeast of Tokyo after its cooling system failed after the quake.

Work begins

Work has begun on restoring the reactor's cooling function, the Jiji news agency quoted the Trade Ministry as saying, while the Kyodo news agency quoted a Fukushima prefecture official as saying that water levels at the reactor were not at critical levels.

The plant, which is owned by the Tokyo Electric Power Company (TEPCO) and is located in Onahama city, about 170 miles northeast of Tokyo, experienced a mechanical failure in the backup power generation system to supply water needed to cool the reactor. Nuclear reactor cores normally remain hot even after a shutdown.

Tomoko Murakami, leader of the nuclear energy group at Japan's Institute of Energy Economics, said there did not appear to be an imminent danger of a radiation leak.

"Even if fuel rods are exposed, it does not mean they would start melting right away," she said.

"Even if fuel rods melt and the pressure inside the reactor builds up, radiation would not leak as long as the reactor container functions well."

But Mark Hibbs, a nuclear expert at the Carnegie Endowment for International Peace, warned that the situation could turn grave.

"This is no laughing matter," he said, referring to unconfirmed reports that one or more of the emergency diesel generators for the cooling system were not working.

Serious concern

He said there was serious concern in Japan whether the cooling of the core and removal of residual heat could be assured.

"If that does not happen, if heat is not removed, there is a definite danger of a core melt ... fuel will overheat, become damaged and melt down."

TEPCO confirmed that water levels inside the reactors at the Fukushima plant were falling but it was working to maintain water levels to avert the exposure of nuclear fuel rods.

The company has been trying to restore power to its emergency power system so that it could add water inside the reactors, a TEPCO spokesman said.

"There is a falling trend (in water levels) but we have not confirmed an exposure of nuclear fuel rods," a TEPCO spokesman said.

Emergency cooling

The four Japanese nuclear power plants closest to the epicenter of the quake were safely shut down, the United Nations atomic watchdog, the International Atomic Energy Agency, said Friday. Eleven nuclear reactors were automatically shut down in the quake-affected area, the government said.

In a statement, Prime Minister Naoto Kan said: "Parts of nuclear plants were automatically shut down but we haven't confirmed any effects induced by radioactive materials outside the facilities."

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.

Reactors shut down due to the earthquake account for 18 percent of Japan's nuclear power generating capacity.

Planned maintenance

- Japan's nuclear power sector produces about 30 percent of the country's electricity and has been rocked periodically over the past decade by safety concerns. Many reactors are located in earthquake-prone zones such as northeastern Fukushima prefecture and Fukui prefecture on the Japanese coast.

Cartwright, William

From: Jimenez, Manuel *MR*
Sent: Monday, April 04, 2011 2:11 PM
To: Cartwright, William
Subject: FW: REMP Reporting Levels and Fukushima

From: Conatser, Richard *MR*
Sent: Wednesday, March 23, 2011 8:26 AM
To: Werner, Greg; Henderson, Pamela; Dickson, Billy; Bonser, Brian
Cc: Garry, Steven; Pedersen, Roger; Jimenez, Manuel; Clemons-Webb, Candace; Shoop, Undine
Subject: RE: REMP Reporting Levels and Fukushima

All,

I just wanted to send a follow up email to clarify a particular nuance in the email below that may not be obvious on a casual reading. The licensee is only required to report exceeding the REPORTING LEVELS in the Radiological Environmental Monitoring Program when the activity is due to effluents from their facility and it is averaged over a calendar quarter. This is why my original email says:

If a nuclide concentration exceeds the REPORTING LEVES (averaged over a calendar quarter), the licensee may be required to report the data to the NRC within 30 days. The licensee should take the actions listed in their ODCM.

Because the I-131 (and possibly other radionuclides) from Fukushima will elevate the "background," it will reduce the licensee's ability to differentiate releases from their site. Strong data evaluation and analyses are appropriate at all times, and are particularly applicable at this time.

Here is the nuance that may (or may not) be obvious on a casual reading. If the licensee knows that all the activity in a REMP sample is from the Fukushima facility, then a 30-day report is not required. If, however, the licensee is not able to discern whether the activity is from their facility or not, then they would need to follow their ODCM and take the appropriate actions, which may include a 30-day report to the NRC. Lastly, if the activity is from their facility, then the licensee would be required to make a 30-day report to the NRC.

The key issues are summarized below:

1. licensees need to be aware of their REPORTING LEVELS in their ODCMs,
2. the licensee's data evaluation is extremely important to discern plant-related activity from non-plant related activity,
3. licensees should not immediately assume all activity in REMP samples is from Fukushima,
4. licensees need to take the actions as outlined in their ODCMs (this is always true),
5. if a licensee is unable to make a determination whether the activity is plant-related or not, they may choose to make a 30-day Special Report as listed in their ODCM, and
6. if a licensee knows that all the activity is due to Fukushima, then a 30-day Special Report is not required (as listed in their ODCM).

You may wish to pass this along to the Inspectors in your Regions.

Best Regards,

Richard L. Conatser
Health Physicist

4/4/12

Nuclear Regulatory Commission
301-415-4039
Richard.Conatser@NRC.gov

From: Conatser, Richard
Sent: Monday, March 21, 2011 12:18 PM
To: Werner, Greg; Henderson, Pamela; Dickson, Billy; Bonser, Brian
Cc: Garry, Steven; Pedersen, Roger; Jimenez, Manuel; Clemons-Webb, Candace; Shoop, Undine
Subject: REMP Reporting Levels and Fukushima

All,

You may want to pass this along to your Inspectors who will be on inspections during the next couple of months.

The NRC's REMP REPORTING LEVELS may be exceeded as a result of plumes from Fukushima passing over REMP sampling stations. This email contains some unit conversions for your use. The table below shows the default NRC REPORTING LEVEL for I-131 in REMP samples listed in NUREG-1301 (PWRs) and NUREG-1302 (BWRs). It also converts the REPORTING LEVELS to those units commonly used at the plant sites.

I-131 Reporting Level in NUREG 1301 and NUREG-1302

	I-131	Units	I-131	Units
Drinking Water	2	pCi/L	2E-09	uCi/ml
Non-Drinking Water	20	pCi/L	2E-08	uCi/ml
Air	0.9	pCi/m3	9E-13	uCi/cc

These are default values, and the site-specific values will be in the licensees' ODCMs. The REMP REPORTING LEVELS may be exceeded as a result of plumes from Fukushima passing over REMP sampling stations. The REMP results may vary as various puffs/plumes traverse the US. **If** a nuclide concentration exceeds the REPORTING LEVELS (averaged over a calendar quarter), the licensee may be required to report the data to the NRC within 30 days. The licensee should take the actions listed in their ODCM.

Because the I-131 (and possibly other radionuclides) from Fukushima will elevate the "background," it will reduce the licensee's ability to differentiate releases from their site. Strong data evaluation and analyses are appropriate at all times, and are particularly applicable at this time. This is also a good verification of licensee's analytical detection capabilities.

Best Regards,

Richard L. Conatser
Health Physicist
Nuclear Regulatory Commission
301-415-4039
Richard.Conatser@NRC.gov

Cartwright, William

From: Jimenez, Manuel *MR*
Sent: Monday, April 04, 2011 2:12 PM
To: Cartwright, William
Subject: FW: Quick dose perspective

From: Conatser, Richard *MR*
Sent: Wednesday, March 23, 2011 8:47 AM
To: Garry, Steven
Cc: Jimenez, Manuel
Subject: RE: Quick dose perspective

If you assume the concentration values are correct, the doses seem right for an adult exposed to only the drinking water (ingestion) exposure pathway. The dose conversion factor for the infant in RG 1.109 is $1E-2$. If there was any contribution from the inhalation exposure pathway, that would increase the dose. Although I would not expect these increases to impact the 500 rem KI criteria, but I don't have the data to make that conclusion. I thought I had seen direct exposure dose rates of 18 mrem/hr at some offsite locations on some of the news reports. Other than that, it looks good. EPA air monitoring is typically just gross beta. I-131 is much more sensitive, and I have not seen I-131 from EPA RadNet samples.

From: Garry, Steven *MR*
Sent: Wednesday, March 23, 2011 8:32 AM
To: Conatser, Richard
Subject: RE: Quick dose perspective

I am just trying to get a perspective. I did not plan on sharing it, but if asked by a regional inspector, I wanted to be in the know.

From: Conatser, Richard *MR*
Sent: Wednesday, March 23, 2011 8:28 AM
To: Garry, Steven
Subject: RE: Quick dose perspective

What is the intent or how do you plan to use this?

From: Garry, Steven
Sent: Wednesday, March 23, 2011 7:50 AM
To: Jimenez, Manuel; Conatser, Richard
Subject: Quick dose perspective

Here's a quick analysis of public dose information from the Japan links. Would you check it and see if it makes sense?
Thanks

Steve

The highest reported Japan public drinking water measurements are listed below (I expect they have restrictions and are not drinking this water):

The highest I-131 was reported as 58 Bq/kg in drinking water = $1567 \text{ pCi/L} \times 365 \text{ L/yr} \times 2E-3 \text{ mrem/pCi} = 1,144 \text{ mrem/yr}$ adult thyroid dose. NOTE: FDA recommends the public take KI potassium iodide pills if the adult thyroid receives 500 rem dose (yes, 500 rem, not mrem). The thyroid is not very radiosensitive, I vaguely recall it takes 20,000 rem to kill the thyroid for people who receive cancer treatments for thyroid cancer. Too much non-radioactive KI will cause the thyroid to load up with non-radioactive iodine and cause hypothyroidism.

The highest Cs-137 was reported at $18 \text{ Bq/kg} = 486 \text{ pCi/L} \times 365 \text{ L/yr} \times 7\text{E-}5 \text{ mrem/pCi} = 223 \text{ mrem/yr}$ whole body dose

Reference:

http://www.mext.go.jp/component/english/_icsFiles/afieldfile/2011/03/23/1303966_2213w_1.pdf

For direct radiation measurements, Japan has reported the highest dose rate at 5 mrem/hr at 30 km (50 uSv/hr = 5 mrem/hr). This seems high to me.

Reference:

http://www.mext.go.jp/component/english/_icsFiles/afieldfile/2011/03/23/1303997_2310r.pdf

Richard, didn't you say that the west coast plants are just now starting to detect I-131 at extremely low levels on their air samplers?

Here is the EPA air monitoring web site, they reported "miniscule" increases in background data.

<http://www.epa.gov/japan2011/data-updates.html>

<http://www.epa.gov/japan2011/rert/radnet-honolulu-bg.html>

Nelson, Robert

From: Nelson, Robert *MR*
Sent: Monday, April 04, 2011 10:38 AM
To: Purciarello, Gerard
Cc: Morris, Scott
Subject: FYI: Request NRR Contact

Forwarded to you in Greg's absence.

NELSON

From: Nelson, Robert *MR*
Sent: Monday, April 04, 2011 10:37 AM
To: Moore, Scott
Cc: Casto, Greg
Subject: RE: Request NRR Contact

My suggestion is Greg Casto, Balance of Plant Branch, Division of Safety Systems. Branch functional statement follows.

SBPB reviews and evaluates licensing applications involving auxiliary, support, balance of plant systems, new and spent fuel storage, load handling systems, and cranes. In addition, SBPB evaluates plant methods of addressing internal and external flooding, internally and externally generated missiles, high energy line breaks outside containment, and reactor coolant leakage detection. SBPB supports the Division of License Renewal by performing the scoping and screening review for balance of plant systems. For some licensing activities, SBPB staff members manage contracts and function as technical monitors.

NELSON

From: Moore, Scott *1010*
Sent: Friday, April 01, 2011 6:08 PM
To: Nelson, Robert
Cc: Leeds, Eric
Subject: Request NRR Contact

Nelson:

Does NRR have a general contact for Spent Fuel Pools? I took a call about an hour ago from an individual member of the public who wants to discuss (and pass along) info regarding SFPs. I said that someone would get back to her on Monday. She asked that the call-back be between 11-2, or after 5 pm. She's with the Cooperative Citizens Network, and she's likely to have complaints or allegation information (in my conversation, she was all over the place with various issues, and it wasn't clear to me which she's already raised to us or tried to intervene in court).

In general, she wants to know who's "liable" for SFPs if reactors are changing owners (e.g., Maine Yankee, Millstone). Tried to explain that we don't address liability. She has a bunch of other questions re: SFPs.

If you give me a name of a referral staff member, to whom she can talk, I'd be glad to return the call on Monday. Or I can give NRR her name/# and you can call her directly!

Scott
x7875

Cartwright, William

From: Jimenez, Manuel *MR*
Sent: Monday, April 04, 2011 2:05 PM
To: Cartwright, William
Subject: FW: NISA in English - LATEST INFO ON JAPANESE REACTORS / ON-GOING NUCLEAR EMERGENCY

From: Pannier, Stephen *MR*
Sent: Monday, March 14, 2011 10:21 AM
To: King, Mark; Garmon-Candelaria, David
Cc: NRR_DIRS Distribution
Subject: RE: NISA in English - LATEST INFO ON JAPANESE REACTORS / ON-GOING NUCLEAR EMERGENCY

From the most recent TEPCO release, looks like RCIC at Fukushima Daiichi Unit 2 has failed...

<http://www.tepco.co.jp/en/press/corp-com/release/11031403-e.html>

From: King, Mark *MR*
Sent: Monday, March 14, 2011 6:52 AM
To: Garmon-Candelaria, David
Cc: NRR_DIRS Distribution
Subject: FW: NISA in English - LATEST INFO ON JAPANESE REACTORS / ON-GOING NUCLEAR EMERGENCY

FYI

From: King, Mark
Sent: Monday, March 14, 2011 6:50 AM
To: Thomas, Eric
Subject: FW: NISA in English - LATEST INFO ON JAPANESE REACTORS / ON-GOING NUCLEAR EMERGENCY

March 14, 2011

Japanese Nuclear and Industrial Safety Agency (NISA) -

An explosion caused by hydrogen at Unit 3 of Fukushima Dai-ichi NPS (the 2nd release)

TEPCO reported NISA that there was an explosion at Unit 3 of Fukushima Dai-ichi Nuclear Power Station, NPS, at 11:01. ← (Japan time)

According to TEPCO, the containment vessel of the unit was not broken. Detail information is under investigation.

The wind condition is calm and the direction of the wind above the station is the west or the southwest. Residents living within the area at least 20 km radius from Fukushima Dai-ichi NPS are requested to shelter in buildings or houses.

**TEPCO reported to NISA that one person was injured at Fukushima Dai-ichi NPS at this time. TEPCO is preparing to transfer the person to Fukushima Dai-ichi NPS. (Contact Person) Mr. Toshihiro Bannai
Director, International Affairs Office,
NISA/METI**

SOURCE of above info: <http://www.nisa.meti.go.jp/english/files/en20110314-2.pdf>

NOTE: NEWS REPORTS SAY THAT SIX WORKERS WERE INJURED.

Source of below: <http://www.nisa.meti.go.jp/english/files/en20110314-1.pdf>

March 14, 2011

Nuclear and Industrial Safety Agency

Seismic Damage Information(the 22th Release)

(As of 07:30 March 14, 2011)

– Japan Time

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)

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-ichi Units 2 and 4.(18:33 March 11)

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• For Unit 1: Due to Recovery of Residual Heat Removal System(RHR), water in suppression pool is started to cool for cold shut down.(01:24 March 14)

c. Onagawa Nuclear Power Station (Onagawa-cho, Oga-gun and Ishinomaki-shi, Miyagi Prefecture)

(1) The status of operation

Unit 1 (524MWe): automatic shutdown, cold shut down at 0:58, March 12

Unit 2 (825MWe): automatic shutdown

Unit 3 (825MWe): automatic shutdown, cold shut down at 1:17, March 12

(2) Readings of monitoring post

Reading of monitoring post : Changed

MP2 (Monitoring at the North End of Site Boundary)

Approx. 10,000 nGy/h (as of 13:09 March 13)

→7,200 nGy/h (07:20 March 14)

(3) Report concerning other malfunction

• Fire Smoke on the first basement of the Turbine Building was confirmed extinguished at 22:55 on March 11th.

• Article 10* of Act on Special Measures Concerning Nuclear Emergency Preparedness (Unit No. not identified) (13:09 March 13)

2. Action taken by NISA

(March 11)

14:46 Set up of the NISA Emergency Preparedness Headquarters (Tokyo) immediately after the earthquake

15:42: TEPCO reported to NISA in accordance with Article 10 of the Act on Special Measures Concerning Nuclear Emergency Preparedness regarding Fukushima Dai-ichi.

16:36: TEPCO judged the event in accordance with Article 15 of the Act for Special Measures Concerning Nuclear Emergency Preparedness regarding Fukushima Dai-ichi, Units 1 and 2.(notified to NISA at 16:45)

18:08: Unit 1 of Fukushima Dai-ichi notified NISA of the situation of the

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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 (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 Oookuma 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-ichi 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-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.

06:07 Regarding Fukushima Dai-ichi 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-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 (NPS) must evacuate.

-Residents living in the area of 10km radius from Fukushima Dai-ichi 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-ichi 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, Unit 1 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.

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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.

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<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.)

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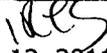
(Contact Person)

Mr. Toshihiro Bannai

Director, International Affairs Office,

NISA/METI

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

From: Wegner, Mary 

Sent: Saturday, March 12, 2011 4:05 PM

To: Beasley, Benjamin; Criscione, Lawrence; King, Mark; Thomas, Eric; Breskovic, Clarence; Bernardo, Robert; Sigmon, Rebecca; Sigmon, Rebecca; Tabatabai, Omid

Subject: NISA in English

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

note MAY you need to **hit refresh** to get the latest info.

Cartwright, William

From: Jimenez, Manuel *MLC*
Sent: Monday, April 04, 2011 2:12 PM
To: Cartwright, William
Subject: FW: japan link

From: Garry, Steven *MLC*
Sent: Wednesday, March 23, 2011 2:04 PM
To: Conatser, Richard; Pedersen, Roger; Jimenez, Manuel; Clemons-Webb, Candace
Subject: japan link

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

26 mrem/hr at the main gate

2/4/16

Jimenez, Manuel

From: Conatser, Richard *inrc*
Sent: Monday, April 04, 2011 3:31 PM
To: Jimenez, Manuel
Subject: Info For Undine

From: info@cnsccsn.gc.ca
Sent: Monday, March 28, 2011 11:42 PM
To: Conatser, Richard
Subject: CNSC releases information on the current radiation dose rates in Canada following the events in Japan

Following the current events at the Fukushima Daiichi nuclear power station in Japan, the CNSC is now providing data from Health Canada's fixed radiation monitors which are located across Canada. These monitors detect radiation levels in the environment which are typically at natural background levels. The data does not show an increase over and above the normal day to day fluctuations. However, very minute levels of isotopes in the radiation have been attributed to the release in Japan. The actual increase in radiation measured was 0.0005 μ Sv, which is so small that it is extremely difficult to measure against normal background radiation. The levels of radiation detected do not pose a health risk to Canadians.

The CNSC has access to this data and continues to monitor it on a daily basis.

Find out more: <http://www.nuclearsafety.gc.ca/eng/mediacentre/updates/march-23-2011-japan-earthquake-radiation-dose-rates-in-canada.cfm>

For all the latest CNSC news, visit the CNSC's homepage at <http://www.nuclearsafety.gc.ca/eng/>

You have received this message as a result of your subscription to the CNSC Web site. To update your subscription preferences or to unsubscribe, please go to: <http://www.nuclearsafety.gc.ca/eng/newsroom/subscription/>

If you experience any difficulties in accessing the CNSC Web site, please contact info@cnsccsn.gc.ca.

Richard L. Conatser
Health Physicist
Nuclear Regulatory Commission
301-415-4039
Richard.Conatser@NRC.gov

King, Mark

From: King, Mark *mark*
Sent: Monday, April 04, 2011 10:57 AM
To: Garmon, David
Subject: Spent Fuel concerns - comments from teh UCS

Dave, did you see this UCS blog item from <http://allthingsnuclear.org/post/4264620731/dr-jaczko-should-listen-to-himself>

News summary item today

Jaczko's Comment On Spent Fuel Storage Faulted. In an opinion piece on the Union of Concerned Scientists' All Things Nuclear (4/1) website, David Wright, wrote, "The opinion reportedly voiced by NRC Chairman Greg Jaczko yesterday about spent fuel safety is not only a flip-flop from his position as of a few years ago, but indicates why the oversight process for nuclear power in the US badly needs to be overhauled." Wright quotes a March 31 press story, that said, Chairman Jaczko "said today there's no meaningful difference in safety between submerging spent nuclear fuel in water and encasing it in concrete casks. ... 'The likelihood of anything happening is so small, it's hard to say that one is safer than the other.'" Jaczko compared it to winning Powerball versus winning a different sort of lottery. Wright goes on to fault the comment on several counts.

FYI – pasted below – full write-up

Insights on Science and Security

APRIL 1, 2011 • 3 COMMENTS

Dr. Jaczko Should Listen to Himself

| by David Wright | nuclear power | nuclear power safety | Japan nuclear |

The opinion reportedly voiced by NRC Chairman Greg Jaczko yesterday about spent fuel safety is not only a flip-flop from his position as of a few years ago, but indicates why the oversight process for nuclear power in the US badly needs to be overhauled.

A March 31 press story reports:

4/4/11

The top U.S. nuclear regulator said today there's no meaningful difference in safety between submerging spent nuclear fuel in water and encasing it in concrete casks.

"We don't have technical information that says it is safer to be in one or the other," Nuclear Regulatory Commission Chairman Gregory Jaczko told a House Appropriations subcommittee. "The likelihood of anything happening is so small, it's hard to say that one is safer than the other. It's like [the odds of] winning the Powerball versus winning another lottery."

There are several problems with this statement.

First, just because two problems are both unlikely to occur does not mean their probability is the same. You still have to look at the *relative* probability of the two occurrences.

Second, it's not just a question of how likely it is that a crisis will occur, but how big the potential impact of that crisis would be.

Third, there IS technical information on this issue.

Analysis that we and others (including the National Academy of Science—see below) have done shows that moving older spent fuel from pools to dry casks reduces both the likelihood and potential impact of an incident affecting spent fuel.

Moreover, in 2008 Dr. Jaczko agreed with that assessment, stating:

The most clear-cut example of an area where additional safety margins can be gained involves additional efforts to move spent nuclear fuel from pools to dry cask storage.

If there's new information that has changed Dr. Jaczko's mind since 2008, he should say what it is. The most recent evidence we've seen—the current crisis in Japan—has instead strengthened our sense that no matter how unlikely you might believe nuclear crises to be, they can and do still happen, and the NRC must take what steps it can to protect the public from such a crisis.

There will always be unforeseeable events that are hard to plan for and prevent. But there's no excuse for not acting on those that are foreseeable and for not taking steps that have already been identified—by the Chairman himself—to make nuclear power safer.

Excerpts from US National Academy of Sciences report "Safety and Security of Commercial Spent Nuclear Fuel Storage" (2006), pp. 68-70:

to know more about dry cask storage over long periods of time. Can anyone point to scholarly articles on the issue?

• Flag

• Like ReplyReply

• **Till** 21 hours ago in reply to FrequentPoster

- You may want to search for: Alvarez et al., "Reducing the Hazards from Stored Spent Power-Reactor Fuel in the United States", *Science and Global Security*, Volume 11, Number 1, Jan-Apr 2003, pp. 1-51. Eric Lyman, a frequent contributor to this blog, is one of the co-authors.

There are two separate issues, however. One relates to the safety for the foreseeable future, and whether fuel should be moved to dry-cask storage more quickly. In Germany, for example, spent fuel is moved to dry cask storage typically after five years, which reduces the immediate risk, because these are truly "passive" containers. Even if the external (air) cooling breaks down completely and for an unlimited time, there is no risk of damage to the containers.

A second, separate issue is the safety of storage "beyond the foreseeable future", i.e. for tens of thousands of years, that will be required. Whether Yucca Mountain, or any other site, is safe to keep dry cask containers over truly geological times, remains an unanswered question. Again, in Germany, there is now a problem with a disused mine, which has started to leak, and where (older) containers have apparently been breached, threatening to contaminate ground water. They now all have to be dug up again, to the cost of billions:

<http://en.wikipedia.org/wiki/S...>

Papers on this second issue are more to do with geology, than with radiation physics. Here is one review: Bodvarsson et al., "Overview of scientific investigations at Yucca Mountain—the potential repository for high-level nuclear waste", *Journal of Contaminant Hydrology* Volume 38, Number 1, 1999, pp. 3-24. I am sure there are newer references, but if the site has to be good for 100,000 years, the science better not be outdated after just a decade...

It is absolutely clear that fuel cannot be in water-cooled wet storage indefinitely. The immediate question for the NRC (and other governments) is whether they are willing to pay now, to put the fuel in dry storage as soon as possible, or whether they want to do it later, in the meantime risking spent-fuel fires like we were witnessing in Fukushima. The "two lotteries" analogy is ludicrous. A better metaphor would be the ingenious idea of saving money by defaulting on your health insurance contributions.

• Flag

• Like ReplyReply

• **Kasha8888** 2 days ago

- Thank you for covering the Live CSPAN TV coverage of this historic Senate Subcommittee Hearing on The Future of the Nuclear Energy Industry. Now we have a 2 hour documentary video of the Government Leaders and Industry Experts revealing the Truth and Lies about this planetary crisis we face now and for generations to come...

Here are just a few summary comments I would like to make:

1. There are currently several hundred thousand homeless people in Japan; this is just the beginning of the longterm humanitarian crisis and reverbations worldwide.

2. When Senator Lindsey Graham (R-NC) asked Gregory Jaczko, Chairman of the Nuclear Regulatory Commission simply and directly: "Is Nuclear Energy Clean Energy?", The NRC Commissioner nervously chuckled briefly, turned his head away to pause and regain his "Professional Governmental Composure" and replied, "I really don't want to address that question." And Senator Graham quickly replied "OK, moving on to..."

3. Union of Concerned Scientists David Lochbaum testified in response to the controversies surrounding the fact that "There is NO Permanent Safe Nuclear Waste Repository Anywhere on the Planet....And the Citizens of the State of Nevada are Rightly Concerned about the Yucca Mountain Fiasco, because We have No Way to Plan for the Safe Storage of Nuclear Radioactive Waste for the next 40,000 Years. Just think about it, our Country is only 250 years old, what do we know about planning for 40,000 years from now!"

4. And Professor Ernest Moniz (former UnderSecretary for Nuclear Energy) now sitting in the Research & Development Federal Funding MVP Endowment Chair, suggested (with a rather sly sinister smirk) that in the soon future "We will be able to solve the Public Acceptance Problem of Nuclear Radioactive Waste Repositories in the United States." by omitting the next sentence, which he carefully did NOT speak publicly at this Senate Public Subcommittee Hearing: ..."By remanding them to Federal Military Bases/ Facilities/Reservations" where the Public has No Say to contradict such Executive National Security Decisions!!!"

That's plenty for consideration now... so I will pause and repeat my "Thank You" for following and making Public this "Criticality Future of Life on our Planet Crisis" that will determine Civilization for our Children and Grand-Children...and... 40,000 years...on Earth...

Sincerely and Concerned Scientist,
Allen Berg
kasha8888

King, Mark

From: King, Mark *MRK*
Sent: Monday, April 04, 2011 12:47 PM
To: Garmon, David
Subject: Questions raised concerning early releases and what monitoring was actually available at the time - FYI

<http://www.internal.nrc.gov/IRM/LIBRARY/ejournal/pdf/ed/ed110404.pdf>

from the above issue --- FYI

Other experts raised questions last week about whether Japanese or U.S. officials had much reliable data at all on early releases from the Fukushima accident.

The Institute for Science and International Security (ISIS), a respected and technically savvy nuclear watchdog group in Washington, said last week that all but one of the permanent monitoring stations around the Fukushima plant were initially knocked out by the earthquake, tsunami and loss of electricity at the site. The group said TEPCO was subsequently able to conduct limited monitoring with a car or cars equipped with measurement devices, but that inevitably there were huge gaps in monitoring coverage.

Further, ISIS said news reports in the early days of the accident wrongly suggested winds consistently blew releases from the plant out to sea. The group noted that subsequent offsite monitoring has found evidence of plumes of radiation over land both to the northwest and southwest of the plant.

"Many [early] releases went partially or completely undetected by on-site monitoring," the group said in a report. "None of the releases from accidents were monitored as to their radioactive contents...."

See full story **at link** above

FYI ---More to add to your list of questions that you should be developing.

2/4/11

King, Mark

From: King, Mark *MRK*
Sent: Monday, April 04, 2011 7:29 AM
To: Haskell, Russell
Subject: RE: 0430 EDT (April 4, 2011) USNRC Earthquake/Tsunami Status Update --- And ET Briefing info FYI

I attached it to the ET briefing report - each day that I had the briefing - when it was a little fresher event and things were changing more rapidly.

Still good to go through it, be up to date, have a copy... as a minimum for yourself... if not for everyone.

Your call on how much to discuss ... or not, too.

Mark

NRC Names Six Members Of US Plant Review Task Force. Power-Gen Worldwide (4/1) reported, "The Nuclear Regulatory Commission (NRC) has named six senior managers and staff to its task force for examining the agency's regulatory requirements, programs, processes, and implementation in light of information from the Fukushima Daiichi site in Japan, following the March 11 earthquake and tsunami." Leading the task force will be "**Dr. Charles Miller**, director of the NRC's Office of Federal and State Materials and Environmental Management Programs. Other task force members are **Daniel Dorman**, deputy director of the Office of Nuclear Material Safety and Safeguards (NMSS); **Jack Grobe**, deputy director of the Office of Nuclear Reactor Regulation (NRR); **Gary Holahan**, deputy director of the Office of New Reactors (NRO); **Nathan Sanfilippo**, executive technical assistant, Office of the Executive Director for Operations; and **Amy Cabbage**, Team Leader, NRO."

On its "E2-Wire" blog, The Hill (4/4, Geman, 21K) noted that Charles Miller is "a chemical engineer who has been with the NRC in various roles for three decades, and the task force will provide initial recommendations publicly July 19. The group will brief the commission in public meetings on May 12 and June 16." In announcing the review team the NRC said "the task force will develop recommendations about whether the commission 'should require immediate enhancements at US reactors and any changes to NRC regulations, inspection procedures, and licensing processes.

Japanese Engineers Use Mixture In Attempt To Stop Radioactive Leak. The AP (4/4, Nakashima, Yamaguchi) reports that in Japan, engineers "pinned their hopes on chemicals, sawdust and shredded newspaper to stop highly radioactive water pouring into the ocean from Japan's tsunami-ravaged" Fukushima Daiichi nuclear plant on Sunday "as officials said it will take several months to bring the crisis under control, the first time they have provided a timetable." Concrete "already failed to stop the tainted water spewing from a crack in a maintenance pit, and the new mixture did not appear to be working either, but engineers said they were not abandoning it."

The CBS Evening News (4/3, story 4, 0:30, Mitchell, 6.1M) reported, "Officials say it could take months to bring the plant under control." Bloomberg News (4/4, Kang, Hur) reports Tepco is "injecting a tracer dye to try to gain more information about where and how fast the water is flowing before continuing efforts to halt it, a spokesman said at a Tokyo press conference."

The Christian Science Monitor (4/4, Spotts, 48K) reports the crisis "may have taken a tiny step closer to resolution on Saturday with the discovery of a crack in a maintenance pit at the plant." The crack "has been identified as the source of radioactive iodine that has been appearing in seawater near the plant for more than a week, according to Japan's Nuclear and Industrial Safety Agency, which notes that workers at the stricken facility are trying to repair the crack with concrete." But it also "raises a question of how many more cracks of similar size have yet to be discovered as workers struggle to assess the full extent of damage to the plant as well as try to stem the release of radioactivity from damaged reactors and spent-fuel pools."

4/4/20

NBC Nightly News (4/3, story 10, 2:10, Cowan, 8.37M) reported, "The problem, the more fresh water that is pumped from barges into cooler reactors, the more radioactive water is expected to leak out, a cycle that will persist for months, experts now say, which makes finding a place to store it all that much more critical. Just about everything is on the table, including the possibility of pumping that radioactive water into tankers."

Government Adviser Sees No Quick End For Disaster. AFP (4/4, Ito) reports there "was no quick end in sight for the world's worst nuclear emergency since the 1986 Chernobyl disaster, warned a government lawmaker who has advised Prime Minister Naoto Kan on the crisis at the six-reactor plant." Goshi Hosono, who "who highlighted the threat from 4.5 metre (15 foot) long spent fuel rods that remain volatile for months and need to be cooled in pools with circulating water," said, "This is going to be a long battle."

The Washington Post (4/4, Nakamura, 572K) reports Japanese officials said the Fukushima Daiichi nuclear plant "could continue to release dangerous radiation into the air for several months...acknowledging their painstakingly slow progress in the battle to regain control of the badly damaged facility." The government's top spokesman, Chief Cabinet Secretary Yukio Edano, "told reporters that the government will continue to examine alternative emergency measures 'to shorten that period,' but he conceded that they 'may not be feasible.'"

US Marines Specializing In Emergency Nuclear Response Arrive In Japan. NBC Nightly News (4/3, story 10, 2:10, Cowan, 8.37M) reported, "More Marines arrived in Japan today, those specializing in nuclear emergency response. And they may have their hands full before they know it. Engineers at the crippled nuclear power plant revealed today that they don't have the equipment they need to monitor high levels of radiation, which casts doubt on just how accurate their measurements have been."

Tepco Discovers Bodies Of Two Workers. The New York Times (4/3, Belson, Tabuchi, 950K) reports Tepco said that "two workers at the" Fukushima Daiichi Nuclear Power Station "who had been missing for several days had been confirmed dead." Tepco said "the workers were found in the basement of the turbine building connected to the plant's No. 4 reactor." The company "did not say how the workers died," but "various news media reports say the men lost blood and went into shock."

The Washington Post (4/4, Nakamura, 572K) reports Tepco "announced that it had retrieved the bodies of two workers who had gone missing March 11. Kazuhiko Kokubo, 24, and Yoshiki Terashima, 21, found Wednesday in the basement of the No. 4 reactor, were killed by the massive earthquake and tsunami that struck the country that day, the company said, not by the subsequent release of radiation."

Fukushima Residents Face Discrimination In The Rest Of Japan. Joshua Hammer, writing for Newsweek (4/4, 1.55M) from Japan, says, "People living near the damaged reactor have already begun to face discrimination. They have been barred from staying in inns outside Fukushima prefecture. ... Some Minamisoma citizens have sought treatment at medical clinics in cities beyond the buffer zone, only to be turned away because they didn't have 'radiation-free' certificates."

Anger At Tepco Continues To Grow. The Washington Post (4/4, Higgins, 572K) reports when "the boss of Tokyo Electric Power Co. checked into a Tokyo hospital last week with high blood pressure, he didn't get any sympathy from Tomishige Maruzoi." Maruzoi "fled his home, less than two miles from the stricken Fukushima Daiichi nuclear complex, on March 12," and "now, like many others, he blames Tepco more than nature's furies for the ruin of his life. He wants the company to pay, not just in cash but also in honor."

Concern Grows About Long Range Future For Region Around Fukushima Daiichi Plant. The Wall Street Journal (4/4, Koh, Wakabayashi, Inada, 2.06M) reports residents in the area around the Fukushima Daiichi plant are increasingly concerned about the long range future of their communities. Some residents are weighing whether to evacuate cities and towns that between contaminated and uncontaminated areas. The Journal notes that it may be difficult for business and residential life to return to normal in these areas.

Ongoing Efforts At Chernobyl May Provide Example For Japan. Under the headline "At Chernobyl, A Warning For Japan," the Washington Post (4/4, Englund, 572K) discusses the devastation and ongoing cleanup at Chernobyl, and the lessons it may hold for Japan, because "the crisis at the Fukushima nuclear plant will at some point be contained -- but then there begins a national project from which there is no exit strategy." Twenty-five years after the explosion at Chernobyl "about 3,000 people work here, in decontaminated areas, maintaining and decommissioning the plant," with an additional 4,000 working nearby to secure the 19-mile deep exclusion zone. "And beyond the exclusion zone lies the vast social structure of evacuees, former emergency workers and their families, farmers whose dwindling villages are contaminated but habitable -- survivors, many in ill health, battling an implacable government for the care and assistance they believe they deserve."

Sunday: "Highly Radioactive Water" Pours Into Pacific From Damaged Nuclear Plant. ABC World News 📺 (4/2, story 4, 1:50, Muir, 8.2M) reported from Japan that "highly radioactive water is pouring into the Pacific Ocean from the newly discovered crack at the nuclear plant." ABC (Karlinsky) added, "The leak is an eight-inch-wide crack deep inside [a] pit right next to reactor two and right alongside the coast. ... Some has polluted the ocean with iodine 131. It's now been detected at unsafe levels at water near the reactor and in waters as far as 24 miles to the south." ABC also said "GE's CEO Jeff Immelt is now on his way to Japan to meet with officials about the troubled reactor, which his company designed. Twenty-three similar reactors are in service across the United States. Meanwhile, thousands of Japanese and American soldiers are making one last attempt to find the more than 16,000 people still missing."

The Washington Post (4/3, Nakamura, 572K) reported that "emergency crews poured concrete into the crack Saturday afternoon and again in the evening," but "water washed it away." They "are considering using a plastic polymer Sunday morning."

NBC Nightly News 📺 (4/2, story 10, 2:15, Holt, 8.37M) reported, "Today Japan's prime minister arrived in the disaster zone. The first time he set foot in the devastated landscape since this tsunami roared ashore three weeks ago, and the view is unsettling. There are so many bodies being recovered, 12,000 at last count that identification is almost impossible." NBC (Cowan) added that the dead are "outnumbered only by those who come to pay their respects. ... Dignity, it seems, still stood strong."

Tokyo Electric Power Locates Bodies Of Two Workers Killed In Tsunami. The AP (4/3, Nakashima, Yamaguchi) reported that Tokyo Electric Power said Saturday that two workers at its troubled nuclear power plant died in the March 11 tsunami, and their bodies were found Wednesday. The company said the bodies "had to be decontaminated," and the news of the two workers' deaths were "delayed out of consideration for the families."

Scientists Using "Atomic Forensics" To Analyze Japanese Reactors From Afar. On its front page, the New York Times (4/3, A1, Broad, 950K) examined how "atomic forensics" developed after the crisis at Three Mile Island have allowed experts far from Japan to have perhaps "the clearest picture of what is happening" in the Fukushima Daiichi nuclear plant. The Times said a French analysis "revealed far more about the condition of the plant's reactors than the Japanese have ever described," while "scientists in Europe and America also know from observing the explosions of hydrogen gas at the plant that the nuclear fuel rods had heated to very dangerous levels, and from radioactive plumes how far the rods had disintegrated." The Times said their analysis also shows Japan has so far "escaped the deadliest outcomes - a complete meltdown of the plant."

Saturday: US Joins Japanese Forces For Massive Search Effort. The CBS Evening News 📺 (4/1, story 6, 1:35, Hill, 6.1M) reported, "It's now been three weeks since the earthquake and tsunami ravaged Japan and three weeks now that the damaged nuclear plant has been leaking radiation. Today we got a new look at the Fukushima plant as Japan's prime minister vowed to get control of the problem."

NBC Nightly News 📺 (4/1, story 8, 2:35, Williams, 8.37M) reported the US military joined "what's being called one of the largest recovery missions ever launched on the planet. An urgent three-day effort to find thousands still unaccounted for who may never be found." NBC (Cowan) said the "massive effort" included "more than

100 helicopters, 65 ships, some 25,000 personnel, all searching for bodies washed ashore on coastlines previously inaccessible"

Numerous Analyses Say Nuclear Power Is Safest Way To Make Electricity. The Washington Post (4/3, Brown, 572K) reported that, according to numerous analyses, "Making electricity from nuclear power turns out to be far less damaging to human health than making it from coal, oil or even clean-burning natural gas...That's even more true if the predicted effects of climate change are thrown in." The Post added that "Compared with nuclear power, coal is responsible for five times as many worker deaths from accidents, 470 times as many deaths due to air pollution among members of the public, and more than 1,000 times as many cases of serious illness, according to a study of the health effects of electricity generation in Europe."

Mark

From: Bernardo, Robert *mb*
Sent: Monday, April 04, 2011 7:20 AM
To: King, Mark; Haskell, Russell
Subject: RE: 0430 EDT (April 4, 2011) USNRC Earthquake/Tsunami Status Update

Dave was sending me a copy each morning, I carried it with me, but it was never discussed when I was briefing last week.

Bob Bernardo
Reactor Systems Engineer
US Nuclear Regulatory Commission
NRR/DIRS/IOEB
Mail Stop: O-7C02A
301-415-2621
Robert.Bernardo@nrc.gov

From: King, Mark
Sent: Monday, April 04, 2011 6:47 AM
To: Haskell, Russell
Cc: Bernardo, Robert
Subject: FW: 0430 EDT (April 4, 2011) USNRC Earthquake/Tsunami Status Update

Russ – I'm not sure if you get these but as ET briefer you should. FYI - **see attached.**
Mark

From: LIA07 Hoc *INSIR*
Sent: Monday, April 04, 2011 5:16 AM
To: LIA07 Hoc
Subject: 0430 EDT (April 4, 2011) USNRC Earthquake/Tsunami Status Update

Attached, please find a 0430 EDT, April 4, 2011 status update from the US Nuclear Regulatory Commission's Emergency Operations Center regarding the impacts of the earthquake/tsunami.

Medina, Veronika

From: Burnell, Scott
Sent: Monday, April 04, 2011 1:22 PM
To: Medina, Veronika
Subject: RE: Interview - WSJ

I've got it.

From: Medina, Veronika
Sent: Monday, April 04, 2011 1:01 PM
To: Burnell, Scott
Subject: FW: Interview - WSJ

Scott,

Can you talk to this reporter? I know Ivonne deals with the license renewal questions, but she is not in this week.

Thanks,
Veronika

From: Janbergs, Holly
Sent: Monday, April 04, 2011 12:42 PM
To: Medina, Veronika
Subject: Interview - WSJ

Ben Casselman from the Wall Street Journal would like to interview someone about the reactor license renewal process and whether there will be any holdups or changes to the process in light of the situation in Japan. He would like to speak to someone today if possible.

214-951-7123 *Jay*
Ben.casselman@wsj.com

Beth Janbergs
Public Affairs Assistant
301-415-8211

L/4/21

Medina, Veronika

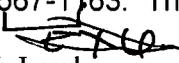
From: Hayden, Elizabeth
Sent: Monday, April 04, 2011 6:28 PM
To: Brenner, Eliot
Cc: Medina, Veronika; Janbergs, Holly
Subject: FW: CNN Request

This is probably OBE, but I just saw this buried in my e-mails. I can call her tomorrow to tell her "no" but we'll put here name on the list (unless it is already there).

Beth Hayden
Senior Advisor
Office of Public Affairs
U.S. Nuclear Regulatory Commission
--- Protecting People and the Environment
301-415-8202
elizabeth.hayden@nrc.gov

From: Loyd, Susan
Sent: Friday, April 01, 2011 1:05 PM
To: Brenner, Eliot; Hayden, Elizabeth
Subject: CNN Request

Just received a call from Marcella Salazar, with CNN. Looking for interview with the Chairman. Please call her at 202-567-1163. Thanks.


Susan K. Loyd
Communications Director
Office of the Chairman
U.S. Nuclear Regulatory Commission
Tele: 301-415-1838
Susan.Loyd@nrc.gov

Medina, Veronika

From: Harrington, Holly
Sent: Monday, April 04, 2011 2:59 PM
To: Medina, Veronika
Subject: RE: Media - Interview - Insur.com

sure

From: Medina, Veronika
Sent: Monday, April 04, 2011 2:57 PM
To: Harrington, Holly
Subject: Media - Interview - Insur.com

Holly,

Can you talk to this reporter? He would like to talk about emergency preparedness. Please let me know.

Thanks,
Veronika

From: Janbergs, Holly
Sent: Monday, April 04, 2011 2:54 PM
To: Medina, Veronika
Subject: Interview - Insur.com

Emmet Pierce from Insur.com (consumer-oriented website mainly focusing on insurance issues) would like to have a quick interview with someone discussing how practical it would be to evacuate an area around nuclear power plants in light of a situation such as is unfolding in Japan. He'd like to talk about emergency preparedness as well. His deadline is Weds at noon.

858-231-4955 
communications@emmetpierce.com

Beth Janbergs
Public Affairs Assistant
301-415-8211

From: Bonaccorso, Amy
To: Bonaccorso, Amy
Subject: FW: Returned a Call...
Date: Monday, April 04, 2011 3:23:00 PM

Talked to him – referred him to EPA.

From: Akstulewicz, Brenda
Sent: Monday, April 04, 2011 2:06 PM
To: Bonaccorso, Amy
Subject: RE: Returned a Call...

Oh, I understand that only too well!

From: Bonaccorso, Amy
Sent: Monday, April 04, 2011 2:03 PM
To: Akstulewicz, Brenda
Subject: RE: Returned a Call...

Sorry – I could not pick up the phone because another caller was talking to me without taking a breath!

From: Akstulewicz, Brenda
Sent: Monday, April 04, 2011 1:59 PM
To: Bonaccorso, Amy
Subject: Returned a Call...

Jerry Dumas
843-754-8392
Radnet

6

Brenda Akstulewicz
Administrative Assistant
Office of Public Affairs
301-415-8209
brenda.akstulewicz@nrc.gov



2/4/24

Bonaccorso, Amy

rel

From: Ruth DeLaMater Bundy or Ralph Charles Whitley, Sr. [backflow.prevention@verizon.net]
Sent: Monday, April 04, 2011 1:11 PM
To: Bonaccorso, Amy
Subject: Someone is reading posts and acting.....
Attachments: 040411at1026amBBC News - Japan nuclear plant releases radioactive water into sea.pdf



Amy:

They USED DYE and found Reactor 2 involved. Leak must be sealed [8 inches estimated] before it splits further up or down or even hatters the wall.

Shatter means one reactor core will go down to NO WATER AND YOU CANNOT KEEP PUMPING WATER PERHAPS WITHOUT SUPER RADIATION.

I still think the tankers can fill up and dump water deep at sea which will make particles sink.

SALT WATER SHOULD BE STOPPED and only fresh water used from tanker trucks after leak is stopped.

Pray.

Ralph



**Ralph Charles Whitley, Sr. CFC032631
Backflow Prevention, Inc.
4532 W. Kennedy Blvd. PMB-276
Tampa, Florida 33609-2042 USA
Phone: (813-286-2333)**

**SCRIBID ID: ralphwhitleysr
SKYPE ID: ralphwhitleysr**

SCRIBD WEB PAGE: <http://www.scribd.com/ralphwhitleysr>

backflow.prevention@verizon.net

4/4/25



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